

Public health systems research: the state of the field

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Abstract

Public health infrastructure provides the building blocks required for the system to achieve public health goals. A systems approach to public health has been suggested as a means to tackle persistent and emerging problems. Systems and infrastructure are attracting increased research attention. A review of the Australian and international literature suggests an absence of empirical evidence about how the system and its component parts does, or should, work and highlights some of the difficulties associated with generating such evidence. It also indicates there is significant scope for further research.

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IF PUBLIC HEALTH is “the organised response by society to protect and promote health, and to prevent illness, injury and disability”,¹ then the public health system is the structure by which this is attempted. Without a “system” there can be no “organised response”. Lenihan claims that “the notion of the public health system is one of the most important concepts to emerge in public health thinking in the past 20 years”.² (p. 165) He argues that taking a systems approach will provide opportunities to tackle persistent and emerging issues in population health. This approach requires research knowledge about the system and its component parts. Many commentators date research interest in public health systems and infrastructure from the publication of the Institute of Medicine (IOM) report on the status of public health in the United States, two decades

What is known about the topic?

Strengthening public health infrastructure has been suggested by a number of authors as an effective strategy for improving population health. Such a project requires robust evidence about the public health system.

What does this paper add?

This paper takes stock of current public health systems research, in Australia and internationally. It outlines what is known about public health systems and their component parts — including inter alia governance, financing, workforce, and leadership. It suggests where there are gaps in the evidence and some of the problems associated with producing such evidence and highlights the urgent need for investment in public health systems research in Australia.

What are the implications?

This paper suggests that there is significant scope for further research on public health systems to inform future development of public health policy.

ago.³ There, public health infrastructure has been defined as “systems, competencies, relationships, and resources that enable performance of the ten Essential Services”.⁴ (p. 46) In Australia, the National Public Health Partnership (NPHP) describes infrastructure as the “building blocks necessary to accomplish the activities of health protection, illness prevention and health promotion”.⁵

The performance of the public health system relies on the strength of its infrastructure and the transformational power of its capacity. Attempting to make judgements about the type and level of infrastructure and capacity required to assure a high performing public health system highlights a number of gaps in our knowledge about that system. These include: what public health is and what it does; optimal ways in which public health should be organised and staffed; how the system could best be resourced; and how success in public health might be measured. These are

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issues addressed through public health systems research.

Wilson asks, "What capacity should the Australian public health system have to effectively respond to known and emerging public health challenges?"⁶ (foreword) These questions can only be answered through public health systems research. Public health systems research (PHSR) is an emerging field; a subset of health services research (HSR) which examines how public health is organised and delivered, how it is financed and what impact it has on the health of populations.⁷

Without research which specifies the adequacy of public health infrastructure and capacity, it is difficult to argue for, and to make, decisions about what investments and other policies are needed. There is need, therefore, to take stock of PHSR. This article outlines some of what is known from PHSR in Australia and internationally, and identifies where there are knowledge gaps.

Methods

This review began by mapping out the potential areas of interest to identify search terms and possible data sources. The literature was searched using the major computerised databases — Proquest/ABI Inform, CINAHL, and MEDLINE. It was necessary to search broadly using combinations of keywords such as "public health", "systems research" and "services research", and then more narrowly using search words such as governance, financing/funding, workforce and workforce development, planning, and leadership. Web-based information such as the E-News from the Public Health Foundation provided alerts to newly published material that might be of relevance. Regular checks of professional sites such as the public health associations of Australia, Canada, the US and the United Kingdom, and the Health Services Research Association of Australia and New Zealand also provided updates.

Literature was limited to that published in English. Because PHSR is an emerging field, it was not necessary to limit searches by date of

publication. More than 90% of the relevant documents have been published in the past decade. The oldest is the IOM's report *The Future of Public Health* published in 1988.³ The focus of this review is on PHSR undertaken in Australia, supplemented by relevant international work. There is an over-representation of work published in the US, as PHSR has been recognised there as a field in its own right. By contrast, in Australia, health services research has struggled for an identity, and the establishment of a professional body, the Health Services Research Association of Australia and New Zealand (HSRAANZ), is relatively recent, while public health researchers have largely focused on describing and evaluating specific health problems and interventions.

