Title

Routine outcome measurement in Australia

Authors and affiliations

Philip Burgess¹

Jane Pirkis²

Tim Coombs³

1. Queensland Centre for Mental Health Research
School of Population Health
University of Queensland
Brisbane
AUSTRALIA
2. Centre for Mental Health
Melbourne School of Population and Global Health
University of Melbourne
Melbourne
AUSTRALIA
3. New South Wales Institute of Psychiatry
Parramatta
AUSTRALIA

Correspondence

Philip Burgess
Queensland Centre for Mental Health Research
Level 3 Dawson House, The Park
Wacol
Queensland 4076
AUSTRALIA

Phone: +61 (0) 419 343 303; Email: p.burgess@uq.edu.au

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Abstract

Australia has been implementing routine outcome measurement in its specialised public sector mental health services for over a decade. It uses a range of clinician-rated and consumer-rated measures that are administered at set times during episodes of inpatient, ambulatory and community residential episodes of care. Routine outcome measurement is now embedded in service delivery, and data are made available in a variety of ways to different audiences. These data are used by policy-makers and planners to inform decisions about system-wide reforms, by service managers to monitor quality and effectiveness, and by clinicians to guide clinical decision-making and to promote dialogue with consumers. Consumers, carers and the general community can use these data to ensure that services are accountable for the care they deliver. This paper describes the status quo in Australia with respect to routine outcome measurement, discusses the factors that led to its successful implementation, and considers the steps that are necessary for its continued development.

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Australia has been routinely collecting, analysing and reporting on outcomes for consumers of mental health services for over a decade. This paper begins by outlining our role in routine outcome measurement. It then describes the current state of play in routine outcome measurement in Australia, discussing the nature and scope of our outcomes collection and the way in which our outcome data are collected. It then looks backwards, and describes the policy context within which routine outcome measurement was introduced, the process by which we got to the point of this being a national endeavor, and some of the factors that have helped and hindered our efforts. It then looks forwards, discussing reactions to routine outcome measurement, and describing some of the steps in the process for taking routine outcome measurement into the future. It concludes with some reflections that might assist others wishing to implement routine outcome measurement on a national scale.

Our role in routine outcome measurement

As authors, we felt that it was important to declare our hands at the beginning of the paper. We have been involved in routine outcome measurement since its inception in Australia. In late 2003, we were contracted by the Australian Government’s Department of Health and Ageing (now the Department of Health) to form a consortium known as the Australian Mental Health Outcomes and Classification Network (AMHOCN). Through AMHOCN, we have been responsible for the training and service development necessary to get routine outcome measurement off the ground and to see it embedded in serviced delivery, for managing the high volumes of outcome data generated, and for analysing and reporting on these data in a meaningful manner. More detail about AMHOCN and about its role in these activities is provided throughout the course of this paper, and additional information is available in other publications(Burgess, Coombs, Clarke, Dickson, & Pirkis, 2012) and on our website (<http://amhocn.org/>).

Routine outcome measurement in Australia today

The service context

In Australia, specialised public sector mental health services are required to collect data on outcomes for their consumers. Specialised public sector mental health services are the responsibility of our state and territory governments which fund and generally deliver them. They tend to be organised by geographical area, and include an integrated mix of inpatient, ambulatory and community residential services. These services deliver care across the lifespan, mostly through distinct units and teams that cater for children and adolescents, general adults and older people. These services provide this care at no cost to the consumer, and are recovery oriented in their focus. They employ staff from a mix of disciplines – notably psychiatrists, mental health nurses, psychologists, social workers and other allied health professionals – who have specialist training in the assessment and treatment of mental disorders.

The consumers receiving care from these services presented with a range of severe and disabling conditions, most notably schizophrenia (which is the principal diagnosis in 15.5% of inpatient admissions, 24.6% of community contacts and 44.0% of residential episodes). Depressive episode is also common in the former two settings, accounting for 16.0% of inpatient admissions and 11.2% of community contacts (Australian Institute of Health and Welfare, 2014). These figures are dominated by diagnoses for adults and older persons who make up the vast majority of consumers; children and adolescents share many of these diagnoses but are more likely to have behavioural disorders.

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Mental health outcome measures used

Routine outcome measurement in Australia has been implemented under the National Outcomes and Casemix Collection (NOCC). Specialised public sector mental health services collect consumer outcome data according to the NOCC protocol. Nine outcome measures are specified for use under this protocol, and these are summarised in Table 1 (Australian Mental Health Outcomes and Classification Network, 2013; Pirkis, Burgess, Kirk, Dodson, & Coombs, 2005; Pirkis, Burgess, Kirk, Dodson, Coombs, et al., 2005). The nine measures were selected following literature reviews, consultations with consumers and other stakeholders, and empirical field trials (described in more detail below).

