



NATIONAL MENTAL HEALTH RESEARCH STRATEGY

BACKGROUND PAPER: Implementation science and health services research (Session 5C)

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Introduction

Health services research is an evolving discipline first recognised and defined in the mid-1960s. Contemporary definitions of health services research reflect a shift from the early focus on access, costs and quality of care, to embrace consideration of the needs of both individuals and populations, and the personal and social factors that impact on health service utilisation and outcomes ([Lohr and Steinwachs, 2002](#)). In 2000, the (now) Academy for Health Services Research and Health Policy in the US proposed the following definition:

Health services research is the multidisciplinary field of scientific investigation that studies how social factors, financing systems, organisational structures and processes, health technologies, and personal behaviours affect access to health care, the quality and cost of health care, and ultimately our health and wellbeing. Its research domains are individuals, families, organisations, institutions, communities and populations ([Lohr and Steinwachs \(2002\)](#), p.16).

Broadly, health services research seeks to strengthen capacity to assess and improve health system performance ([National Academy of Medicine, 2018](#)).

The *implementation science* field ([Eccles et al., 2009](#)) emerged later, through the recognition that efficacious interventions may not be effective when implemented in real-world health service settings and that there may be a significant time lags to their implementation ([Andrews, 1999](#); [Bauer et al., 2015](#)). Implementation science, or implementation research as it is sometimes known, aims to bridge this research-to-practice gap. Formally, it has been defined as:

the scientific study of methods to promote the systematic uptake of clinical research findings and other evidence-based practices into routine practice, and hence to improve the quality (effectiveness, reliability, safety, appropriateness, equity, efficiency) of health care. It includes the study of influences on healthcare professional and organisational behaviour ([Eccles et al., 2009](#)).

Implementation science encompasses a broad range of factors, processes and methods involved in embedding evidence-based practices in policy and practice ([Lobb and Colditz, 2013](#)). Implementation science is sometimes distinguished from translational research, the latter being more focused on the targeted dissemination of information and intervention materials into practice ([Lobb and Colditz, 2013](#); [Wensing and Grol, 2019](#)).

Both health services research and implementation research play a role in improving population health. In short, the results from clinical and health services research cannot impact on population health unless

professionals, service organisations and health care systems can implement potentially beneficial treatments in ways that are effective ‘on the ground’ (Eccles et al., 2009).

Health services research and implementation science are both multidisciplinary activities and both have a broad range of stakeholders with an interest in their findings. Both are of direct interest to decision-makers and those responsible for delivering care. Thus, health services research and implementation science face the dual challenges of producing rigorous evidence about how complex interventions are working in real-world settings that satisfies the expectations of the scientific community across many disciplines, and translating this evidence in ways that are appealing and useful to decision-makers and other stakeholders (Mechanic, 1978; Health Services Research Association of Australia and New Zealand, 2017).

Background

Agendas and priorities for mental health services research and implementation science have been examined and proposed by many commentators. Some selected examples are summarised in Table 1. Importantly, these examples reflect a broad range of perspectives and purposes, and have been based on gathering or reviewing different source materials. They cover perspectives from Australia and elsewhere. They should not be considered representative or exhaustive, and for the most part do not focus on specific need groups or service or intervention types. Rather, they broadly illustrate the diversity of perspectives, considerations and potential directions.

Table 1: Selected examples of priorities in mental health services research and implementation research

Topic and authors	Perspective/source	Priorities
Mental health research priorities in Australia (Christensen et al., 2013) ^a	Compared the goals of funded and published research with stakeholder views ^b	Overall, research funding and publication in mental health increased significantly since the late 1990s. In 2008, evaluation of services accounted for 7% of grant funding for mental health and 9% of published papers. These proportions were largely unchanged from a decade earlier. In contrast, stakeholders ranked evaluation of services in the top three research goals (28%).
Mental health research priorities in Australia: consumers and carers (Banfield et al., 2018) ^a	Views of consumers and carers	Approximately 80% of surveyed consumers and carers rated research into delivery of services as important. Specific areas of focus included: service organisation and delivery; trauma- and recovery-oriented care and peer leadership; and the importance of lived experience in evaluations of services and policy.
Suicide prevention research priorities in Australia (Reifels et al., 2018) ^a	Compared the goals of funded and published research with stakeholder views ^b	Overall, research funding and publication in suicide prevention doubled since the late 1990s. In 2010-2017, evaluation studies accounted for 13% of grant funding for mental health and 6% of published papers (vs. 2% and 9% in 1999-2006, respectively). These proportions were largely unchanged from a decade earlier. Stakeholders ranked evaluation studies as a lower priority than epidemiological and intervention studies (9% in 2017 and 7% in 2006).

