

# Enhancing evidence-based practice in population health: staff views, barriers and strategies for change

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## Abstract

**Study objective:** To determine barriers and enablers for evidence-based practice (EBP) in population health and potential strategies for change.

**Design:** Self-administered survey of 104 professional staff (response rate, 73%) in the Division of Population Health, South Western Sydney Area Health Service in NSW serving a disadvantaged urban population.

**Main results:** Most respondents (80%) “strongly agreed” or “agreed” that EBP would improve the effectiveness of their efforts in a disadvantaged region. However, more than half of respondents (56%) “strongly agreed” or “agreed” that there is lack of evidence for interventions in population health. Eighty two per cent of respondents “strongly agreed” or “agreed” that training in EBP is important for all population health workers. Those who used evidence also needed a greater capacity to discriminate “good” from “bad” research (85% in agreement). Contradictory policy was cited by one third of respondents as acting against EBP.

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DESPITE CONSIDERABLE RHETORIC promoting evidence-based practice (EBP) in clinical disciplines such as medicine and nursing,<sup>1,2</sup> there has been less attention in population health. Population health services represent a key investment by governments for primary prevention and other population-based approaches to promote health and wellbeing and mitigate the impact of adverse health risk factors (individual, environmental, economic) on individuals, families and communities.<sup>3</sup>

In New South Wales, divisions of population health were established by almost all Area Health Services (AHSs) throughout the 1990s as organisational structures to provide population

## What is known about the topic?

While there is an increasing emphasis on the importance of evidence based practice (EBP) in health care there has been little study of EBP in relation to health professionals working in population health settings.

## What does this paper add?

This paper reports the results of a survey of 76 population health staff in New South Wales. The results suggest these population health professionals recognise the importance of EBP, but identified competing agendas, lack of training and technical support as barriers to implementation. Strategies of infrastructure support, more systematic reviews and commissions for research, and an accurate register of population health research were rated very useful by at least one quarter of respondents, while only one of three workforce capacity building strategies (that is, discriminating between good and bad evidence) was so well rated.

## What are the implications for practitioners?

This study suggests greater support for infrastructure solutions to the barriers. In addition, there is a need to increase awareness about international groups such as Cochrane Health Promotion and Public Health Field (CHPPHF) and Effective Practice and Organisation of Care Group (EPOC) in producing systematic reviews relevant to health promotion, public health and early intervention. The survey tool used may be of interest to others promoting evidence-based health care.

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health services to specified populations.<sup>4</sup> Furthermore, divisions of population health created “critical mass” by bringing together previously disparate services that shared a common perspective and values not always shared by hospital-based staff and services.<sup>4</sup> In the South Western Sydney Area Health Service (SWSAHS), the Division of Population Health was created in 1991 to provide strategic advice about resource allocation to improve overall health outcomes for a designated population of about 800 000, and also to deliver agreed services targeting public health issues particularly affecting marginal and disadvantaged groups. Consistent with the Ottawa Charter,<sup>5</sup> the Division of Population Health in the SWSAHS has attempted to focus on primary and secondary prevention, community development and reorientation of health services. In their work, divisions of population health have most recently been influenced by strategic objectives such as the reduction of primary avoidable mortality and hospitalisations due to ambulatory care-sensitive conditions through the implementation of evidence-based population health interventions.<sup>6-9</sup>

Evidence-based practice in population health has been promoted in Australia with relatively little critique or preparatory research.<sup>10</sup> While previous surveys of physicians,<sup>11-13</sup> surgeons,<sup>14,15</sup> nurses,<sup>16</sup> radiation oncologists<sup>17</sup> and general practitioners<sup>18,19</sup> have identified opportunities to strengthen EBP in these disciplines in Australia, no comparable work has been undertaken in population health. In addition, very little has been pursued internationally. From a study conducted to compare views, awareness and use of evidence among senior staff in all local health cooperatives in Scotland, 96% of the 71 participating public health practitioners agreed that it is the duty of every practitioner to keep up-to-date with current best evidence, yet only 63% used the Cochrane Library as a source for evidence and there was considerable variation in their understanding of key EBP terms.<sup>20</sup> Within a larger needs assessment of capacity for EBP in our region, we determined views of staff in the Division of Population Health in the