The nine measures differ depending on the target age group of the particular service setting in which they are administered. In services that provide care for children and adolescents, the measures are the Health of the Nation Outcome Scales for Children and Adolescents (HoNOSCA) (Gowers, Bailey-Rogers, Shore, & Levine, 2000; Gowers, Harrington, Whitton, Beevor, et al., 1999; Gowers, Harrington, Whitton, Lelliott, et al., 1999), the Children’s Global Assessment Scale (CGAS) (Schaffer, 1983), and the Strengths and Difficulties Questionnaire (SDQ) (R. Goodman, 1997). In adult services, the measures are the Health of the Nation Outcome Scales (HoNOS) (Wing et al., 1998; Wing, Lelliott, & Beevor, 2000), the Life Skills Profile (LSP) (Parker, Rosen, Emdur, & Hadzi-Pavlovic, 1991; Rosen, Hadzi-Pavlovic, & Parker, 1989), and, depending on the state or territory in which the service is located, the Mental Health Inventory (MHI) (Veit & Ware, 1983), the Behavior and Symptom Identification Scale 32 (BASIS-32®) (Eisen, Dill, & Grob, 1994; Eisen, Grob, & Klein, 1986), or the Kessler-10 (K-10) (Kessler et al., 2002). Services that cater for older people also use the LSP and a selection from the MHI, the BASIS-32® and the K-10, as well as the Health of the Nation Outcome Scales 65+ (HoNOS65+) (Burns et al., 1999). Additional assessments are also made under the NOCC protocol, either to provide context for the outcome data (e.g., principal diagnosis, mental health legal status are collected in all service settings) or to

progress related work in the area of casemix development (e.g., the Resource Utilisation Groups – Activities of Daily Living [RUG-ADL] (Fries et al., 1994) is used in services that cater for older consumers), but these are not discussed further here.

Collectively, the above outcome measures assess constructs such as levels of functioning, symptomatology and psychological distress, and overall mental health status. All of these measures are brief. The majority are rated by clinicians. In services targeting adults and older persons, the exceptions are the MHI, the BASIS-32® and the K-10, all of which are rated by the consumer him or herself. In child and adolescent settings, the exception is the SDQ. The SDQ has various versions, several of which are included in the NOCC suite (a parent report measure for children aged 4-10, and a parent report measure and a consumer self-report measure for adolescents aged 11-17).

Administration of outcome measures

The NOCC protocol requires that the above outcome measures are administered during given 'episodes of care', at particular 'collection occasions'. An episode is defined as '... a more or less continuous period of contact between a consumer and a mental health service organisation that occurs within one mental health service setting (e.g., inpatient, ambulatory, community residential)' (Australian Mental Health Outcomes and Classification Network, 2013). Collection occasions occur at the beginning and end of a given episode (i.e., at admission and discharge), and, in the case of lengthy episodes, at a designated review point (usually 91 days) (Australian Mental Health Outcomes and Classification Network, 2013).

In the main, the rating period covered by any given measure is that specified by the developers of the measure. There are some exceptions, however, which relate to minimising the potential overlap between rating periods and, in the case of clinician-rated measures, maximising the

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likelihood that the person making the rating will have sufficient information about the full period in question. Table 2 shows the collection occasions at which given outcome measures are administered, indicating the rating period covered in each case.

Collation, analysis and reporting of outcome data

When consumers present for care at the given collection occasions, clinicians are mandated to assess them using the relevant clinician-rated outcome measures. Clinicians are also expected to offer consumers a self-report measures so that they can rate themselves; the completion of these self-report measures, however, is not mandatory. Data from these assessments are collected at the local service level, and then collated by the state or territory. States and territories then submit these data to the Australian Government, via AMHOCN. Various checks of data completion and validity occur at each step in the process.

AMHOCN has established mechanisms for reporting on outcomes at a range of levels. At the highest level, it provides national- and state/territory-level snapshots of outcomes achieved by producing standard reports which are available through a reports portal. These reports are automated and accessible and allow users to search for particular standard tables that partition the data by age group (children/adolescents, adults and older persons) and service setting (inpatient, community residential and ambulatory), and provide a number of different statistical overviews of outcome data (e.g., the change in scores on various measures across the course of given episodes). At a more micro level, AMHOCN has established a decision support tool which enables clinicians to compare outcomes for their own individual consumers with normative data on ‘like’ consumers around Australia. The decision support tool is designed to maximise the clinical and service management utility of outcome measurement. Both the standard reports and the decision support tool are available online at the AMHOCN website (<http://amhocn.org/>) and rely on data cube technology.

Completion of outcome measurement

Around 85% of all specialised public sector mental health services submit outcome data (Department of Health and Ageing, 2013). Table 3 shows that in 2012-13 outcome measures were administered at 278,581 identified collection occasions in these services (75,637 in inpatient settings, 5,148 in community residential settings, and 197,796 in ambulatory settings). These numbers represent an underestimate because in that year one state (Victoria) did not submit data.