Topic and authors	Perspective/source	Priorities
Mental health research priorities for Europe (Wykes et al., 2015) ^a	Scientific experts and stakeholders ^b	<p>Of 6 priority areas, one concerned health- and social-systems research to address quality of care. Areas of focus included:</p> <ul style="list-style-type: none"> • organisation and delivery of healthcare systems • cost-effectiveness of different ways to finance, regulate, organise and deliver services • development and implementation of routine outcome collections.
Productivity Commission's draft Mental Health report (Productivity Commission, 2019c ; Productivity Commission, 2019a ; Productivity Commission, 2019b) ^a	Consultation with stakeholders, stakeholder submissions and data analyses ^b	<p>Recommends health service trials and evaluations, including but not limited to:</p> <ul style="list-style-type: none"> • rigorous evaluation of Medicare Benefits Schedule-rebated psychological therapies (especially, cost-effectiveness), including trial of the benefits of additional sessions • a trial and evaluation of the efficacy of employing dedicated staff to facilitate family-focused practice in State and Territory Government mental health services • small-scale trials of individual placement and support to identify factors that influence cost-effectiveness (e.g. local labour market conditions and participant characteristics) • trial and evaluate innovative system organisation and payment models, e.g. cash out of MBS rebates for allied health professionals and alternative delivery.
Enhancing the impact of implementation strategies (Powell et al., 2019) ^c	Review of implementation science literature	<p>Proposed strategies:</p> <ul style="list-style-type: none"> • enhance methods for designing and tailoring implementation strategies (using, for example, concept mapping, systems dynamics modelling); test them to see if they improve implementation and clinical outcomes • specify and test mechanisms of change, e.g. develop theories about mechanism of change that can be tested; use experimental designs, apply standards for evaluating complex interventions, apply multi-level mediation models • conduct more effectiveness research on implementation strategies to determine: modifiable elements that can increase effectiveness; strategies following failure; determinants of success and failure across different contexts • increase economic evaluations of implementation strategies, to guide decisions regarding feasibility, scalability and sustainability

Topic and authors	Perspective/source	Priorities
		<ul style="list-style-type: none"> improve tracking and reporting of implementation strategies to maximise reproducibility through improving standards for describing and reporting.
<p>Moving mental health services research into the community (Callahan and Hendrie, 2010)</p>	<p>Selected themes in innovative mental health services research</p>	<p>Conduct research in the healthcare sites where people are increasingly receive care (e.g. home-based care for older adults).</p> <p>New research partnerships that reflect the transdisciplinary nature of the interventions and care transitions that occur along an individual's care pathway.</p> <p>New outcome metrics that reflect funding models and definitions of 'value' – e.g. potentially preventable hospitalisations, adequacy of treatment, cost offsets and cost-savings.</p>
<p>Implementation science agenda for child and youth mental health (Williams and Beidas, 2019)^d</p>	<p>Review of studies testing factors associated with implementation in child and youth mental health</p>	<p>Develop causal theories to test associations between determinants and implementation outcomes.</p> <p>Identify a core set of implementation determinants that generalise across contexts and delineate these from context-specific determinants.</p> <p>Use trials and other experimental study designs to test precisely specified causal theories, in terms of targets, mechanisms and outcomes.</p> <p>Careful definition of intervention being tested in terms of its 'active ingredients' and their steps or sequence(s).</p> <p>Develop a repository of psychometrically sound standard measures (implementation outcomes).</p>
<p>Translating e-mental health for depression (Batterham et al., 2015)^d</p>	<p>Review considering barriers and facilitators to uptake of e-mental health in the Australian context</p>	<p>Specific areas of research:</p> <ul style="list-style-type: none"> small scale trials in different populations and settings cost-effectiveness research specifying a broader range of implementation outcomes to be tested testing different service delivery models (e.g. stepped care, clinical staging) testing a range of determinants of success at person-level (e.g. engagement, adherence, enabling and predisposing factors, comorbidities) developing, testing and refining intervention components e.g. user-developed versions, screening and monitoring, balance of self-help and therapist-contact, technological elements