### I Characteristics of the participating population health staff (n = 76)

Demographic characteristic	Category	% of sample*
Sex	Men	36%
	Women	64%
Age group	< 40	43%
	≥ 40	53%
Years of practice in population health workforce	< 2 years	24%
	2–5 years	29%
	6–10 years	22%
	11–19 years	16%
	> 20 years	8%
Employment status	Casual	5%
	Temporary part-time	9%
	Temporary full-time	14%
	Permanent part-time	8%
	Permanent full-time	61%
Occupation category	Director	13%
	Co-ordinator/senior manager	26%
	Officer/project staff	61%
Highest level of education reached	Under Masters degree	32%
	Undertaking postgraduate study	11%
	Masters and PhD	30%
	Medical degree	17%
Medical degree	Yes	17%
	No	74%

\* Cumulative percentages may not sum to 100% due to rounding and exclusion of missing data

SWSAHS, barriers to its implementation and reactions to suggestions for organisational support and capacity building.

## Methods

### Survey administration

At the time of conducting our needs assessment, the SWSAHS Division of Population Health employed 106 professional staff organised into ten distinct but well linked services comprising (at that time) drug and alcohol; public health; health promotion; refugee health; aboriginal health; oral health; community paediatrics; academic general practice; epidemiology; and Centre for Health Equity Training Research and Evaluation. All professional staff (other than the two authors) ( $n = 104$ ) first received a one-page letter in August 2002 in advance of our survey to increase response rate.<sup>21</sup> Five days later, questionnaires were mailed with covering letters and reply-paid envelopes. Standardised reminders were instigated with non-responders 5, 24, 31 and 40 days after the initial mail-out. Data were kept strictly confidential.

### Survey instrument

We included items adapted from previous surveys<sup>13,17,22</sup> as well as questions contextualised to local circumstances. To enhance clarity and face validity, the survey questionnaire was reviewed by ten Executive Directors of the Division and three senior public health professionals practising outside the SWSAHS. We report here on five sections of our needs assessment:

- training for evidence-based population health (five items);
  - applicability of EBP in population health (13 items);
  - strengths, weaknesses and gaps in evidence in population health (eight items);
  - barriers discouraging EBP in population health (seven items); and
  - strategies to enhance use of evidence in population health (nine strategies: six infrastructure strategies and three workforce development strategies).
- To assess respondents' views about training in evidence-based population health, we posed five statements, inviting a reaction to each using a five-point Likert scale ("strongly agree", "agree", "not sure", "disagree", "strongly disagree"). These five items were summed to create an overall "EBP predisposition" score (see Data Analysis). To obtain a "reality check" from staff working at the forefront of population health, we next presented thirteen statements about aspects such as applicability, management responsibilities, criticisms and local challenges, inviting a response to each statement, and again providing a five-point Likert scale ("strongly agree", "agree", "not sure", "disagree", "strongly disagree"). Eight controversial statements about EBP in population health were then posed to examine strengths and weaknesses in the evi-

## 2 Participants' views about training in evidence-based population health ( $n=76$ )

Survey statement	Response (%)				
	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
Regular training and/or continuing education is a necessity for all population health staff	39%	50%	7%	3%	1%
Training in EBP is important for all population health workers	20%	62%	9%	7%	2%
Improved research literacy among population health workers will improve the use of EBP	20%	59%	18%	3%	–
All population health workers should have the same level of competency to apply EBP	4%	28%	26%	33%	9%
EBP will not change anything that I do already	4%	7%	22%	53%	13%

EBP = evidence-based practice.

dence for population health, including items to explore the utility of the National Health and Medical Research Council (NHMRC) taxonomy of evidence<sup>23</sup> for population health, gaps in evidence and challenges in research in population health. Seven items were then presented to assess respondents' views about barriers discouraging EBP in population health, using a five-point Likert scale ("strongly agree", "agree", "not sure", "disagree", "strongly disagree"). Staff were also asked to rate their views about each of six infrastructure strategies and three workforce capacity building strategies to enhance use of evidence in population health policy and practice, using a four-point scale ("very useful", "somewhat useful", "a little useful", "use-

less"). Occupational category (director, coordinator/manager, junior staff), gender, age group, years in practice, employment status and academic qualifications were determined.