Table 3 also shows that, for the most part, when a collection occasion is identified an appropriate outcome measure is administered. Clinician-rated measures (particularly the HoNOS family of measures) are administered at a much greater rate than consumer-rated measures. In many instances, the HoNOS and its child and adolescent and older persons equivalents are administered on over 90% of collection occasions; the lowest percentage is 40% and this is an outlier, occurring at a relatively infrequent collection occasion (discharge in episodes of community residential care). By contrast, the highest rate for the consumer self-report measures is 69%, and the lowest is less than 10% (Australian Institute of Health and Welfare, 2014).

Some caution should be exercised in interpreting the generally positive picture presented in Table 3. As noted, it represents the outcome measurement that is occurring at identified collection occasions. It does not reflect potential collection occasions which are missed by clinicians. These 'missed' collection occasions can only be identified by matching the NOCC dataset to routinely-collected activity datasets, which is a major exercise. We did this recently to provide input into a review of routine outcome measurement in Australia (National Mental Health Information Development Expert Advisory Panel, 2013) discussed in more detail later.

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We aggregated observed collection occasions into ‘matched pairs’ bounding the beginning and end of known episodes of care, and estimated that data on outcomes were available for 34% of inpatient episodes where outcomes were assessed at admission and discharge, 16% of ambulatory episodes where outcomes were assessed at admission and discharge, and 27% of ambulatory episodes where outcomes were assessed at admission and review (National Mental Health Information Development Expert Advisory Panel, 2013).

Table 3 shows that completion rates are lowest in ambulatory episodes, particularly at discharge and particularly for consumer self-report measures. This has clear implications for the potential to aggregate collection occasions to matched pairs and therefore to determine whether consumers’ symptomatology or levels of functioning have improved during the course of the episode. When we conducted further analysis of ambulatory episodes for the review of routine outcome measurement (National Mental Health Information Development Expert Advisory Panel, 2013), we found that matched pairs of ratings were available for 3% of very brief episodes (1-14 days), 13% of short term episodes (15-91 days) and 45% for medium to longer term episodes. The lack of data for consumers who have very brief episodes is of concern because 41% of consumers only have this type of episode. Having said that, these episodes account for only 6% of the overall ‘share’ of community care (as measured by service activity), which means that consumers who require comparatively greater levels of resources are the ones who are more likely to have outcome data.

What do the data tell us?

The above completion data are useful for setting the context and assisting with interpretation, but ultimately the most important data relate to the outcomes achieved for consumers. Figure 1 presents outcome data for the three most common types of episodes using data from the HoNOS, HoNOSCA and HoNOS65+. Specifically, it shows the proportions of episodes in which

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3 consumers show significant improvement, no significant change and significant deterioration for
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5 completed inpatient and community episodes (Groups A and B) and ongoing community
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7 episodes (Group C). The magnitude of change is determined using the effect size statistic, which
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9 is based on the ratio of scores at the beginning and end of the episode to the standard deviation
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11 of the score at the beginning of the episode (Burgess, Pirkis, & Coombs, 2009). An effect size of
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13 greater than or equal to +0.5 equates to significant improvement, an effect size less than or
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15 equal to -0.5 equates to significant deterioration, and an effect size of between -0.5 and +0.5
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17 equates to no change (Department of Health and Ageing, 2013; Mental Health Standing
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19 Committee of the Standing Council on Health, 2012; National Mental Health Information
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21 Development Expert Advisory Panel, 2013).
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25 Not surprisingly, Figure 1 shows that the patterns of change on outcome measures vary by
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27 episode type. In inpatient settings, seventy two per cent of completed episodes (Group A) are
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29 associated with significant improvement as evidenced by the consumer experiencing a reduction
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31 in symptoms that led to his or her hospitalisation. In most of the remainder (23%), the consumer
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33 is discharged having made no change in this regard, and in a small proportion of episodes (5%)
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35 the consumer's condition has worsened at discharge. These figures point to the need for co-
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37 ordination between inpatient and ambulatory services to ensure that each hospital admission is
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39 followed by comprehensive community care (Australian Institute of Health and Welfare, 2014;
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41 Department of Health and Ageing, 2013; Mental Health Standing Committee of the Standing
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43 Council on Health, 2012; National Mental Health Information Development Expert Advisory
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45 Panel, 2013).
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51 In the inpatient setting, the majority of people are admitted with acute symptoms and, as noted
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53 above, in most cases these symptoms resolve. The picture is more complex in ambulatory
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55 settings because of the greater variety of consumers' needs. In ambulatory settings, some
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57 consumers receive relatively short-term care, beginning and ending an episode within the year
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(Group B), whereas others are in longer-term, ongoing care because they are affected by illnesses that are persistent or episodic (Group C). Fifty one per cent of the former group experience significant clinical improvement, 45% experience no change, and 4% deteriorate. In the latter group, 26% show significant improvement, 58% demonstrate no change, and 16% deteriorate. It is important to note that for consumers in this group no change may in fact be a good outcome because it indicates that they have maintained their current level and their symptoms have not worsened (Australian Institute of Health and Welfare, 2014; Department of Health and Ageing, 2013; Mental Health Standing Committee of the Standing Council on Health, 2012; National Mental Health Information Development Expert Advisory Panel, 2013).