Topic and authors	Perspective/source	Priorities
		<ul style="list-style-type: none"> studying a broader set of clinical and system outcomes, e.g. impacts on productivity, suicidality, comorbidity.
<p>^a The source document outlined priorities for mental health more broadly; those included here map to health services research and/or implementation science.</p> <p>^b Unless noted otherwise, the range of stakeholders included at least several of the following – consumers, carers/family, clinicians, academics and policy makers.</p> <p>^c The source document outlined priorities in healthcare broadly, not specifically for mental health.</p> <p>^d The source document outlined priorities in a specific topic/population within mental health.</p>		

Notwithstanding the variation and non-representativeness of these examples, some themes are apparent:

- In Australia, mental health service evaluations have represented a relatively small share of research funding through major competitive funding schemes and journal publication output. This contrasts with views of stakeholders, including consumers and carers, who more frequently consider this a research priority.
- With respect to mental health services research, priorities include among other things:
 - a greater focus on evaluating the organisation and delivery of healthcare services
 - defining a range of outcome metrics including value-based measures that may be of particular use to decision makers
 - increasing health economic evaluations and statistical modelling to guide decisions about feasibility and scale-up
 - undertaking small scale trials in specific contexts and population subgroups to better inform the implementation of new programs and to inform program refinements before they are rolled out at full scale.
- With respect to implementation research specifically, there remains a need to:
 - further refine the conceptualisation, measurement and empirical understanding of implementation outcomes
 - test precisely specified targets, mechanisms and outcomes.

Challenges and opportunities

A range of factors have been identified as challenges to mental health services research and implementation research. A selection of these is summarised in Table 2.

Table 2: Selected examples of challenges in mental health services research and implementation research

Topic and authors	Challenges
Standards of evidence (McGorry, 2012; Slade et al., 2002)	Rigorous research methods should be pursued, but some questions relevant to health services research and implementation research cannot be, or are not suitable for, investigation using standard randomised controlled trial (RCT) methodologies.

Topic and authors	Challenges
	<p>Alongside the need to develop and apply the most rigorous possible experimental or other research designs to answer a given question, a framework for determining when evidence is 'good enough' to inform decision making is required.</p>
<p>Using health services data for research (Hanson and Levin, 2020)</p>	<p>Health services data pertaining to mental health is collected in many forms, at different levels (e.g. individual, at-risk population, facility, system), using different tools, for different purposes, across different sectors, and are reported at different levels under different arrangements. Challenges to secondary use for research include:</p> <ul style="list-style-type: none"> • what data elements are collected: <ul style="list-style-type: none"> ○ how the problem is defined and measured (e.g. principal problem/diagnosis of interest; comorbidities, severity and functioning) ○ standards for collection and classification of information vary ○ data may be 'incomplete' for many purposes (e.g. population estimates, disparities for population subgroups). • linkage of data across programs and sectors: <ul style="list-style-type: none"> ○ is critical for examining continuity of care and non-(mental) health outcomes, and tracking longer-term outcomes ○ but requires navigation of legal frameworks regarding data ownership and privacy and confidentiality considerations.
<p>Implementation science methodology and advancement (Wensing and Grol, 2019)</p>	<p>No one-size-fits-all response to the determinants of different healthcare problems.</p> <p>Proliferation of untested conceptual models.</p> <p>Stakeholder involvement approaches poorly specified and untested.</p> <p>Rigorous study designs may be undervalued.</p> <p>Lack of guidance regarding mixed methods.</p> <p>Outcome measures lack precision.</p> <p>Funding schemes are largely focused on relevance/size of healthcare burden of the problem. Improvement of healthcare practices is often secondary, leading to lack of infrastructure, critical mass and career pathways.</p>
<p>Challenges to implementation research (Proctor et al., 2009)</p>	<p>Current conceptual models are overly simplistic or lack specification.</p> <p>Need to prioritise the development and use of prospective and experimental designs.</p> <p>Collaborative and interdisciplinary 'networks' require diverse range of disciplines (lived experience, mental health services, health economics, quality improvement, health systems) and need to be better operationalised to ensure equivalent contribution and benefit across participants.</p> <p>Training, capacity building and sustainability are underdeveloped.</p>