### Data analysis

To calculate the score for respondents' overall disposition to EBP training in population health, we summed responses to five items after reversing the scale for the fifth item for consistency (range of possible scores, 5 [strongly disagree] to 25 [strongly agree]). Univariate analyses were performed to examine the relationships between this score and predictor variables by using either Student's *t* test or analysis of variance (ANOVA). McNemar's test was used to compare paired proportions.

### 3 Respondents' views about "real-world" applicability of evidence-based practice (EBP) (n = 76)

Survey statement	Response (%)				
	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
EBP will improve the effectiveness of efforts of population health in SWSAHS	21%	59%	20%	–	–
Using EBP will attract more funding to population health	15%	38%	46%	1%	–
EBP provides consistency in decision-making about controversial issues on population health	14%	53%	21%	11%	–
Application of EBP in population health is cost effective	9%	46%	38%	5%	–
EBP improves my autonomy in decision-making	7%	37%	37%	16%	3%
Applying EBP will improve communication between population health workforce and consumers	7%	26%	46%	20%	–
In population health, EBP is the responsibility of management	5%	12%	16%	59%	7%
EBP limits innovative approaches to population health problems	4%	18%	36%	34%	7%
EBP is used against population health	3%	9%	45%	33%	8%
EBP is a good concept but fails in practice	1%	9%	33%	50%	1%
EBP is only applicable in clinical services	1%	4%	15%	55%	22%
Lack of evidence for effectiveness will not change an accepted practice in population health	–	20%	40%	38%	–
In population health, EBP is the responsibility of senior managers not frontline staff in population health	–	5%	17%	63%	13%

## Results

### Response rate and sample characteristics

From 104 eligible staff, we received 76 questionnaires (73% response rate). Box 1 summarises personal and professional characteristics of respondents. In generating tables, cumulative percentages may not sum to 100% due to rounding and exclusion of missing data. There was no association between sex and response rate ( $\chi^2 = 0.44$ ;  $df = 1$ ;  $P = 0.51$ ). Response rate also was not associated with occupational category ( $\chi^2 = 2.81$ ;  $df = 2$ ;  $P = 0.25$ ) or having a medical qualification ( $\chi^2 = 1.65$ ;  $df = 1$ ;  $P = 0.20$ ). Response rates by services within the Division ranged from 60% to 100% (mode = 100%; median = 100%). Nearly two-thirds of the sample were women ( $n = 49$ ; 64%). Less than half ( $n = 27$ ; 43%) were under 40 years of age.

### Views about EBP in population health

Box 2 summarises responses to the five statements about training in evidence-based population health. From a possible range of 5 (strongly

disagree) to 25 (strongly agree), respondents' actual scores for "EBP predisposition" ranged from 9 to 25 (mode = 20; median = 19). There was no significant association between personal or professional predictors and the "EBP predisposition" scores (statistical tests available from the authors on request). Eighty-nine per cent of respondents "agreed" or "strongly agreed" that training in EBP was a "necessity" for all population health staff (Box 2). A minority (11%) "agreed" or "strongly agreed" that EBP would not change "anything" that they already did, however.

Thirteen statements posed to check "reality" for our staff elicited varying responses (Box 3). While 80% "agreed" or "strongly agreed" that EBP would improve the local effectiveness of services, 10% "agreed" or "strongly agreed" that EBP was a "good concept" but failed in practice. Forty-five per cent were "not sure" whether EBP could be used to undermine population health. One in five respondents "agreed" that lack of evidence for effectiveness would not change an accepted practice in population health (Box 3).

