National

MHSPF

Mental Health Service Planning Framework

Technical Manual

October 2013

Population based planning for
Mental Health service development

national mental health strategy

This page left blank intentionally

Copyright

Suggested citation

NSW Ministry of Health. 2013. The National Mental Health Service Planning Framework – Draft Technical Manual - Commissioned by the Australian Government Department of Health. Version AUS V1. NSW Ministry of Health, Sydney.

NMHSPF Project Products

Draft Framework
Draft Service Element and Activity Descriptions
Draft Care Packages All Ages (0-4; 5-11; 12-17; 18-64; 65+; 65+ BPSD)
Draft Technical Manual
Draft Framework Estimator Tool (Beta Version) – LICENCE ONLY
Draft Framework Estimator Tool User Guide – LICENCE ONLY

Further information

For further information please contact:

Project Director
National Mental Health Service Planning Framework Project
NSW Ministry of Health
LMB 961
North Sydney NSW 2059

Email: NMHSPF@doh.health.nsw.gov.au
Date: October 2013

Document Version Control

Version	Date	Document Reviewer	Nature Of Change/ Comments/ Distribution
AUS V1	October 2013	Project Team	Final first draft

Acknowledgements

This document and related National Mental Health Service Planning Framework Project products are the result of expert contributions from a broad range of stakeholders over the life of the Project. The following individuals are thanked for their respective roles and contributions to the development and implementation of this Project.

Executive Group

Mr Brenton Alexander (former Member – Australian Government, Department of Health and Ageing)

Mr Eddie Bartnik, Mental Health Commission, Western Australia

Mr Richard Bromhead, Policy and Government Relations, ACT Government Health Directorate

Mr David Davies, Mental Health and Substance Abuse, South Australia

Dr Karleen Edwards (former Member – Department of Health, Victoria)

Mr Nick Goddard, Department of Health and Human Services, Tasmania

Ms Bronwyn Hendry, Department of Health and Families, Northern Territory

Dr Bill Kingswell (Deputy Chair) Mental Health and Other Drugs Directorate, Queensland Health

Mr David McGrath (Chair) Mental Health and Drug and Alcohol Office, NSW Ministry of Health

Mr David Mackay, Mental Health and Drug Treatment Division, Australian Government, Department of Health

Ms Frances Pagdin (Acting) Department of Health and Families, Northern Territory

Mr Alan Singh (former Member – Australian Government, Department of Health and Ageing)

Mr Paul Smith, Drugs Research Division, Department of Health, Victoria

Modelling, Working Group and Reference Group Members

Ms Julie Anderson, Consumer

Associate Professor David Barton, Southern Health, Melbourne Health, Victoria

Ms Bridget Bassilios, School of Population Health, University of Melbourne

Professor Michael Berk, Deakin University Chair in Psychiatry at Barwon Health, Victoria

Ms Joyce Bowden, Consultant, Mental Health Service, Northern Territory

Mr Bill Buckingham, Consultant, Mental Health Information Development

Dr Peter Burnett, North Western Mental Health, Victoria

Dr Alison Calear, Centre for Mental Health Research, Australian National University

Mr Joe Calleja, Richmond Fellowship of Western Australia

Professor Rob Carter, Deakin Health Economics, Deakin University, Victoria

Professor Helen Christensen, Black Dog Institute, University of NSW

Mr Peter Collicoat, Mental Health Services, Albury Wodonga Health, Victoria

Professor Mark Dadds, School of Psychology, University of NSW

Dr Frances Dark, Rehabilitation Services, Princess Alexandra Hospital, Queensland

Ms Sandra Diminic, School of Population Health, University of Queensland

Associate Professor Brett Emmerson, Metro North Mental Health Services, Royal Brisbane and Women's Hospital

Professor Jane Gunn, Department of General Practice, University of Melbourne

Mr Patrick Hardwick, Carer, Private Mental Health Consumer and Carer Network, WA

Ms Meredith Harris, School of Population Health, University of Queensland

Dr Sam Harvey, School of Psychiatry, University of NSW

Professor Ian Hickie, Brain and Mind Institute, University of Sydney

Associate Professor Felice Jacka, School of Medicine, Deakin University, Victoria

Professor Anthony Jorm, Melbourne School of Population Health, University of Melbourne

The Hon Robert Knowles AO, National Mental Health Commissioner, (formerly) Mental Health Council of Australia

Associate Professor Beth Kotze, Mental Health Children and Young People, NSW Ministry of Health

Ms Melissa Lee, Mental Health ACT, ACT Health Directorate

Ms Louise McCutcheon, Orygen Youth Health, Victoria

Ms Eileen McDonald, Carer, NSW

Dr Helen McGowan, NMHAS-Mental Health, Older Adult Program, Western Australia

Dr Roderick McKay, Senior Staff Specialist, South Western Sydney Local Health District

Ms Gemma McKeon, School of Psychology, University of Queensland

Mr David Meldrum, Mental Illness Fellowship of Australia, South Australia

Associate Professor Cathy Mihalopoulos, Deakin Health Economics, Deakin Population Health SRC, Faculty of Health, Deakin University, Victoria

Professor Philip Mitchell, Health of School of Psychiatry, University of NSW

Ms Judi Morris, Mental Health Commission, Western Australia

Mr Noel Muller, Consumer, Queensland Health

Ms Moira Munro, Perth Clinic, Western Australia

Mr Gerard Naughtin, Mind Australia, Victoria

Ms Heather Nowak, Consumer

Professor Mark Oakley-Browne, (formerly) Statewide and Mental Health Services, Tasmanian Government

Mr Quinn Pawson, Prahran Mission, Victoria

Mr Joe Petrucci, Cairns and Hinterland Mental Health and ATOD Service, Queensland

Professor Daniel Rock, North Metropolitan Area Health Service, Western Australia

Professor Perminder Sachdev, School of Psychiatry, University of NSW

Ms Louise Salmon, COPMI Initiative, Sydney Registry of the Family Court of Australia