Looking backwards: The journey to this point

The policy environment

To appreciate how Australia got to the point it is at today with routine outcome measurement, it is necessary to understand the policy framework that has underpinned reforms that have occurred in specialised public sector mental health services (and other elements of the mental health system) over the past 20 years.

Mental health system reform in Australia has been guided by the National Mental Health Strategy which represents a commitment by the Australian Government and the eight state and territory governments, as the key funders of mental health services and programs, to reduce the prevalence and severity of mental disorders. The Strategy began with the endorsement by the nine health ministers of the *National Mental Health Policy* in 1992 (Australian Health Ministers, 1992). It is now reflected in a range of policy and planning documents that outline priority directions in mental health reform that have been agreed to by all jurisdictions. In recent times, several of these have been signed off by first ministers (i.e., the Prime Minister for the Australian

Government and the Premier or Chief Minister for the state and territory governments) in recognition of the fact that mental health is influenced by activities and programs in sectors beyond health (e.g., justice, housing, employment).

In its early stages, the National Mental Health Strategy focused almost exclusively on specialised public sector mental health services. At that time, deinstitutionalisation of traditional, stand-alone psychiatric hospitals was underway, but there was still a considerable reliance on these as settings for care. The early years of the Strategy saw these replaced by the inpatient units located in general hospitals and the greater range of ambulatory and residential community options that characterise the specialised public mental health sector today. These changes meant that care was delivered in much less restrictive and less stigmatising settings, and, as the new system settled the focus of the National Mental Health Strategy expanded to include other sectors within and outside mental health.

The above reconfiguration of specialised public sector services helped pave the way for routine outcome measurement. Three other elements of the National Mental Health Strategy also assisted with this process. The first of these was the recognition of the complementary roles of the Australian Government and the state and territory governments. The second was an emphasis on service improvement, originally embodied in notions of quality and effectiveness, and increasingly now taking into account concepts like the extent to which services promote recovery. This has been operationalised through processes like accreditation of services against a set of service standards (Australian Government, 2010). The third was a focus on accountability and transparency on the part of funders and providers of services.

One of the specific objectives that was articulated early in the life of the National Mental Health Strategy was 'To institute regular review of client outcomes of services provided to persons with serious mental health problems and mental disorders as a central component of mental health

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service delivery’ (Australian Health Ministers, 1992). The language of this objective seems a bit clumsy and outdated now. The term ‘client’ has long since been replaced by ‘consumer’, which is the preference of those with mental illness who have contact with mental health services. Similarly, the term ‘serious’ has been rejected because it implies that the impact of some mental disorders are worthy of less attention than others. It makes no mention of specialised public sector mental health services as the setting for consumer outcome measurement, because in the early stages of the National Mental Health Strategy the entire policy focus was on this sector, so the connection was assumed. Although this objective might be reworded today, it still embodies the intent behind the current collection of routine outcome data.

When the above policy objective was articulated in 1992 it was ambitious and novel. No other country had put in place systems for routinely collecting data on consumer outcomes on a national scale, much less done so in a way that would allow these data to be analysed and be made available to clinicians and services in a way that can inform their practice and to consumers and the general public in a way that allows them to see the outcomes of care. In Australia, aspirational discussions had begun about creating such a system, but there was no agreement on which outcome measures might be most relevant, and services had no capacity to collect outcome data in an organised, co-ordinated fashion.

Research and development

With no large-scale international precedents to look to, Australia had to start from scratch. Several major research and development activities were funded in the early- to mid-1990s. Considerable effort was invested in identifying candidate outcome measures. Consultations with relevant stakeholders took place, initially with experts (e.g., Professor John Wing from the United Kingdom who had been responsible for developing the HoNOS) and later with other relevant parties, including consumers. Two systematic reviews were also conducted, one which looked at

measures that might be suitable for adults (Andrews, Peters, & Teesson, 1994), and another which considered ones that might be appropriate for children and adolescents (Bickman, 1998). The former identified the HoNOS, the LSP, the BASIS-32 and the MHI as having potential, as well as the Medical Outcomes Study 36-Item Short-Form Survey (SF-36) (Ware & Sherbourne, 1992b) and the Role Functioning Scale (RFS) (S. Goodman, Sewell, Cooley, & Leavitt, 1993). The latter identified the HoNOSCA.