#### 4 Respondents' views about strengths, weaknesses and gaps in evidence in population health ( $n = 76$ )

Survey statement	Response (%)				
	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
There is lack of evidence in many areas of population health	11%	45%	28%	15%	–
RCTs cannot accommodate the complexity and flexibility of population health interventions	5%	23%	42%	26%	3%
RCTs are too expensive to evaluate population health interventions	4%	13%	48%	33%	1%
Evidence of population health interventions is usually generalised in unrepresentative populations	4%	12%	51%	28%	–
RCTs are not feasible in population health	3%	7%	42%	45%	3%
EBP provides clear indicators to assess the quality of population health services	1%	42%	41%	12%	–
EBP is of limited value because population health lacks scientific base	–	8%	29%	43%	17%
The NHMRC taxonomy of evidence cannot be applied to population health	–	8%	70%	20%	–

RCT= randomised controlled trial. EBP= evidence-based practice. NHMRC= National Health and Medical Research Council.

Box 4 summarises responses for each of eight controversial statements about EBP in population health. While 56% “agreed” or “strongly agreed” that there is lack of evidence in many areas of population health, at least one quarter either “agreed” or “strongly agreed” that randomised controlled trials to redress this lack of evidence cannot accommodate its complexity. Yet 45% “disagreed”

with the statement that randomised controlled trials are not feasible to generate evidence in population health. One in five “disagreed” with the statement that the NHMRC taxonomy for interventional evidence could not be applied to evidence for the effectiveness of interventions in population health, although the majority (70%) were “not sure”. There was minimal support for the criticism

### 5 Respondents' views of barriers to evidence-based practice (EBP) in population health (n = 76)

Barrier	Response (%)				
	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
Competing agendas	20%	50%	22%	5%	—
Lack of training	9%	67%	13%	7%	—
Lack of time	8%	47%	16%	26%	—
Lack of technical support	7%	61%	17%	13%	—
Lack of facilities	5%	49%	22%	20%	—
Lack of evidence	5%	38%	30%	24%	—
Contradictory policy	4%	30%	50%	13%	—

### 6 Respondents' views about usefulness of nine strategies to enhance use of evidence in population health policy and practice (n = 76)

Survey statement	Response (%)			
	Very useful	Somewhat useful	A little useful	Useless
<b>Infrastructure</b>				
Infrastructure support for population health research that is relevant to practitioners	54%	29%	11%	1%
More systematic reviews that summarise the state of evidence for topics of importance in population health	50%	30%	15%	1%
An accurate register of population health research	48%	34%	13%	1%
More systematic reviews to identify priority research needs	46%	30%	15%	4%
More commissions for research by Area health services and health departments	26%	39%	24%	7%
At least one more peer-reviewed Australian-based journal in which to publish population health research	15%	23%	34%	20%
<b>Workforce capacity building</b>				
Greater ability among users of evidence to discriminate between “good” and “bad” evidence	51%	34%	8%	1%
More population health practitioners with previous record of conducting their own research	16%	45%	29%	5%
Greater rewards from senior management when staff use evidence-based practice approaches	12%	34%	36%	14%

that EBP is of limited value because of the lack of evidence in population health (Box 4).

Respondents' views about seven potential barriers discouraging EBP in population health are given in Box 5. While 70% of respondents "agreed" or "strongly agreed" that "competing agendas" are barriers for EBP in population health, 43% "agreed" or "strongly agreed" that "lack of evidence" is a barrier discouraging EBP in population health ( $\chi^2 = 11.28$ ;  $df = 1$ ;  $P < 0.001$ ).

### **Future strategies**

Box 6 summarises respondents' views about the usefulness of each of six infrastructure strategies and three workforce development strategies to enhance EBP. Five of six infrastructure strategies were rated "very useful" by at least one quarter of respondents while only one of the three workforce capacity-building strategies was so well rated. Greater ability among users of evidence to discriminate between "good" and "bad" evidence was widely endorsed by respondents (51% "very useful", and 34% "somewhat useful"). This is comparable with the views of Australian public health researchers who previously also had endorsed such a strategy (52% "very useful" and 24% "somewhat useful").<sup>22</sup> There was significantly more support for this strategy enhancing the ability of users to judge evidence than for the second most highly ranked capacity-building strategy, namely that more practitioners with their own research track record be employed (51% v 16%) ( $\chi^2 = 13.25$ ;  $df = 1$ ;  $P < 0.001$ ).

### **Discussion**

Although gathered from only one Division of Population Health in New South Wales, our results may prompt broader reflection by those who manage or fund population health services elsewhere in Australia, particularly with respect to barriers to and enablers for EBP. At the time of our survey, the Division was responsible for the largest population in NSW.