Ms Gail Sant, Carer, South Australia

Dr Dan Siskind, Princess Alexandra Hospital, Queensland

Associate Professor Meg Smith, Mental Health Association of NSW

Associate Professor Simon Stafrace, Alfred Health, Victoria

Mr Gavin Stewart, Consultant, Mental Health Information Development (Applied Epidemiology)

Ms Amelia Traino, (formerly) Mental Health and Substance Abuse Division, South Australia Health

Professor Theo Vos, (formerly) School of Population Health, University of Queensland

Professor Harvey Whiteford, Kratzmann Chair in Psychiatry and Population Health, University of Queensland

Mr Derek Wright, Recovery Solutions Group, New Zealand

Ms Lily Wu, Consumer Carer, Mental Health, South Western Sydney Local Health District, Liverpool Hospital

Other direct contributors

Professor Philip Burgess, School of Population Health, University of Queensland

Ms Georgia Carstensen, School of Population Health, University of Queensland

Dr Terence Cheng - Research Fellow, Melbourne Institute of Applied Economic and Social Research, Faculty of Business and Economics, University of Melbourne

Dr Sandra Davidson, Department of General Practice, University of Melbourne

Associate Professor Grant Devilly, Associate Professor in Clinical Psychology, School of Applied Psychology and Griffith Health Institute Griffith University

Ms Tara Donker, Black Dog Institute, University of NSW

Dr Laura Hart, School of Psychological Science, La Trobe University

Dr David Hartman – Clinical Director, Townsville Child and Youth Mental Health Service

Dr Samantha Hollingworth, School of Pharmacy, University of Queensland

Ms Margaret Jones, Consultant Clinical Psychologist (Statewide) Portfolio lead; Research and Evidence-Based Practice, CAMHS, Child and Adolescent Mental Health

Professor Jayashri Kulkarni, Monash Alfred Psychiatry Research Centre, Melbourne

Dr Stuart Lee, Monash Alfred Psychiatry Research Centre, Melbourne

Dr Christopher Lilley - Senior Consultant Psychiatrist, Sunshine Coast and Youth Mental Health Service

Ms Caroline Marshall, Policy and Epidemiology Group, Queensland Centre for Mental Health Research

Ms Siân McLean, School of Psychological Science, La Trobe University

Dr Caroline Moul, School of Psychology, University of NSW

Professor Susan J Paxton, School of Psychological Science, La Trobe University

Ms Katherine Petrie, Black Dog Institute, University of NSW

Dr Nicola Reavley - Research Fellow, Population Mental Health Group, Melbourne School of Population and Global Health, The University of Melbourne

Dr Grant Sara, InforMH, NSW Ministry of Health

Professor Michael Sawyer, Head of Research and Evaluation Unit, Women's and Children's Hospital, North Adelaide

Mr Roman Scheurer, Policy and Epidemiology Group, Queensland Centre for Mental Health Research

Dr Titia Sprague, Mental Health Children and Young People, NSW Ministry of Health

Dr Nickolai Titov - Co-Director, eCentre Clinic - Centre for Emotional Health, Department of Psychology, Macquarie University

Project Team

Ms Judith Burgess (Team Manager), Mental Health and Drug and Alcohol Office, NSW Ministry of Health

Mr Kevin Fjeldsoe, (formerly) Mental Health Alcohol and Other Drugs Branch, Queensland Health

Ms Marie Kelly, Mental Health Alcohol and Other Drugs Branch, Queensland Health

Ms Cath King (Team Manager)

Ms Anna Kollias, Mental Health and Drug and Alcohol Office, NSW Ministry of Health

Ms Karissa Maxwell, Mental Health Alcohol and Other Drugs Branch, Queensland Health

Dr Harry Perlich, Mental Health and Drug and Alcohol Office, NSW Ministry of Health

Mr Ravneet Ram, Mental Health and Drug and Alcohol Office, NSW Ministry of Health

Ms Meredith Sims, Mental Health and Drug and Alcohol Office, NSW Ministry of Health

Ms Linda Smith, Mental Health and Drug and Alcohol Office, NSW Ministry of Health

Ms Lauren Stocks (former Member) Mental Health Alcohol and Other Drugs Branch, Queensland Health

Mr Brian Woods (Project Director), Mental Health and Drug and Alcohol Office, NSW Ministry of Health

Table of Contents

1 Introduction to the Technical Manual

This technical manual accompanies and supports the National Mental Health Service Planning Framework (NMHSPF) Products. It:

- Summarises the framework's genesis;
- Describes the framework's underlying structure;
- Details elements of the framework;
- Identifies the scope of the NMHSPF;
- Explains how key parameters used in the framework have been derived; and
- Answers questions about the framework (FAQs).

2 Background to the NMHSPF Project

2.1 PROJECT SPONSORSHIP AND FUNDING

Both in Australia and internationally, there have been calls for the development of more strategic and coordinated approaches to mental health planning and service delivery. There is currently no nationally agreed approach to the way that mental health services are planned. Planners in States and Territories use their own approaches, which vary considerably in the extent to which they are based on best available evidence. Australia's National Mental Health Strategy has called for each jurisdiction to develop a mix of services appropriate to local population needs, but has not specified targets for services.

The *Fourth National Mental Health Plan - An agenda for collaborative government action in mental health 2009-2014*[1] makes explicit commitment to developing a National Mental Health Service Planning Framework (NMHSPF) that establishes targets for the mix and level of the full range of mental health services, underpinned by innovative funding models.

A scoping study to inform the development of a National Mental Health Service Planning Framework was developed by the University of Queensland, Queensland Centre for Mental Health Research (May 2010) on behalf of the Australian Government Department of Health and Ageing (the "Australian Government"). The Australian Government then provided a further discussion paper "Development of the National Service Planning Framework: Discussion Paper to inform development of a Multi-State Agreement" dated 15 June 2010. This discussion paper identified the timeframe for the development of 'the project' as approximately 2 ½ years and stated that a baseline be established early in the project using State models developed by NSW and Queensland. A subsequent 'Statement of Requirement' from the Commonwealth set out key phases and deliverables of the Project.