Defining public health practice

The most fundamental area of PHSR is work undertaken to define the field. In Australia, the term "public health" has mixed meanings because in political and lay discourse it may be used to mean either personal health care that is funded by the government, or alternatively, "rates and drains". The term "population health" avoids this confusion in referring to the health of populations or the community, although it has been argued that its use obscures the social and economic determinants of health.⁸ Conceptual definitions of public health are plentiful, and generally refer to an organised or systematic response to protect and promote the health of the population. Attempts to operationalise these definitions are more contested and problematic.

The IOM report defines the three core functions of public health as assessment, policy development and assurance.³ These three core functions have, since their publication, provided a framework for many research and practice-based activities. (See Corso et al⁹ for a review of these activities.) However, there were concerns that the core functions and subsequent work on organisational practices and essential elements were designed for the public health sector, and the political environment required research that was meaningful to an external audience.⁹ *Public*

Health in America, a report that sets out what public health does (the definition) and how it does it (10 essential public health services) is an attempt to address this gap.¹⁰

In Australia, the NPHP developed a statement of nine core functions that was endorsed by the Australian Health Ministers' Advisory Council in 2000.¹¹ There has been concern regarding the core functions, and the NPHP notes that they "cannot easily be reconciled with the way public health services are organised and delivered ... [and] a great deal of public health activity fits within one of the core functions (prevent and control communicable diseases and non-communicable diseases and injuries through risk factor reduction, education, screening and other interventions)".¹² (p. 8) The more recent public health classification project is an attempt to develop a framework that encapsulates public health activity in a manner that enables it to be used in a range of applications.¹³

The World Health Organization (WHO) identified public health activities essential in all countries, irrespective of their level of development.¹⁴ WHO argued this work demonstrates that a global consensus was possible, but urged countries to develop their own core functions.¹⁴ A controversial area related to under what conditions, if at all, personal health care services are a function of public health.¹⁴ That report also includes a specific reference to "public health and health systems research", although it ranked 30th in a list of 37 functions.¹⁴ (p. 49)

Similar work has been undertaken by countries including the UK¹⁵ and Canada.¹⁶ In Canada, the National Advisory Committee on Population Health proposed five core functions: health protection; surveillance; disease and injury prevention; population health assessment; and health promotion.¹⁶ To these, Health Canada suggests adding disaster response.¹⁷ These functions, with the exception of disaster response, all appear in the American, English and Australian work. These three countries also make specific reference to empowering communities and/or individuals, developing and sustaining partnerships, and workforce competency. However, there are signif-

icant differences that reflect the particular histories, political environments and understandings of what public health is. For example, only Australia and the UK make reference to targeting vulnerable groups or reducing health inequalities, and the US is alone in including "ensuring personal health care" as a public health function.

The ongoing value of the core functions/essential services is difficult to assess. There appears to be more enthusiasm and/or uptake in the US where they are more frequently discussed in the literature. In the US, the essential public health services were used as a framework for the development of the performance standards.¹⁸ There are efforts at the country level, in association with the WHO's regional offices, to use the Essential Public Health Functions to evaluate their public health systems.^{19,20} In Australia, the statement of core functions was used to assess public health activities in a rural area in one state.²¹ The report's authors noted some gaps in implementation across all the functions. Interestingly, they noted that there was a significant lack of knowledge about the statement of core functions.²¹

Governance and organisational arrangements

The organisation and administration of the public health system is a central concern of PHSR. An issue is the manner in which responsibility for health is split between different spheres of government, which results in service gaps or duplication of effort. Dwyer argues that "the way that the Commonwealth/state split of responsibility is enacted and managed is probably the single most significant problem in health system design".²² As Wilson notes, the challenge is to develop a system that "balances the advantages of regional approaches ... with the benefits of a coordinated central approach".²³ (p. 411) In her review of health system reforms across Australian states and territories, Dwyer sees a trend towards centralisation of governance.²² Rix et al argue that reforms tend to be cyclic, from centralisation, to decentralisation and back again.²⁴ (p. 5)