Several of the outcome measures that showed promise were subjected to real-world testing. Small-scale field trials were conducted alongside the reviews of adult and child and adolescent measures (Andrews et al., 1994; Bickman, 1998; Stedman, Yellowlees, Mellsop, Clarke, & Drake, 1997). A much larger trial was conducted in the context of a major casemix-development project, known as the Mental Health Classification and Service Costs (MH-CASC) project, which collected outcome data from consumers in 21 sites across Australia using the HoNOS family of measures, the LSP and the CGAS (Burgess, Pirkis, Buckingham, Eagar, & Solomon, 1999). Independently of the MH-CASC project, the HoNOS was also trialled with 2,137 consumers from five area mental health services in the state of Victoria (Trauer et al., 1999). The MH-CASC project and the Victorian field trials both showed the selected instruments could be used in the context of routine outcome measurement; they had sufficiently strong psychometric properties (e.g., being valid, reliable and, importantly, sensitive to change) and were appropriate in the Australian context.

Leadership, infrastructure and resources

It was clear from the outset that simply identifying sound measures would not be sufficient for the successful implementation of routine outcome measurement. The MH-CASC project and the Victorian field trials indicated that strong leadership was also necessary, and that appropriate support was required (e.g., training for clinicians, appropriate data collection systems). For this

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reason, the emphasis shifted in the late 1990s from research and development activities to the establishment of infrastructure and resources.

Progress in this regard was guided by a statement of information development priorities (which has since been updated) (Department of Health and Aged Care, 1999, 2005). A set of formal Information Development Agreements that were put in place between the Australian Government and each of the state and territory governments. These agreements committed the Australian Government to providing national leadership and offering funding to the states and territories to train their clinical workforces in outcome measurement and modify their local clinical information systems to capture outcome data, establishing national expert groups to advise on the implementation and use of outcome data, and putting in place arrangements to receive, process, analyse and report on data submitted by states and territories. The agreements also committed the state and territory governments to collecting outcome data and submitting it to the Australian Government as part and parcel of regular service delivery.

The Australian Government’s commitment to national leadership has largely been operationalised through its funding of AMHOCN. In addition to its direct role in data management, analysis and reporting, AMHOCN has provided leadership to states and territories and to individual organisations in the quest to embed routine outcome measurement in specialised public sector services. It has facilitated multi-way communication about outcome measurement through a formal communication strategy, seeking guidance from and providing advice to numerous organisations and individuals, hosting events to showcase the use of outcome measurement, providing resources through the website, and presenting at national and international conferences (Burgess et al., 2012).

AMHOCN has supported the training of the nation’s mental health workforce through face-to-face sessions and web-based training (Burgess et al., 2012). The approach to training has varied

across states and territories, with some adopting a train-the-trainer approach whereby trainers are trained and then supported in delivering training themselves by a standard set of training materials, and others employing a small group of staff to train their workforce. Still others have adopted a mixed model.

Irrespective of the approach, the training has been comprehensive. Not only has it included basic information on the NOCC protocol (e.g., which ratings to use, for whom and when), but it has also involved explorations of the use of outcome measurement for clinical practice improvement. For example, the training has taught clinicians to use the measures to support the consumer engagement, assessment and recovery process, and to monitor change over time and reflect on their own individual practice. Similarly, the training has emphasised the use of measures for service development purposes such as enabling and supporting multidisciplinary team review processes.

The training has also anticipated many of the concerns that might have been expressed by clinicians. For instance, it has addressed issues to do with consumer confidentiality by stressing that an individual's outcome data form part of his or her medical record and are subject to the same privacy laws as other details in that record. As another example, it has emphasised the importance of supporting consumers who may have difficulty completing the self-report measures, equipping clinicians to offer these measures and assist with their completion in a way that does not bias consumers' responses.

AMHOCN has also optimised the quality of outcome data by preparing a reporting framework to assist states and territories to monitor the quality of data they receive from their local services (Australian Mental Health Outcomes and Classification Network, 2005), automating various parts of the process (e.g., creating an 'episodiser' algorithm to identify legitimate combinations of collection occasions, creating a 'validator' to allow states and territories to pre-validate the

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information they submit), and maintaining a ‘gold standard’ data warehouse that only contains data that comply with the business rules of the NOCC protocol (Burgess et al., 2012). AMHOCN has ensured that the outcome data collected are useful at a clinical level. It has done this by encouraging clinicians to use outcome measurement as a means of facilitating dialogue with consumers and as a means of guiding clinical decisions and creating resources like the web-based decision support tool (described above) to assist with this (Burgess et al., 2012). It has also promoted the clinical utility of outcome measurement by developing the information literacy of the workforce, and assisting clinicians to think about meaningful questions that can be answered by the outcome data that are collected. AMHOCN has also promoted the use of outcome measurement as a means of improving service quality (e.g., facilitating projects through which organisations could benchmark themselves against each other and explore reasons for variation in outcome scores (Coombs, Geyer, Finn, & Pirkis, 2011; Coombs, Taylor, & Pirkis, 2011; Coombs, Walter, & Brann, 2011a, 2011b; McKay, McDonald, & Coombs, 2011))(Burgess et al., 2012).