In response to the request for a proposal, the (then) NSW Department of Health ("NSW") agreed to develop a proposal on sharing the leadership of a project with Queensland Health ("Queensland") to develop a nationally consistent mental health service planning model within a national planning framework. On 20 June 2011, the Australian Government contracted NSW to establish and lead the National Mental Health Service Planning Framework Project (the "Project").

2.2 PROJECT PURPOSE, OUTPUTS AND DELIVERABLES

The purpose of the Project was to develop a National Mental Health Service Planning Framework (NMHSPF) based on the depth of experience of both NSW and Queensland in the development of population-based planning models for mental health, and enhanced by expert input from the various groups established under the Project's governance structure.

Modelling for the NMHSPF considered clinical developments (standards, guidelines, care packages, pathways, patient flow, outcomes); service developments (facilities guidelines; taxonomies for staff, patients, etc); and costing developments (cost benchmarking; cost weights; activity based funding models). In noting that none of these three domains are static over time, and that each requires specialist knowledge, and is influenced by the others, the three domains were recognised as separate, yet integrated work streams within the NMHSPF.

[1] Australian Health Ministers (2009) *Fourth National Mental Health Plan - An agenda for collaborative government action in mental health 2009-2014,* Commonwealth of Australia, Canberra.

The NMHSPF:

- Is based on sound epidemiological data that quantifies the prevalence and distribution of the various mental illnesses, as well as evidence-based guidelines that identify the mental health care required for the range of conditions;
- Translates this knowledge about illness prevalence and required care into resources, measured in terms of the workforce and service components required to establish an adequate service system;
- Includes delineation of roles and responsibilities across the community, primary and specialist sectors, including the private sector and non-mental health specific services (e.g. aged care, general health services);
- Considers the workforce requirements to deliver the range of services;
- Includes acute, long stay, 'step up/step down' and supported accommodation services, as well as ambulatory and community based services;
- Considers the contribution of public, community managed sectors and private mental health service providers;
- Clearly differentiates between the needs of children and young people, adults and older people;
- Suggests role definitions and delineations to determine the recommended mix of services with comment on how to address scarcity or maldistribution in some geographical locations; and
- Promotes flexible funding models that allow innovation and service substitution to meet specified targets in different delivery contexts.

The contracted outputs from the Project include:

- A NMHSPF model that can be adapted for use within each Australian jurisdiction that provides transparency and consistency across all jurisdictions for estimating the need and demand for mental health services - across the continuum of care from prevention and early intervention to the most intensive treatment;
- Standardised "Australian average" estimates of need and demand for a range of agreed mental health services per 100,000 people across the whole age range, and across the continuum of care;
- Estimates of the staffing, beds, and treatment places per 100,000 age-specific population to meet the estimated demand;
- Estimates of the outputs to be expected from the resources; and
- A high-level estimate of the gap between current need being met for all jurisdictions, and the resources required to fill that gap.

The contracted deliverables from the Project are summarised to include:

- Various Project Progress Reports to the Executive Group and the Australian Government;
- An Excel workbook with the details of the NMHSPF modelling;
- A template that individual jurisdictions can adapt to address regional and other variations as needed;
- Comprehensive documentation of the evidence underlying the parameters used in the model so that it can be modified as new evidence becomes available, and adapted to local evidence (i.e. this "Technical Manual");
- A standard reference point for planning information; and
- An Excel "calculator" that applies the model to population projections in a convenient manner with an accompanying "User Manual".

A project of this significance requires an iterative, or action research, approach to its long-term development. Given the dynamic nature of change in mental health care approaches, costing models and service structures, and in consideration of the gaps of evidence based research currently available, it is the expectation that a robust and reasonable model underpinned by both research and expert opinion will be developed under this Project.

2.3 PROJECT GOVERNANCE

The governance structure to support the Project is outlined in **Figure 1**.

It should be well noted that the primary contractual relationship for the Project is between the Australian Government and NSW. Noting that NSW is directly responsible for the Project deliverables, the primacy of the role for the NSW Executive Sponsor/Executive Group Chair, supported by the Project Director, cannot be understated.

To realise the benefits of the NMHSPF, the Project is structured around a number of focussed Project Groups, including the:

- Executive Group
- Project Team
- Modelling Group
- Primary Care / Community / Non Hospital Expert Working Group (PCCNH EWG)
- Psychiatric Disability Support, Rehabilitation and Recovery Expert Working Group (PDSRR EWG)
- Inpatient/ Hospital Based Service Expert Working Group (IHBS EWG)
- Consumer and Carer Reference Group (CCRG)
- Promotion and Prevention Working Group

The membership for each Project Group is described below:

- NMHSPF Executive Group membership included State and Territory Directors of Mental Health Services and a representative from the Australian Government Departments of Health
- NMHSPF Modelling Group membership included selected experts in information development and epidemiology and the Chairs and Deputy Chairs of each Expert Working Group.
- NMHSPF Promotion and Prevention Working Group, three Expert Working Groups and the Consumer and Carer Reference Group membership included consumers, carers and mental health experts working in a variety of settings – University based research organisations, consultancy and public, community managed and private mental health services.

Figure 1 - Governance Structure

Whilst the Expert Working Group structure as shown was necessary at the start of the Project, as the Project progressed and the content matured, the groups merged into threshold issue groups (inpatient and community bed based service threshold) and age-related care package groups (child and adolescent; adult; and older person).

It should be noted that the "ABF/Costing" 'grey box' in the Project Governance structure is used to indicate that whilst this component relationship is critically important to the implementation of the NMHSPF, it is currently out of scope for the Project.

2.4 SUMMARY OF MODEL DEVELOPMENT

2.4.1 Background

Epidemiological data consistently show that about 20 per cent of the population have a level of symptoms and disruption of functioning that warrants a formal diagnosis of mental illness. By contrast, both epidemiological and service data consistently show that only about 1 per cent of the population receive interventions from specialist public sector mental health services. More than 60% of people with mental health problems do not access any health services for their health problems or mental health problems, and of those who do, General Practitioners provide services to the greatest proportion of them[2].