In Australia, the organisation of public health varies between jurisdictions. These organisational arrangements are subject to change when governments decide to reform or restructure. Research evidence about the impact of these changes is meagre, despite the political rhetoric about efficiency gains and improved effectiveness. Rix et al claim that despite differing organisational structures within each state and territory, “there is no evidence to suggest whether any of these structures produce more effective policy than others”.²⁴ (p. 7)

This knowledge gap is particularly evident at the local level. The NPHP’s review of local government and public health regulation highlights the variations that exist between local governments across Australia.²⁵ This is perhaps not surprising, given that local governments are created under state legislation. However, the authors note, from their consultations, the lack of financial resources and staff at the local level, “it is one thing for local government to have regulatory responsibilities, the capacity to carry them out effectively is another”.²⁵ (p. 5)

There are additional organisational and governance issues that would benefit from research attention. During the 1990s some public health services, such as occupational health and safety, were shifted to other portfolios. Current organisational arrangements in Australia result in public health functions largely sitting, often uneasily, within health authorities. However, neither this nor the possible alternatives are well understood. Corbett²⁶ articulates a number of reasons why Australia might benefit from following the example of the UK, Sweden and Canada in establishing a public health department/agency that is separate from the health department. These benefits include an agency with clear responsibility for public health infrastructure and one with the power to drive whole-of-government responses to public health issues.²⁶ Nor are the implications of splitting responsibility for traditional public health concerns across portfolios other than health well documented. For example, the Federal agency responsible for occupational health and safety (OHS) sits within the Department of

Employment and Workplace Relations, and at state level OHS arrangements vary. The costs and benefits that may be associated with this are not well documented.

Financing

Of all the areas of public health infrastructure, it is financing that is least understood. As Honoré and Amy note, recommendations that infrastructure for public health be adequately financed cannot be implemented given that what constitutes “adequate” is not known.²⁷ In Australia, the most notable attempt to chart public health expenditure was begun by the Australian Institute of Health and Welfare (AIHW) in the late 1990s, and the first analysis of resource allocation for public health over time was done by Deeble for the NPHP.²⁸ Deeble notes that although the actual spending on public health has increased in Australia, the proportion of health expenditure spent on public health has changed very little over the three decades to 1996.²⁸

The AIHW regularly reports public health expenditure data from Federal and state or territory governments, which represents a significant move forward in measuring trends in public health expenditure. The latest report indicated that public health expenditure, as a proportion of total recurrent government health expenditure, remained at a constant 2.5% over the five years to 2003–04.²⁹ Owen and Jorm argued that one of the reasons that public health has been unsuccessful in attracting an increased share of spending is the lack of performance measures.³⁰

Abelson et al evaluated the return on investment in public health across five program areas.³¹ This is the only Australian study of its type, although there are other studies that assess the costs and benefits of particular programs or specific health issues. Using existing data, the report measures the costs of the programs, the attributable reduction in morbidity and mortality, and the overall returns on investment — to both the community and the government.³¹ Abelson et al used conservative estimates in their analysis and found net benefits in all program areas.³¹

There are also questions about what are the best mechanisms for allocating resources. Australia's federal system means that the Commonwealth, state/territory, and local governments all fund public health. Segal and Chin argue that the multiple sources of funding, together with split responsibility for health, result in agencies prioritising their own financial goals over the health of the population.³² In the last decade there have been changes in the financing arrangements between the Commonwealth and states and territories. This has seen a move from multiple specific-purpose payments (SPPs), where states and territories are obliged to expend funds in agreed areas, towards a single pooled fund in the form of Public Health Outcome Funded Agreements (PHOFAs).³³ The Commonwealth claims a government commitment to infrastructure is a key principle underpinning PHOFAs,³⁴ but there is no guarantee. PHSR evidence about the merits of particular funding mechanisms is scarce.