The expert groups should also be acknowledged here. In 2004, three expert groups (child/adolescent, adult, older persons) were established to advise on routine outcome measurement from the perspective of clinicians, consumers and carers. They existed in this form until 2009 when they were re-structured to encourage common solutions across program streams. The new structure saw the establishment of a national mental health information development expert advisory panel and four program-specific panels (child/adolescent, adult, older persons, forensic). The expert groups and panels have advised the Australian Government of the implementation and use of routine outcome measurement at all stages of the roll-out process, doing so in close collaboration with AMHOCN.

Looking forward: Where to from here?

In looking forward, we have been guided by the findings of a review conducted in 2012 by the national mental health information development expert advisory panel (National Mental Health Information Development Expert Advisory Panel, 2013), mentioned briefly above. The review examined Australia's progress with respect to the implementation of routine outcome measurement, focusing particularly on the NOCC suite of outcome measures and the NOCC protocol. It also considered some broader system-level issues affecting the implementation of outcome measurement. The review set out to guide the direction of routine outcome measurement for 2014-2024, looking at the progress made to date, the factors that had assisted or hampered progress, the relevance of the original objectives, the changes needed to support future objectives, and the way in which these changes should be implemented (National Mental Health Information Development Expert Advisory Panel, 2013).

The review noted that the 1,500 clinicians, consumers and carers who were consulted during its course overwhelmingly supported the continuation of routine outcome measurement, partly because they viewed it as an important driver for improving practice, partly because they felt that it guaranteed accountability, and partly because they saw it as a means of ensuring ongoing funding of services. They noted a shift in service culture from one in which the merits of collecting routine outcome data were questioned, to one in which these were taken for granted and the best means of collecting these data were considered (National Mental Health Information Development Expert Advisory Panel, 2013). We believe that this shift has been due to a variety of factors, including the policy imprimatur, appropriate resourcing and infrastructure, strong leadership at a range of levels, and intensive and comprehensive training of clinicians. Outcome measurement has become embedded in the key performance indicator framework that is now applied to Australia's specialised public sector mental health services, and there is increasing understanding of what the data say about how services are operating.

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The review reinforced the view that outcome data should be collected to guide clinicians in providing clinical care, inform service managers and policy makers about how best to implement system-level reforms, assist researchers to answer questions of relevance to clinical practice and service planning, and provide the community with sufficient information to ensure accountability on the part of mental health services. It argued that by 2024, outcome measurement should provide a set of tools to allow a shared understanding of the characteristics of people at and between different stages of their contact with services, and that these tools should be embedded in a national minimum dataset and provide a consistent approach that yields timely, meaningful data in formats that can be understood by consumers, carers, clinicians and the community (National Mental Health Information Development Expert Advisory Panel, 2013).

The review recommended that outcome measurement could be improved if various key changes were made. It promoted increasing the active involvement of consumers and carers at all levels. It advocated for a greater emphasis on the clinical use of outcome measurement, as a means of supporting consumers in recovery. It suggested that the collection rules could be simplified. It also recommended the identification and/or development of several new outcome measures, namely a clinician-rated one for infants and pre-schoolers, a consumer-rated one for primary school aged children, and a carer-rated one for carers of adults and older persons. In addition, it recommended that some of the existing measures be rationalised so that a single clinician-rated measure and a single consumer-rated measure could be used for adults and older persons nationally. Content-wise, it suggested the need for a greater emphasis on measuring social inclusion and aspects of recovery (National Mental Health Information Development Expert Advisory Panel, 2013).

AMHOCN has already taken the running with a number of these recommendations, and indeed had begun to do so before the review was conducted. For example, it has conducted a review of

recovery measures (Burgess, Pirkis, Coombs, & Rosen, 2010, 2011), and is currently developing a consumer self-report measure that focuses on aspects of social inclusion and recovery known as the Living in the Community Questionnaire. It has also developed training materials that reinforce the message that outcome measurement should be used in a manner that empowers consumers to monitor their own journey towards recovery, allowing them to set goals and reflect on their progress towards these goals. The consumer self-report measures are particularly important here, because the conversations they trigger between clinicians and consumers present opportunities for collaborative treatment planning and goal setting.

A note on routine outcome measurement elsewhere in the mental health sector

Before concluding, it is worth noting that although the vast majority of the effort in routine outcome measurement has taken place in specialised public sector mental health services, there have also been developments in other parts of the mental health sector.

Since 2002, the vast majority of private hospitals with psychiatric beds have been routinely collecting and reporting on outcome data for consumers who are admitted as inpatients (in fact, in 2014 there is only one private hospital that does not do this). The measures – the clinician-rated HoNOS and HoNOS65+ and the consumer-rated Mental Health Questionnaire (MHQ-14) (Ware & Sherbourne, 1992a) – are administered at admission to and discharge from hospital and, in the case of those undergoing particularly long episodes of care, at 3-month review. The private hospital outcomes collection is funded by participating hospitals, private health insurance funds and the Australian Government, and relies on a data management system overseen by the Private Mental Health Alliance (<https://pmha.com.au/>).