The formal clinical definitions of mental illness have been greatly developed since the release of the third edition of the Diagnostic and Statistical Manual for Mental Disorders (DSM-III) (American Psychiatric Association, 1980), which for the first time, specified the symptoms and the severity levels and impairment of functioning, needed to assign a formal diagnosis. Since that time, epidemiology, research, and clinical services have had a consistent set of definitions that allow evidence from one field to be related to that from another. Nevertheless, the huge gap between the prevalence reported in population studies, and the treated prevalence, has raised the obvious question of whether epidemiologists and service providers were talking about the same illnesses and disorders. It is impossible to believe that we would need to increase the mental health budget 20 times to meet the need, since that would make it 40 per cent larger than the whole of mental health expenditure at present. Equally, it is impossible to believe that all the untreated portion of people with illness can be as ill as those receiving services. Apart from anything else, 45 per cent of those receiving inpatient services are receiving that care under involuntary treatment provisions, and in order to do so, the stringent criteria of a medico-legal assessment process must be satisfied. It is thus unlikely that a large number of equivalently ill people exist untreated in the population.

The key challenge faced in developing the NMHSPF model was therefore to come to grips with the gap between population and service data, and construct a framework for dealing with the whole spectrum of mental illnesses. The NMHSPF is not the only model that has attempted this, and it builds on the work done by the NSW Ministry of Health in the development of the Mental Health Clinical Care and Prevention (MH-CCP) Planning Model. However, the traditional route has been to try to define "serious" mental illness as the focus for services, or the "priority population". The unfortunate consequence of this approach is that other levels of illness, perhaps the early and more preventable stages, or those where intervention might reduce disability and consequent service demand, are not attended to. Most models of this type deal only with direct mental health care delivery. The NMHSPF addresses promotion and prevention directly, but it also considers mental health care for levels of illness and disability that may be classified as "moderate" in terms of severity and disability and "mild" or "at risk" groups. The difficulty in this approach is the historical legacy of having services focussed at only one end of the spectrum - there is little evidence on what service provision ought to be for the other groups.

[2] Australian Bureau of Statistics. *Mental Health and Wellbeing Profile of Adults.* Canberra: Commonwealth of Australia, 1998. (ABS Cat No 4326.0).

Most information about mental health services in Australia[3] is intended to answer the question "Who receives what services from whom, at what cost, and with what effect?"[4] That is important information, but incomplete. The difference between prevalence and utilisation makes it clear that we also need to know who needs services, and what services are appropriate for each defined need group. The NMHSPF model is a first attempt to bridge that gap for the whole of Australia. It is built from a set of explicit and quantified statements of "who needs what services from whom", based on prevalence of illness in a standard 100,000 population and an assumed standard of care over a 12 month period.

The NMHSPF model suggests an appropriate average standard of mental health care for all people with diagnosable illness, and a standard of promotion and prevention services for those at general or specific risk. The model also tries to identify the workforce that is most appropriate to provide the services – typically as an input of expertise in collaborative partnerships and consultation/liaison. Judgements regarding mental health care needs in the contexts of a recovery framework inform these decisions.

2.4.2 Development of Modelling Principles

Stemming from experience in other modelling processes and also from decisions made by the NMHSPF Executive and Modelling Groups, a collection of modelling 'principles' were identified early in the project, to help inform a consistent approach to modelling across all of the Project Groups.

The principles are:

- Modelling is based on a generic population of 100,000 and not all of them are unwell. The use of ABS population Series B data was recommended (Series B largely reflects current trends in fertility, life expectancy at birth, net overseas migration and net interstate migration, whereas Series A and Series C are based on high and low assumptions for each of these variables respectively).
- Use publicly available data wherever possible (eg AIHW, jurisdictional data) and avoid primary data analysis due to the extensive time this requires.
- Be very clear on how assumptions, issues and decisions are made with rationale. Avoid applying false precision if the data does not support it.
- Clarity of the scope of decisions. For example, does a decision apply to all diagnoses in an age group, or all age groups, but only one diagnosis, for only one specific diagnosis and age or for all groups?
- Note that the scope of this Project is to primarily model those services that generally lie within the responsibility of the mental health sector. This approach is not trying to be exclusive of other services, but should rather be considered as one part of the greater 'jigsaw' of service needs. A modelling process has already been completed in the Drug and Alcohol sector. Other service sectors are responsible for their own modelling and together with this mental health process, will better estimate services for individuals. Consider for example, services for people with co-morbid mental health and drug issues. The NMHSPF models for the mental health components of care for that individual. The drug and alcohol framework models their relevant components of care. Each model highlights the need for the other without double counting the resourcing.
- Groups have carriage on developing particular aspects of the care package but may be formally requested to contribute to other components by another group. Informal contribution was facilitated through a forum facility on the project wiki site.
- Despite the boundaries of responsibility in relation to developing the care packages, groups were strongly encouraged to ensure the interface between services is well considered and that input from across the Project is sought.

---

[3] Department of Health and Aged Care. *Mental health information development: National information priorities and strategies under the Second National Mental Health Plan 1998-2003.* (First edition June 1999). Canberra: Commonwealth of Australia, 1999.