In the US, the Robert Wood Johnson Foundation has recently funded a new project in public health finance. Coordinated by Emory University, one of the key project objectives is to improve the dissemination of PHSR. One of the early published results is a pilot study designed to measure the relationship between financial resourcing and the performance of the 10 essential public health services (EPHS) in a state health department.³⁵ They found no clear relationship between levels of funding in each category and performance scores.³⁵

Planning and priority setting

Lenihan argues that it was the IOM's 1988 report that pointed out the central role of planning in public health.³⁶ As he noted, program planning has existed for a long time but it was the IOM that "suggested the relevance of strategic planning to public health".³⁶ (p. 384)

In the US, the current planning tool attracting attention is Mobilizing for Action Through Planning and Partnerships (MAPP). Developed by the National Association of County and City Health Officials (NACCHO) and the Centre for Disease

Control (CDC), MAPP is available online³⁷ and has been used at the local level. In Australia, the NPHP has developed a planning framework which they hope will be used as a "tool to improve planning and management in public health".³⁸ (p. 1) This outlines the key elements in the planning cycle as: identifying and assessing the determinants of health; appraising the range of possible interventions; and implementing and evaluating interventions.³⁸ Although this differs from the MAPP tool, which has a broader systems focus rather than individual agencies, there are general similarities to do with assessing issues, appraising evidence and taking action.

In Australia, modes of planning for public health vary across jurisdictions. How priorities are set at state/territory level are not consistent, nor is the manner in which these policies are translated into action at the local level. For example, in Victoria the requirement for local governments to develop a municipal public health plan was introduced in 1987. Yet there is no evidence about which approaches to planning are the most effective. In addition, MAPP and the NPHP frameworks provide "how to" tools for planning in public health at the agency or program level. They do not address planning at the system level.

Priority setting occurs at system, agency and program levels. Bradshaw and Schneider define priority setting as "the redeployment of resources in order to maximise benefits. The purpose of priority setting is efficiency and equity".³⁹ (p. 517) There is no consensus in the literature about which model for priority setting is the most appropriate in health care, and it is a field that is increasingly the preserve of economists. In the absence of an agreed model, allocation decisions are often based on historical or political processes.⁴⁰ Segal and Chin review a range of different priority setting models for health.³² They conclude that only two models meet their performance criteria — the Health-Sector-Wide Disease-Based Model (HSW-DBM) and Evidence Based Marginal Analysis (EMBA) which is a refined version of Program Budgeting and Marginal Analysis (PBMA).³² PBMA is the model

receiving increasing coverage in the literature.²¹ However, as Eagar et al note, priority setting is not simply a rational process, it is highly political and is influenced by the stakeholders.⁴¹ Economic approaches can be problematic. They may misconceive the issue or use the wrong data,⁴² or fail to account for the complexity in health services.^{43,44} Mooney⁴⁵ believes that increasing community involvement in the process of decision making would enhance priority setting. As he notes, “to go down this road requires the development of methods to elicit community preferences and communitarian preferences”.⁴⁵ (p. 252)

Workforce

The workforce is a key part of the infrastructure in any public health system. Public health activities are generally labour intensive and workforce costs form the largest percentage of most budgets. Effective public health requires multiple skills to be applied across diverse areas. However, the public health workforce cannot be readily defined. Rotem et al define the workforce as “people who are involved in protecting, promoting and/or restoring the collective health of whole or specific populations”.⁴⁶ (p. 5) It includes public health specialists, professionals/practitioners, and an indirect workforce — that is people who are not specialists but who in the course of their work undertake some public health activities.⁴⁷ In Australia the absence of a clearly articulated public health strategy contributes to the problems associated with defining the workforce.⁴⁷