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The community managed mental health sector is also making progress towards routine outcome measurement (<http://www.cmha.org.au/>). Following preliminary work designed to systematically identify and characterise the services comprising this sector, scoping exercises are being undertaken to identify a measure or suite of measures that might be appropriate for use in this context. The nature of this sector means that the measure or measures are likely to focus on a range of outcomes that are less clinical than those used in specialised public sector mental health services and more likely to capture outcomes related to community participation, social inclusion and recovery.

Summary and conclusions

Australia has come a long way in realising its ambition of creating a system within which consumer outcomes are routinely assessed, doing so in a way that provides information at a range of levels for a variety of audiences. Policy-makers and planners can and do use the data to inform decisions about system-wide reforms. Service managers can use it to monitor the quality and effectiveness of their services. Clinicians can use it to guide their clinical decision-making processes. Importantly, they can also use it to promote dialogue with consumers, thereby allowing consumers to monitor their own progress towards recovery. Consumers, carers and the general community can use it to ensure that services are accountable for the care they deliver (Coombs, Geyer, et al., 2011; Coombs, Stapley, & Pirkis, 2011; Coombs, Taylor, et al., 2011; Coombs, Walter, et al., 2011a, 2011b; McKay & Coombs, 2012; McKay, Coombs, & Duerden, 2014; McKay, Coombs, & Pirkis, 2012; McKay et al., 2011).

Australia’s approach to routine outcome measurement has been strategic and co-ordinated. From the outset, endeavours in this area had high level government commitment and were enshrined in policy. Careful attention was paid to the research and development necessary to build the foundation for routine outcome measurement, and appropriate resources have been

devoted to its ongoing roll-out. Perhaps most importantly, there has been strong leadership at all levels in order to bring clinicians on board, train them in the use of outcome measures and in the interpretation of outcome data, and demonstrate the relevance of these data for their day-to-day practice. Without protocol-driven systems in place to ensure that new and existing staff are trained (and retrained) in the use of outcome measurement, idiosyncratic rating practices would have emerged and the clinical and service management utility of outcome measurement would have been diminished.

It wasn't all smooth sailing though. Clinician resistance was a major factor initially. Among nurses, there was not a culture of using standardised measures, so their early response was one of suspicion. Professional groups that were more accustomed to using standardised measures – like psychologists – took some convincing too, entering into debates about whether measures that fell outside the NOCC suite might have more psychometric merit; for example, the reliance on the HoNOS suite of measures was criticised on the grounds that they are 'deficit' measures rather than ones that assess positive steps towards recovery. The views of psychiatrists and other medical professionals tended towards the extreme; they were either embracers of outcome measurement or were disengaged from the process. Over time, professionals from all these groups have come on board, largely because of the gradual process of demonstrating that outcome measurement can be useful for clinical practice, service planning and workforce development. This is not to say that everyone is now an enthusiast, and creating the shift from resistance to acceptance has required significant investment of energy.

There is still room for improvement too. Additional effort needs to be invested in involving consumers, both at a global level in shaping the future of outcome measurement, and at an individual level in providing their own perspective on whether the care they have received has led to changes in their mental health. Carers also have an important role to play here.

Rationalising the suite of outcome measures and ensuring that they focus on constructs like

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recovery that are important to consumers and carers is crucial too. Taking outcome measurement forward in these ways will ensure that it realises its potential as a tool for maximising the quality and effectiveness of mental health services into the future.

For Peer Review Only

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Dedication

In July 2013, our dear colleague and friend, Professor Tom Trauer passed away. Tom was a true champion of routine outcome measurement, and was widely regarded as one of the world’s leading experts. He was universally respected, and his contributions significantly shaped the course of routine outcome measurement in Australia and continue to influence our own work as AMHOCN.

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Table 1: Descriptive characteristics of outcome measures

	Outcome measure	State/territory ^a	Rater	Overarching constructs	No. of core items
Children and adolescents	HoNOSCA	All	Clinician	Range of behavioural, symptomatic, social and impairment domains	15
	CGAS	All	Clinician	Dysfunction	1
	SDQ	All	Consumer and/or parent	Behaviours, emotions and relationships	25
Adults	HoNOS	All	Clinician	Mental health and social functioning	12
	LSP-16	All	Clinician	Disability	16
	MHI	Qld	Consumer	Psychological distress and wellbeing	38
	BASIS-32 [®]	Vic, Tas, ACT	Consumer	Symptom and problem difficulty	32
	K-10+	NSW, WA, SA, NT	Consumer	Non-specific psychological distress	10 ^c
Older persons	HoNOS65+	All	Clinician	Mental health and social functioning	12
	LSP-16	All	Clinician	Disability	16
	MHI	Qld	Consumer	Psychological distress and wellbeing	38
	BASIS-32 [®]	Vic, Tas, ACT	Consumer	Symptom and problem difficulty	32
	K-10+	NSW, WA, SA, NT	Consumer	Non-specific psychological distress	10