We first were heartened to find that population health staff in our survey were positive about the importance of EBP in improving the effectiveness

and impact of their practice. The majority (77%) rejected the view that EBP is only applicable in clinical services, yet a convincing minority (10%) was concerned that EBP is a "good concept" but fails in practice. Nonetheless, the majority (60%) disagreed that EBP is of limited value because EBP lacks a scientific base (Box 4). These views invite strong leadership and strategic development of EBP in population health services to ensure that the workforce itself is more confident in its application. EBP itself appears necessary but insufficient for broader engagement about resource allocation (46% "not sure" that EBP will attract more funding to population health). It is curious that 46% also were "not sure" that EBP will improve communication between the population health workforce and consumers (Box 3). By contrast, current opinion has otherwise been highly persuasive that genuine consumer participation in health decisions requires a sharing of evidence between service providers and consumers.<sup>24</sup> Strategies to support evidence-based decision-making by consumers increasingly are subject to rigorous evaluation using randomised controlled trial designs.<sup>25,26</sup> In due course, evidence from such studies may reassure staff in population health services that EBP improves communication with consumers about population health.

Although there was considerable uncertainty (42% "not sure") (Box 4), a further 48% nevertheless "disagreed" or "strongly disagreed" that randomised controlled trials are not feasible in population health. This suggests that the issue of research (evidence generation) in questions about population health remains vexed. Recently, a review of the NHMRC has suggested the need for more focus on developing research that contributes directly to population health and evidence-based health care.<sup>27</sup> This specific finding supports strategic investment in research to address gaps in evidence that, if unassuaged, would continue to compromise decisions in population health policy and practice. In Canada, there is a wider recognition by its health and medical research funding counterpart (Canadian Institutes of Health Research) that funds must be directed towards areas of relevance and strategic importance.<sup>28</sup>

As reinforced by a qualitative study conducted with a purposeful sample from this same population health workforce,<sup>29</sup> the majority of respondents as reported here also endorsed training in EBP for all staff (Box 2). Given their diversity, however, not all population health practitioners require the same level of competency, nor are they commencing with the same entry competency. We have reported elsewhere that those staff in population health services with medical qualifications have higher levels of understanding of EBM terms<sup>30</sup> and higher use of on-line evidence databases.<sup>31</sup> Given that three-quarters of staff rejected the statement that only senior managers are responsible for EBP (Box 2), further thought is required to address inequities in uptake of EBP in a diverse workforce, particularly to mitigate the development of professional subcultures and unequal access to technological support or continuing education. We speculate that EBP in population health is particularly compromised because there are no standardised “entry criteria” for practice. Nor is there accreditation of graduate courses for population health practitioners. Re-certification including continuing education based on competencies for those employed in population health services is not yet required.

Among staff in this Division of Population Health, we also found a high level of uncertainty about applying the NHMRC taxonomy of evidence in population health, and specifically the feasibility of randomised controlled trials to accommodate the complexity of population health interventions (70% “not sure”) (Box 4). Although the availability of evidence (especially from randomised controlled trials) in primary prevention may currently be less than that to support clinical services, particularly for modern non-communicable threats to population health such as overweight and obesity, awareness about the mandate of international groups such as Cochrane Health Promotion and Public Health Field (CHPPHF) and Effective Practice and Organisation of Care Group (EPOC) in producing systematic reviews relevant to health promotion, public health and early intervention would be usefully raised. Furthermore, both the CHPPHF and EPOC recognise that randomised controlled

trials have not always been conducted to evaluate population health interventions. Hence, both groups include other study designs such as cluster randomised controlled trials, non-randomised cluster controlled trials, controlled before and after and interrupted time series designs in their reviews.<sup>32,33</sup> This approach might reassure staff in population health services. In any case, it is disturbing that one-third agreed that contradictory policy acted against EBP (Box 5).

## Conclusions

In conclusion, our research shows the many contradictions and challenges that confront those who seek to champion EBP in population health. Our survey tool may be of interest to others hoping to strengthen evidence-based health care in their services.

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## Competing interests

The authors declare that they have no competing interests.

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