The PHSR literature identifies a range of problems associated with workforce planning.⁴⁷ On the supply side these issues include: the variety and permeability of occupational groups and categories; that much of the workforce lacks formal public health training; that entry into the workforce does not require specific professional qualifications; and that there are multiple qualification routes into public health. This means that supply cannot simply be measured by counting the number of new graduates.⁴⁸ Public health differs from other health professions because demand is driven by policy objectives and by the

organisation of the public health service rather than by population size. This exacerbates workforce planning issues.⁴⁷

Workforce development research has focused on skills and competencies. Competency-based approaches may be useful in educational settings (for example universities teaching Masters of Public Health) and in workplaces (for developing employment criteria and training programs).⁴⁹ Compiling lists of competencies can be problematic and require consensus to ensure that they are used. They need to be broad enough to be inclusive — too broad and they risk misinterpretation, but too specific and they become complex and unwieldy.⁵⁰ Competencies specifically for application in educational settings have been developed in a number of countries and regions including the US, Europe and Australia. Although they are formulated in different ways, they cover the same general areas of: monitoring and surveillance; disease prevention; health protection and promotion; and health policy. An IOM report identifies eight areas to be included in public health education: informatics; genomics; communication; cultural competence; participatory research; global health; policy and law; and ethics.⁵¹ Rotem et al take a “snapshot” of the labour market by reviewing the advertised vacancies in public health.⁵² They found that while public health knowledge was requested in over 40% of the vacancies, the most commonly mentioned areas were in communication and interpersonal skills (93% and 74%, respectively).⁵² This suggested that although specific public health science skills are important, generic workforce competencies must not be ignored. Competencies for practitioners have also been developed.⁵³ Again, they are generally similar and include: public health science; assessment; program planning, implementation and evaluation; policy and advocacy; research; communication; leadership; and partnership building/maintenance.

Leadership

The literature suggests that leadership is a critical element. However, there is significant unresolved

debate about what leadership is and does, and how the leadership ability of individuals might be predicted and enhanced. In 1994, Roper argued that there were three significant problems facing public health leadership: low morale; skill gaps; and inflexibility in human resources systems.⁵⁴ Over a decade later a lack of leadership was still identified as a problem within public health.⁵⁵ It has been argued that leadership in the public sector differs from that in the private sector because governments face complex problems to which there are no correct answers⁵⁶ and/or because there are multiple stakeholders.⁵⁷ Within public health there is debate about the extent to which public health leadership differs from leadership in other areas. Lists of skills and attributes for public health leaders often feature the same items as generic lists, for example “strategy and foresight”, and “visualise the future”.⁵⁸ However, Turnock argues that there is something particular about leadership in public health because it is trying to bring about social change.⁵⁹ This is a sentiment shared by other authors who suggest that public health leaders need, in addition to general leadership skills, advocacy and political skills and the ability to manage complex systems.^{8,60}

There has been a growth, both internationally and in Australia, in leadership programs. A review of current health leadership development programs internationally concluded that common weaknesses included a focus on vertical programs and limited opportunities for mid-career or senior people.⁶¹ The report argued that leadership development in health needs to be different to other sectors because the ultimate goal is improved health, which is a social outcome.⁶¹ The NPHP suggests that of the different learning models in use, the CDC/UC has the most potential for application in Australia.⁵⁸ Robust evidence about the effectiveness of these programs is required. Learning about leadership is not the same as practising leadership. A study of employer needs in public health identified transferring leadership theory into practice as one of the key unmet needs.⁶² Shortell cautions that current efforts to improve leadership will be

unsuccessful if they focus on career or personal development for individuals but have little impact on organisations.⁶³

Partnership and collaboration

Collaboration, partnership and networking are suggested as ways to strengthen infrastructure and improve system and organisational effectiveness.⁶⁴ However, there is lack of consensus about what these different terms mean. Walker notes that these arrangements fall at different points along a continuum.⁶⁵ There are strategies for improving the likelihood of partnerships and collaborations being successful. Most authors identify leadership or stakeholder support, shared goals, and people with the skills to bring organisations together. Trust, or the quality of relationships, is critical,^{65,66} as is infrastructure support within member organisations.⁶⁷ Acknowledging the barriers or constraints to sustaining partnerships is also important.⁶⁵