The identification of these challenges also focuses attention on developments and opportunities to address them. Some of the identified challenges are being met through methodological advances, such as:

- the use of adapted randomised controlled trial (RCT) and other pragmatic designs best suited to evaluating complex interventions in real world clinical settings (e.g. [Fletcher et al. \(2019\)](#); [Meadows et al. \(2019\)](#))
- the use of cost-effectiveness and comparative effectiveness research to elucidate the strategies and costs of implementation in specific settings, and the use of mathematical modelling to investigate feasibility of rolling out interventions under different scenarios ([Lobb and Colditz, 2013](#));
- applying systems thinking to implementation science problems and utilising methods, such as network analysis, to reflect this ([Lobb and Colditz, 2013](#))
- examining the potential of precision medicine and machine learning techniques to inform the way that healthcare services are organised and delivered ([National Academy of Medicine, 2018](#))
- novel use of administrative data and data linkage to examine quality of healthcare for people with mental disorders across health sectors (e.g. [Sara et al. \(2019\)](#); [Tuesley et al. \(2019\)](#))
- development and testing of user participation in mental health service design and planning (e.g. [Palmer et al. \(2015\)](#)).

Other challenges relate to the optimal composition of research teams. This is particularly important given the range of expertise – including people with lived experience – who may be involved in delivery of an intervention and the types of outcomes that need to be considered. Guidelines, incentives or even requirements for user-engagement are possible tools.

Still other challenges relate to opportunities for funding and capacity-building. Models of research networks and partnership – for example, Practice Research Networks and funded collaborative research centres – are among the options that have been identified ([Proctor et al., 2009](#); [Wensing and Grol, 2019](#)). Funding opportunities that allow the time needed to develop user and community engagement and that enable the evaluation of implementation outcomes beyond short-term intervals have also been called for ([Lobb and Colditz, 2013](#)). Beyond capitalising on opportunities offered through funding schemes, there is a need for a more deliberate and coordinated approach involving the strategic coordination of research agendas and priorities and establishment of infrastructures to sustain these efforts ([National Academy of Medicine, 2018](#)).

Conclusion

Health services research and implementation research are cross-cutting fields. As a result, a broad range of research priorities have been identified, ranging from conceptual and technical advances through to recommendations about specific evaluations and trials that should be conducted. Similarly, challenges to health services research and implementation research in mental health are wide-ranging; however, innovative solutions are emerging.