- a. NSW = New South Wales; Vic = Victoria; Qld = Queensland; WA = Western Australia; SA = South Australia; Tas = Tasmania; ACT = Australian Capital Territory; NT = Northern Territory

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Table 2: Collection occasions at which outcome measures are administered, and rating periods which they cover*

		Inpatient			Community residential			Ambulatory		
		Admission	Review	Discharge	Admission	Review	Discharge	Admission	Review	Discharge
Children and adolescents	HoNOSCA	2 weeks	2 weeks	3 days ^a	2 weeks	2 weeks	2 weeks	2 weeks	2 weeks	2 weeks
	CGAS	2 weeks	2 weeks	-	2 weeks	2 weeks	-	2 weeks	2 weeks	-
	SDQ	6 months ^b	1 month ^b	1 month ^b	6 months ^b	1 month ^b	1 month ^b	6 months ^b	1 month ^b	1 month ^b
Adults	HoNOS	2 weeks	2 weeks	3 days ^a	2 weeks	2 weeks	2 weeks	2 weeks	2 weeks	2 weeks
	LSP-16	-	-	-	3 months	3 months	3 months	-	3 months	3 months
	MHI	-	-	-	1 month	1 month	1 month	1 month	1 month	1 month
	BASIS-32®	-	-	-	2 weeks ^c	2 weeks ^c	2 weeks ^c	2 weeks ^c	2 weeks ^c	2 weeks ^c
	K-10+	-	-	-	4 weeks ^d	4 weeks ^d	4 weeks ^d	4 weeks ^d	4 weeks ^d	4 weeks ^d
Older persons	HoNOS65+	2 weeks	2 weeks	3 days ^a	2 weeks	2 weeks	2 weeks	2 weeks	2 weeks	2 weeks
	LSP-16	-	-	-	3 months	3 months	3 months	-	3 months	3 months
	MHI	-	-	-	1 month	1 month	1 month	1 month	1 month	1 month
	BASIS-32®	-	-	-	2 weeks ^c	2 weeks ^c	2 weeks ^c	2 weeks ^c	2 weeks ^c	2 weeks ^c
	K-10+	-	-	-	4 weeks ^d	4 weeks ^d	4 weeks ^d	4 weeks ^d	4 weeks ^d	4 weeks ^d

- * Shaded areas represent collection occasions at which collection of the given measure is mandated by the NOCC protocol.
- a. The standard rating period for the HoNOS, HoNOSCA and HoNOS65+ is ‘the preceding two weeks’, but the NOCC protocol specifies a rating period of ‘the preceding three days’ at discharge from an inpatient setting, in recognition of the brevity of admissions to such settings.
 - b. The standard rating periods for the SDQ are different at baseline and follow-up. At baseline, the rating period is six months, and at follow-up it is one month. These different rating periods are consistent with the original instrument, and not NOCC-specific modifications.
 - c. The standard rating period for the BASIS-32® is ‘the last week’, but the jurisdictions that have incorporated the instrument into their routine collections have amended the rating period to ‘the past two weeks’, primarily to align the measure with the majority of clinician-rated measures.
 - d. The standard rating period for the K-10+ is ‘the last 30 days’, but in Australian use the rating period has become ‘the last four weeks’.

Table 3: Percentage of NOCC collection occasions at which outcome measures were administered, 2012-13*

		Inpatient			Community residential			Ambulatory		
		Admission	Review	Discharge	Admission	Review	Discharge	Admission	Review	Discharge
Children and adolescents		n=3,110	n=205	n=2,881	n=140	n=65	n=116	n=15,017	n=19,492	n=11,970
	HoNOSCA	83%	74%	80%	92%	95%	40%	92%	89%	64%
	CGAS	80%	70%	-	91%	94%	-	91%	91%	-
	SDQ – PC	58%	61%	25%	54%	-	-	59%	25%	8%
	SDQ – PY	35%	38%	24%	57%	21%	-	41%	18%	7%
	SDQ – YR	56%	49%	29%	61%	33%	4%	50%	25%	8%
Adults		n=30,245	n=5,146	n=26,885	n=1,177	n=1,411	n=1,326	n=35,703	n=61,916	n=27,641
	HoNOS	92%	97%	91%	91%	98%	70%	82%	92%	54%
	LSP-16	-	-	-	49%	93%	55%	-	81%	41%
	MHI or BASIS-32® or K-10+	-	-	-	69%	59%	47%	22%	29%	8%
Older persons		n=3,034	n=1,352	n=2,779	n=261	n=354	n=298	n=7,566	n=11,550	n=6,941
	HoNOS65+	94%	97%	95%	91%	98%	69%	93%	96%	78%
	LSP-16	-	-	-	16%	91%	38%	-	82%	58%
	MHI or BASIS-32® or K-10+	-	-	-	20%	26%	15%	16%	24%	11%

* Data available for all states and territories except Victoria.

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Figure 1: Outcomes for people receiving inpatient and ambulatory mental health care, 2012-13