In the US during the last decade, two philanthropic organisations jointly funded a large scale infrastructure project — Turning Point: Collaborating for a New Century of Public Health. The goal was to strengthen the public health system with an emphasis on collaboration and partnerships among public health agencies, other government bodies and private sector organisations. Turning Point represents a very significant investment in public health infrastructure. Berkowitz and Nicola, at Turning Point’s National Program Office, suggest that there has been change in all the states involved and these changes often included sectors other than public health.⁶⁸ They report a number of infrastructure and capacity improvements in areas such as collaborative planning and community partnerships.⁶⁸ Mays argues that Turning Point encourages new partnership structures to emerge, although collaborative efforts are often difficult to initiate and sustain.⁶⁹

Socolar⁷⁰ argued that although Turning Point is predicated on collaboration, evidence about the returns from investment in such activity was inconsistent. Jacobson⁷¹ was concerned with the emphasis on partnerships between the public and

private sector. He argued that this is being encouraged without evidence that it is the best model for the organisation of public health. It is clear from this review that there is uncertainty about the costs and benefits of partnership and collaboration.

Performance measurement

Measuring or monitoring performance is a component of processes to improve quality.⁷² While there is a significant amount of literature on quality improvement in health, the focus is generally on specific programs or program areas, or on organisations. Swerissen argued that programmatic or organisational standards are not sufficient in themselves and standards for infrastructure need to be developed.⁷²

In Australia the National Health Performance Committee (NHPC) developed a framework for monitoring performance in the health sector.⁷³ The National Public Health Performance Project has performance indicators specifically for public health,¹² which resulted in public health indicators being added to subsequent NHPC reports.⁷⁴ The NPHP acknowledges the indicators have limitations. They are based on available data, rather than reflecting public health activity.¹² Priorities for indicator development are system capacity and infrastructure.¹² Owen and Jorm identified impediments, such as: difficulties identifying priorities in the absence of a national public health strategy; problems defining the scope of indicators to be included; defining performance when changes in practice may not be reflected in indicators that measure determinants of health and health outcomes; and challenges in developing indicators that can establish causal links between an outcome and a specific activity undertaken by a specific agency.³⁰

In the US, the focus has been on developing performance standards rather than indicators. The most significant project is the National Public Health Performance Standards Program (NPHPSP). The instruments rely on self-assessment by states and local areas. Before their release, testing resulted in a number of recom-

mendations, perhaps the most interesting being that “ongoing research is needed on the relationship of public health system capacity, performance and outcome”.⁷⁵ As Owen and Jorm noted, despite the strengths of the American approach and the potential for application in Australia, if the intention is to use the measures for accountability, then the fact that they use self-reported data is problematic.³⁰ If the primary purpose is improvement then self-assessment, that allows groups of organisations to identify areas of weakness, probably provides the best information.

Discussion

Public health infrastructure and capacity are of interest in Australia. Despite significant population health successes, complex and persistent problems remain — most notably health inequalities. In addition, responsibility is fragmented across spheres of government, and there is significant variation in the systems for delivery. Salinsky and Gursky claim that transformation of the public health system is essential if it is going to meet the challenges of the 21st century.⁷⁶ They argue that this process is hindered by competing priorities, structural diversity across the system, inappropriate and outdated staffing models, and under-resourcing.⁷⁶

To perform well, the public health system requires infrastructure. It also requires system capacity to enable the resources to be maximised. There is agreement in the literature about the importance of, and dynamic relationship between, infrastructure, capacity and performance. However, there is no consensus regarding the component parts of all three, nor the exact nature of the relationship between them. Such characterisations are not simply a matter of esoteric interest for academics, they have political implications. As Halverson notes, “Infrastructure is too frequently associated with the bureaucratic ‘black hole’ where there is never enough money and very little accountability. While few would deny the importance of public health infrastructure, years of neglect and underfunding throughout the country have led me to the conclusion that infrastructure in

competition with categorical public health programs will always go wanting.”¹⁸ (p. vii)