[4] Leginski W, Croze C, Driggers J, Dumpman S, Geersten D, Kamis-Gould E, Namerow J, Patton R, Wilson N, Wurster C. *Data standards for mental health decision support systems: A report of the task force to revise the data content and system guidelines of the mental health statistics improvement program.* Washington: National institute of Mental Health, US Department of Health and Human Services, 1989. This 250+ page document may be downloaded from URL: http://www.mhsip.org/mhsiptest/documents/fn-10.htm

- Challenging current practice or thinking is important, but not to a point of disabling a process. Need to consider the capacity of the NMHSPF Project to fully explore issues. Consider noting issues and risks that can be explored in future iterations of the model.
- Note that corporate and clinical governance (e.g. sector development, quality and safety, research, workforce development etc) will be considered as an overhead cost towards the end of the modelling process.
- Similarly, note that both drug therapy and care coordination will be costed as activities in the context of specific service elements. Drug therapy can be counted in terms of dosage and care coordination is suggested to be counted in time. (**Note** towards the end of the modelling process, it was agreed to model pharmaceutical medications as six types, as a block overhead applied to the model as a per capita charge for each age group.)
- In the development of care packages, it has been agreed to consider age first, then severity, then diagnosis. For example, the specialist ambulatory services might consider care packages relevant to youth (or a subset of youth if necessary), and then look at moderate severity and then consider the diagnoses within that group and whether they require different care packages.
- Consider service elements in terms of function rather than location or format of a service. The Framework does not prescribe how a service is provided, and may represent the public, private or community managed providers.
- Consider the perception of members in what they would describe or judge to be mild, moderate or severe illnesses. Different health professionals and service environments tend to influence perception, and so it is important to refer to the material provided on the definition of severity to ensure consistency in the modelling process across the groups.

Note that these principles were designed to guide the modelling activity in a consistent manner, but were not meant to be restrictive or too prescriptive if evidence supports taking a different path. Members were encouraged to employ the best methods possible in the time available to develop a comprehensive framework.

2.4.3 Staged Development of the Model

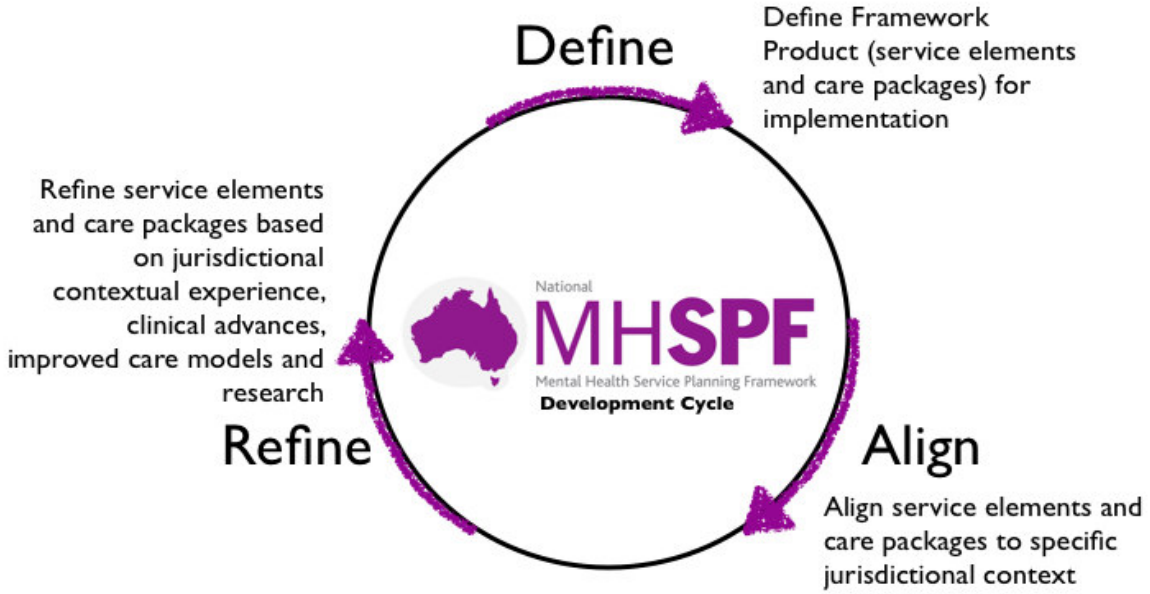
The NMHSPF Project is built on the existing planning work by both NSW and Queensland over the last 10 years. This work significantly informed the specialist community mental health and inpatient service aspects of the Framework and formed a solid foundation for further definition of other programs and service environments. A staged process to develop the NMHSPF was outlined in the Project Proposal and is shown in **Figure 2** below.

Figure 2 - Staged Development of a NMHSPF

	Model Components				
	Executive	**Modelling Group**	**Services Group**	**Clinical Group**	**Costing**
Stage 1	Nominal list of products/ core service elements for which targets are to be set.	Group formation: Model **V0**	This group will not form for Step 1. NSW & QLD existing service elements will be used to develop **V 0.**	This group will not form for Step 1. NSW & QLD existing service elements will be used to develop **V 0.**	NSW & QLD existing service elements will be used to develop **V 0.**
Stage 2		Summary of existing Model; Add national population to **AUS V0** to get **AUS V1**	Group formation: All jurisdiction's service elements. Take the AUS V0 service elements – identify gaps and problems – develop potential solutions for the Australian context **(AUS V1).**	Group formation: All jurisdiction's care packages. Take the AUS V0 care packages – identify gaps and problems – develop potential solutions for the Australian context **(AUS V1)**	Out of scope
AUS V1 models to Expert Working Groups for continuous improvement process					
Stage 3	Review and prioritise	**AUS V2.** Once data received remodel	Upgrade and rationalise service elements with nationally agreed numeric attributes	Upgrade and rationalise care packages with nationally agreed clinical standards with outcome basis where possible	Out of scope
Stage 4	Define products/service elements for target setting	AUS V3	New service elements based on improved care models and research	New care packages resulting from clinical advances and research	Out of scope

The existing NSW planning model has been modified to improve the product over the last 10 years and a similar process was followed for this Framework. It is the expectation that a Design/Align/Refine cycle will be applied to the Framework for the development of future iterations (refer **Figure 3**).

Figure 3 - Define/Align/Refine development cycle for the NMHSPF



At Version 1, the NMHSPF project has completed 1 and 2/3rd cycles of the Define/Align/Refine development cycle.

2.4.4 Level of Evidence

The NMHSPF is based on sound epidemiological data that quantifies the prevalence and distribution of the various mental illnesses, as well as evidence-based guidelines that identify the mental health care required for the range of conditions.