References

- Andrews G. (1999) Efficacy, Effectiveness and Efficiency in Mental Health Service Delivery. *Australian & New Zealand Journal of Psychiatry* 33: 316-322.
- Banfield MA, Morse AR, Gulliver A, et al. (2018) Mental health research priorities in Australia: a consumer and carer agenda. *Health Research Policy and Systems* 16: 119.
- Batterham P, Sunderland M, Cleave A, et al. (2015) Developing a roadmap for the translation of e-mental health services for depression. *Australian & New Zealand Journal of Psychiatry* 49: 776-784.
- Bauer M, Damschroder L, Hagedorn H, et al. (2015) An introduction to implementation science for the non-specialist. *BMC Psychology* 3: 32.
- Callahan CM and Hendrie HC. (2010) Mental Health Services Research: Moving From Academia to the Community. *The American Journal of Geriatric Psychiatry* 18: 460–463.
- Christensen H, Batterham PJ, Griffiths KM, et al. (2013) Research priorities in mental health. *Australian & New Zealand Journal of Psychiatry* 47: 355-362.
- Eccles MP, Armstrong D, Baker R, et al. (2009) An implementation research agenda. *Implementation Science* 4: 18.
- Fletcher S, Chondros P, Palmer V, et al. (2019) Link-me: Protocol for a Randomised Controlled Trial of a Systematic Approach to Stepped Mental Health Care in Primary Care. *Contemporary Clinical Trials* 78: 63-75.
- Hanson A and Levin BL. (2020) Challenges with Behavioral Health Services Research Data. In: Levin BL and Hanson A (eds) *Foundations of Behavioral Health*. Cham: Springer International Publishing, 119-137.
- Health Services Research Association of Australia and New Zealand. (2017) *What is HSR?* Available at: <https://www.hsraanz.org/executive-members-2/#1554883983574-6-5>.
- Lobb R and Colditz G. (2013) Implementation science and its application to population health. *Annual Review of Public Health* 34: 235-251.
- Lohr KN and Steinwachs DM. (2002) Health Services Research: An Evolving Definition of the Field. *Health Services Research* 37: 15-17.
- McGorry P. (2012) At Issue: Cochrane, Early Intervention, and Mental Health Reform: Analysis, Paralysis, or Evidence-Informed Progress? *Schizophrenia Bulletin* 38: 221-224.
- Meadows G, Brophy L, Shawyer F, et al. (2019) REFOCUS-PULSAR recovery-oriented practice training in specialist mental health care: a stepped-wedge cluster randomised controlled trial. *Lancet Psychiatry* 6: 103-114.
- Mechanic D. (1978) Prospects and Problems in Health Services Research. *The Milbank Memorial Fund Quarterly. Health and Society* 56: 127-139.
- National Academy of Medicine. (2018) *The Future of Health Services Research: Advancing Health Systems Research and Practice in the United States*, Washington (DC): National Academies Press (US).
- Palmer V, Chondros P, Piper D, et al. (2015) The CORE Study Protocol: A Stepped Wedge Cluster Randomised Controlled Trial to Test a Co-Design Technique to Optimise Psychosocial Recovery Outcomes for People Affected by Mental Illness in the Community Mental Health Setting. *BMJ Open* 5: e006688.

- Powell BJ, Fernandez ME, Williams NJ, et al. (2019) Enhancing the Impact of Implementation Strategies in Healthcare: A Research Agenda. *Frontiers in Public Health* 7.
- Proctor EK, Landsverk J, Aarons G, et al. (2009) Implementation Research in Mental Health Services: an Emerging Science with Conceptual, Methodological, and Training challenges. *Administration and Policy in Mental Health and Mental Health Services Research* 36: 24-34.
- Productivity Commission. (2019a) Productivity Commission: Mental Health Draft Report. Volume 1. Canberra: Productivity Commission.
- Productivity Commission. (2019b) Productivity Commission: Mental Health Draft Report. Volume 2. Canberra: Productivity Commission.
- Productivity Commission. (2019c) Productivity Commission: Mental Health Draft Report. Overview & Recommendations. Canberra: Productivity Commission.
- Reifels L, Ftanou M, Krysinska K, et al. (2018) Research Priorities in Suicide Prevention: Review of Australian Research from 2010–2017 Highlights Continued Need for Intervention Research. *International Journal of Environmental Research and Public Health* 15: 807.
- Sara G, Arumuganathan M, Chen W, et al. (2019) Cohort profile: Mental Health Living Longer: a population-wide data linkage to understand and reduce premature mortality in mental health service users in New South Wales, Australia. *BMJ Open* 9: e033588.
- Slade M, Kuipers E and Priebe S. (2002) Mental health services research methodology. *International Review of Psychiatry* 14: 12-18.
- Tuesley K, Jordan S, Siskind D, et al. (2019) Colorectal, cervical and prostate cancer screening in Australians with severe mental illness: Retrospective nation-wide cohort study. *Australian & New Zealand Journal of Psychiatry* 53: 550-558.
- Wensing M and Grol R. (2019) Knowledge translation in health: how implementation science could contribute more. *BMC Medicine* 17: 88.
- Williams N and Beidas R. (2019) Annual Research Review: The state of implementation science in child psychology and psychiatry: a review and suggestions to advance the field. *The Journal of Child Psychology and Psychiatry* 60: 430-450.
- Wykes T, Haro JM, Belli SR, et al. (2015) Mental health research priorities for Europe. *The Lancet Psychiatry* 2: 1036-1042.