Attempts to map PHSR are difficult because of the diversity of the field. What emerges are several key themes. The first is a recurring issue regarding the tension between health and health care. There is, as Hunter argues, a “fault-line” in health policy between upstream and downstream approaches.⁷⁷ There is reason to be concerned about infrastructure because while public health may lose out to personal care, within public health itself the invisible nature of infrastructure makes it more vulnerable to budget cuts. There needs to be a clear statement about what public health is and what it does that makes sense to those outside public health. Currently the core functions and essential services are most meaningful to those working within the field. In addition, public health should be able to demonstrate its value; that is, the return on investment from public health activities. Finally, it will require leadership particularly at the sector level. It is PHSR that will provide the evidence required for these activities.

The second theme is the absence of data and evidence. A decade ago, an Australian review concluded that infrastructure was characterised by inter alia: a lack of leadership by the health sector; the absence of a national public health policy agreement; and no national systems for evaluation, reviewing or accounting for progress.⁷⁸ In the intervening years limited progress has been made.

Significant gaps in our research knowledge remain. Efforts to redress this may be hampered by changes in funding arrangements in Australia’s peak health funding body, the National Health and Medical Research Council (NHMRC). The NHMRC had, from the early 1990s, a Public Health Research and Development Committee which gave public health a voice within the organisation.⁶⁰ Their recent move to streamline their organisational structure and reorganise their funding based around national health issues such as diabetes, Indigenous health and asthma may deliver identifiable health outcomes and simplify the funding process.⁷⁹ However, this emphasis

may reduce the capacity of public health researchers to secure funding, particularly for research on systems level issues. In other countries, notably the US, following the IOM’s 1988 report, attention has been focused on public health at the local level. With some exceptions, this has not occurred in Australia. Many public health services are delivered at the local level and the majority of the public health workforce are employed locally. The effectiveness of the public health system is largely dependent on local performance.

It would be valuable to identify the critical components of infrastructure and capacity at the local level. This is a notable gap in Australia’s public health systems knowledge. More specifically, there would be value in exploring those factors that people working in the field locally identify as critical. These areas may include: planning and how the planning function at the local level might best be assured; the impact of reform and restructuring on organisational capacity at the local level; the value and costs of partnerships and collaboration; and the role of leadership. More broadly, there would be value in attempting to assess local systems capacity across a range of infrastructure measures.

Conclusion

Public health systems research provides a fundamental contribution to the system. Graham⁸⁰ argued that the multi-disciplinary approach of PHSR offered a framework for tackling health inequalities that acknowledged their multifactorial origins. In addition, PHSR provides a broader evidence-base that includes structural and financial impacts.⁸⁰ Strengthening the public health system is a complex task because of the interdependence of the infrastructure. For example, as Hunter noted, efforts to enhance leadership capacity also require a shared vision of public health and a performance management strategy.⁵⁵ PHSR provides an integrated platform to investigate these multiple components.

The first step in strengthening the system must be the development of a public health systems

research agenda. There are a range of possible issues to examine including: forms of delivery; funding arrangements; establishing what might be the right balance between vertical programs and horizontal system development; the nature of the relationship between capacity and performance; organisational forms; how inter-governmental relations in public health might be organised; approaches to workforce planning and development; and appropriate indicators to reflect system performance. Developing a research agenda has recently been undertaken in the US. Led by the CDC, a consensus approach identified 14 priority research themes.⁸¹ The first item on this agenda was to “determine how public health agency structure affects performance”.⁸¹ (p. 412)

Research is a key part of public health infrastructure. Efforts to strengthen the system will not be successful in the absence of such research. Much of public health research focuses on the impact of programs and policies. This is important but is not adequate by itself. More research is needed on the system and its component parts. This is where the value of public health systems research lies.

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Competing interests

The authors declare that they have no competing interests.

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