Specifically in the context of the Promotion and Prevention modelling, a hierarchy of evidence was formulated, reflecting clinical consensus and Australian best-practice. **See Level of Evidence Classification.** Promotion and Prevention activity was reviewed in the context of the outcomes of the research and strength of the evidence and included or excluded from the modelling accordingly.

3 Project Scope

It was the intention of the NMHSPF Project to develop a Framework that estimates the need and demand for mental health services across all age ranges and across the continuum of care, from prevention and early intervention to the most intensive treatment. However, due to a short project timeframe and the broad and complex nature of the task, the Executive Group agreed to specific boundaries for this iteration of the model with a view to make recommendations to the Australian Government on additional work that focuses on specific population groups.

A summary of the boundaries of project activity is provided in the following table:

Table 1 - Summary of the Boundaries of Project Activity

Within Scope of Project	Beyond Scope of Project
Stage 1 and 2 of developing a NMHSPF (see Figure 2)	Stage 3 and 4 of developing a NMHSPF (see Figure 2)
Generic costs that can be applied to the Framework and consideration of applying a Resource Distribution Formulae for jurisdictional specificity	Specific additional costing work where data is not readily available.
1 and 2/3rd development cycles (see Figure 3) to the alignment of NMHSPF V1 by developing and communicating a generic implementation plan.	Development or execution of jurisdictional specific implementation plans or further development of the Framework beyond V1.
The Project will consider the specific mental health components of health promotion/prevention; General Practice provided services; private psychology and psychiatry services; specialist community mental health services; psychiatric disability support services; rehabilitation and recovery services; specialist inpatient and hospital-based mental health services (public and private); mental health services provided in general hospital wards; and mental health services provided in/for residential aged care facilities. The Project will address all ages and 'what should be'; not necessarily 'what is'.	Specific modelling for components of the service system that are not mental health specific is out of scope. Daily care needs of the person with mental illness that are met by other sectors are acknowledged in the Framework with their inputs and outputs not modelled in the resource component of the Framework.
Physical health screening items that specifically inform and are a requirement for mental health care (e.g. physical health status relevant to Electroconvulsive Therapy (ECT) or haematology related to clozapine treatment) will be included.	General physical health needs of individuals with mental illness will be identified by the Framework as a service provided by another sector.
The Project will determine Full Time Equivalent (FTE) by profession type at a high level (e.g. medical, allied health, vocational, peer) for delivery of particular components of care packages.	In relation to service elements and care packages, the Framework will be silent on the sector that should deliver the services (public versus private versus Community Managed Organisations).
Subgroups of populations are included in the demographic data that is applied to the model. The Project will consider Resource Distribution Formulae to make adjustment for dispersion factors and other factors shown to incur additional cost for delivery of health services. **Note** the people within these sub-groups are included in	Modelling specialised care packages for specific population sub-groups is beyond scope including, but not limited to: • Aboriginal and Torres Strait Islander communities • Other culturally and linguistically diverse

Within Scope of Project	Beyond Scope of Project
the general quantification of population as this is an 'all peoples' model that covers the whole Australian population. For instance, the model still counts people within rural and remote communities, and counts the care required by them, but does not have a specialised care package that considers their very specific needs.	communities (incl. Humanitarian entrants) • Rural and remote communities • Forensic patients • Serving defence personnel • Homeless people
Psychotherapy is targeted at a clinical diagnosis and supportive counselling is focused on psychological distress. School counsellors are considered in scope[5]	The term 'Counselling' in the NMHSPF taxonomy is not required by law to be staffed by a registered health professional. Currently not in scope are counsellors employed in other settings e.g. Family court.
Complicated dementia and the complex behaviours associated with dementia that cannot be managed within an aged care facility are in scope. Besides older person's Individual Support and Rehabilitation, this is largely provided as a partnership between specialist mental health ambulatory services with residential aged care facilities.[6]	Other forms of dementia that are sufficiently serviced by generic aged care services.

3.1 FACTORS OF IMPLEMENTATION

Whilst it was the intention to consider socio-demographic factors such as culturally and linguistically diverse groups and other sub-population groups (e.g. forensic patients; remote communities; defence personnel; homeless people), it was not possible within the Project timeframe and resources allocated to identify specific service elements and develop care packages for all groups.

Implementing the model for particular cohorts in a community may attract increased costs or require a modified approach to service format and delivery (e.g. delivering services in rural remote environments, provision of services for culturally diverse populations). The Modelling Group[7] examined the existing NSW Ministry of Health approach, applying a Resource Distribution Formula (RDF) to the model. Upon investigation, the NSW process was not based on a compatible algorithm that could be applied to this project. For full details on these RDF investigations, see **Factors of Implementation.**

Overall, it was noted that every jurisdiction has too many different characteristics and therefore would be impossible to average an effective resource distribution formula in a national context. Therefore this technical manual provides instructions on the issues to be considered regarding implementation of the model enabling the end user to resolve the issues at a local level.

[5] Reference NMHSPF EWG 060213 - PCCNH Notes of 6 Feb Mtg

[6] Reference NMHSPF MG Debrief 1- 300412- Notes

[7] Reference: NMHSPF MG 210513- Draft Minutes

3.1.1 Issues to be considered upon implementation

The issues to consider include:

- Costs of Full Time Equivalent (FTE) by profession type in the jurisdiction.
- Consideration of 'economies of scale' and 'geographic self sufficiency'
- Impact of service system structures:
    - Consideration of the need for seamless transitions between services for age groups, eg youth to adult, adult to older adult services.
    - Each jurisdiction will need to decide who delivers the services (public versus private versus Community Managed Organisations), as the model is 'silent' on provider.
- Consideration of particular cohorts in the community, such as:
    - Aboriginal and Torres Strait Islander communities
    - Other culturally and linguistically diverse communities including humanitarian entrants
    - Rural and remote communities
    - Individuals with Mental Illness in the Justice System
    - Serving defence personnel
    - Homeless people
    - Older persons' Peer Support

Each of these is briefly discussed below.

Costs of Full Time Equivalent (FTE) by profession type in the jurisdiction

Each jurisdiction develops and maintains their own wage rates across the workforce modelled in the NMHSPF in accordance with their local industrial relations requirements. A notional Australian average has been applied to the NMHSPF FTE (see **Appendix 14 Technical Note – Approach to Modelling Staff Costs**) however this can be amended with local costs.

Economies of Scale/Geographic Self Sufficiency

It should be noted that the modelling is attributed to a nominal age specific population of 100,000. However, from the perspectives of 'economies of scale' and 'geographic self sufficiency', the outputs of the model (i.e. the full range of services elements and associated care packages) will, in reality, approach economic viability with total populations of all ages of at least 300,000. Smaller jurisdictions should therefore note that the modelling will accurately assess service demand/need, but creative solutions on how the need is resourced may need to be considered.

There will also possibly be a gap between the quantity of resources proposed in the model and the actual resources in place. This will provide users with the opportunity to conduct a gap analysis and identify areas for future investment (or a redistribution of current resources).

Impact of Service System Structures

The structure of service systems differs significantly between jurisdictions, partly due to differing economies of scale but also due to policy platforms and local priorities. The NMHSPF models functions as individual services provided by either individual workforce categories or by team staffing profiles. Service systems may not support these functions as individual services, particularly in circumstances of a small economy of scale where it might be more cost effective to incorporate the function into a bigger service with specialised staff (for example). Similarly, each jurisdiction has independent ideas on how services are delivered across sectors and there are known cost and productivity differences between the public, private and community managed sectors that will be need to be considered in implementing the model.

Aboriginal and Torres Strait Islander Communities

The needs of Aboriginal and Torres Strait Islander people are diverse. The Australian Government Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA) has highlighted several issues that affect this community including "high levels of unemployment, social breakdown, alcohol and other drug abuse, crime, welfare dependency, poverty and high rates of mortality." They further note that "Cultural and language differences, remoteness, unique histories and particular emotional needs mean that providing equal mental health services to address the needs created by these issues frequently require distinct approaches that recognise the cultural and spiritual understanding of Indigenous communities."[8]

The model is driven by the total Australian population approximately 23 million people. It is an "All Peoples" model. Although the epidemiology includes Aboriginal and Torres Strait Islander communities, users need to consider the likely additional cost required to implement mental health services in an effective and respectful manner.

Culturally and Linguistically Diverse Groups (CALD)

People from CALD backgrounds face barriers to accessing and receiving appropriate (culturally sensitive) mental health services. Issues include social isolation, marginalisation and discrimination, as well as access to services. Refugees arriving in Australia for humanitarian reasons often experience significant torture and trauma in relation to the conflict in their country of origin, extended displacement and poor nutrition and health status. Post arrival in Australia, many refugees are at risk of isolation due to separation of family and lack of local support. Delayed presentation of mental health issues (associated with the refugee experience) may require intervention after normal eligibility has expired. Language, cultural and lack of knowledge of the Australia's health system also results in a lack of appropriate health services for this group.[9]

The NMHSPF cannot account for specialist care packages for this group as their mental health care is largely influenced by current immigration policy. Users will need to accommodate the many special considerations that apply to this group in terms of individual need and systemic barriers to care.

The NMHSPF members recommended that interpreters need to be clinicians and trained appropriately in cultural issues. All interpreters need to have a level 3 linguistic skill base.[10]

Rural and Remote Communities

Individuals living in rural and remote communities have particular mental health needs in response to isolation, exposure to environmental risk (fire, drought etc) and financial burden. Risk taking behaviour, stoic responses to health issues and a lack of infrastructure are also common to rural communities. Rural and remote communities experience several issues in relation to health care delivery. Difficulty in recruiting specialist mental health staff and economies of scale issues are likely to apply resulting in the current practice of focusing services in regional centres or the extended use of electronic and tele-medicine services.[11]

Jurisdictions with high rural and remote populations should therefore note that the modelling will accurately assess service demand/need, but creative solutions on how the need is resourced may need to be considered.

[8] Reference: AU-FAHCSIA-PHAMS Evaluation-targeted_mhi_report

[9] Refugee Council of Australia. http://www.refugeecouncil.org.au/f/smt-hth.php Last accessed 29/07/2013

[10] Reference NMHSPF EWG240613 – Notes

[11] NSW Centre for Rural and Remote Mental Health (2002) "The Tyranny of Distance" Issues that impact on mental health care in rural NSW, Caring for Carers Project, NSW Schizophrenia Fellowship.

Individuals with Mental illness in the Justice System

In 2006, the Senate Select Committee on Mental Health identified the disproportionate incidence of mental illness in the justice system.[12] As with other special population groups, these individuals are included in the epidemiology because this is an "All Peoples" model, but the NMHSPF cannot predict their mental health care as it is influenced by judicial input (e.g. involuntary orders, incarceration) that varies across jurisdictions. Users will be required to identify the proportion of services that should be considered in a forensic context.

Serving Defence Personnel[13]

The Australian Defence Force (ADF) is one of the largest mental health care providers in Australia. Mental health care for military personnel is diverse and may take the form of resilience and mental health literacy training, pre-deployment briefing, post deployment screening and support, psycho education, clinical treatment and rehabilitation services and care coordination.

The use of health screening at recruitment and discharge where an individual is no longer 'deployable' due to illness means the ADF population has a statistical advantage in "healthy workers". Based on mortality and suicide data for the ADF versus general community however, the ADF may have approximately half of the prevalence of mental health issues than the general community.

The occupational stress of the ADF may increase the prevalence of several mental health issues, including depression, anxiety, adjustment disorders and substance abuse. The stress may stem from the experiences during deployment, separation from families/friends during deployment and the general demanding nature of being in the defence forces, including physical, mental and social/emotional stress.

The NMHSPF modelling does not account for any special arrangements required to deliver mental health care in a military environment. Users will need to consider specialised issues as volume during periods of high deployment or trauma and also access to mental health care in an operational military setting.

Homeless People

There is a high prevalence of mental illness amongst people who are homeless. It is believed that interaction between individual factors (e.g. drug abuse, social isolation and mental disorders etc) and system factors (e.g. poverty, victimisation, danger etc) are the cause for this, but the direct causal relationship between risk factors and homeless is not known[14]. Users will need to consider the special needs of this population, particularly in relation to providing a coordinated, inter-sectoral response.

Older persons' Peer Support

Within the NMHSPF model, peer support for older persons is modelled where needed, the most appropriate peer support, targeted to consumers or carers. It is noted that what is most important is the lived experience of mental illness or lived experience of caring for a person with mental illness, and lived experience of being older. Peer support for older people is an evolving space and clearly should be interpreted in that context. The older persons care packages so far include carer peer support rather than consumer peer support. The costs for carer peer support and consumer peer support are the same; therefore jurisdictions can decide on the implementation most appropriate to their situation.

[12] Senate Select Committee on Mental Health (2006) A national approach to mental health: From crisis to community.
[13] Dunt, D. (2009) Review of Mental Health Care in the ADF and Transition through Discharge, Australian Government, Canberra.
[14] Australian Department of Health and Ageing (2006) Homelessness and Mental Health Linkages: Review of National and International Literature, Commonwealth of Australia, Canberra.

4 Taxonomy Development

4.1 GENERAL APPROACH

The NMHSPF Project modelling process involved building up the total requirements of a mental health service system from well-defined building blocks. The very first task was to establish a range of service elements common to all jurisdictions that were considered necessary components to a comprehensive mental health care system. To provide structure for this work, a Jurisdictional Service Mapping process was conducted in 2011 which established a common language for current service provision and a draft Taxonomy of mental health Service Elements was developed. This Taxonomy was modified throughout the modelling process as required.

The Service Elements in the Taxonomy had resources attached to them and were modelled with other Service Elements to make up Care Packages for different population groups. Some mental health activity was considered easier to quantify as an overhead rather than as a service (e.g. pharmaceutical products), and these are represented in the taxonomy and included in the modelling as a per capita cost per age group.

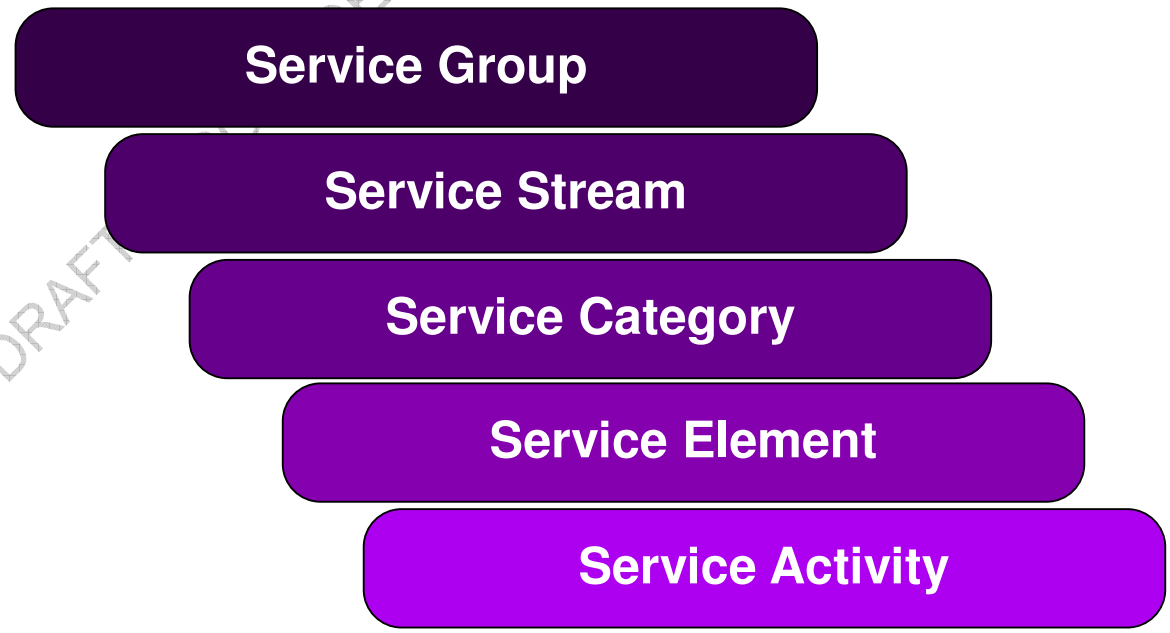
4.2 TAXONOMY STRUCTURE

The aim of this process was to establish a 'standard' range of service elements that reasonably reflect the core service components of the mental health service system, and also result in the development of a consistent language across Australia when describing services.

The taxonomy is a classification system. It is divided into 'streams' thus separating ambulatory from bed based and clinical from non-clinical care, and should not be interpreted as to be supporting any particular sector or arrangement for these services to be provided.

The taxonomy structures mental health services into Service Groups, Service Streams, Service Categories Service Elements and finally into Service Activities, as shown in Figure 4 below.

Figure 4 - Taxonomy Structure



A 'Service Element' or 'Service Activity' can be considered the basic building blocks used in the modelling and each relates to one aspect of mental health care (e.g. Acute inpatient service or crisis assessment).

The following is example is used to provide explanation of the Taxonomy structure:

Taxonomy Structure	Example
Service Group	Services Tailored to Individual Needs
Service Stream	Specialised Mental Health Community Support Services
Service Category	Individual Support and Rehabilitation Services
Service Element	Individual Support and Rehabilitation
Service Activity	Individual Support and Rehab linked to accessing and maintaining safe and secure housing including practical skills for maintaining a home and living well

Early in the NMHSPF Project, a series of workshops were conducted in all States and Territories to review the range of current mental health care provided and develop a common language for each service function. Given that each State and Territory structures their services differently and sometimes has unique service characteristics relevant only to their jurisdiction, the mapping process was valuable in determining the common service elements that are generally considered to make up a comprehensive mental health service system.

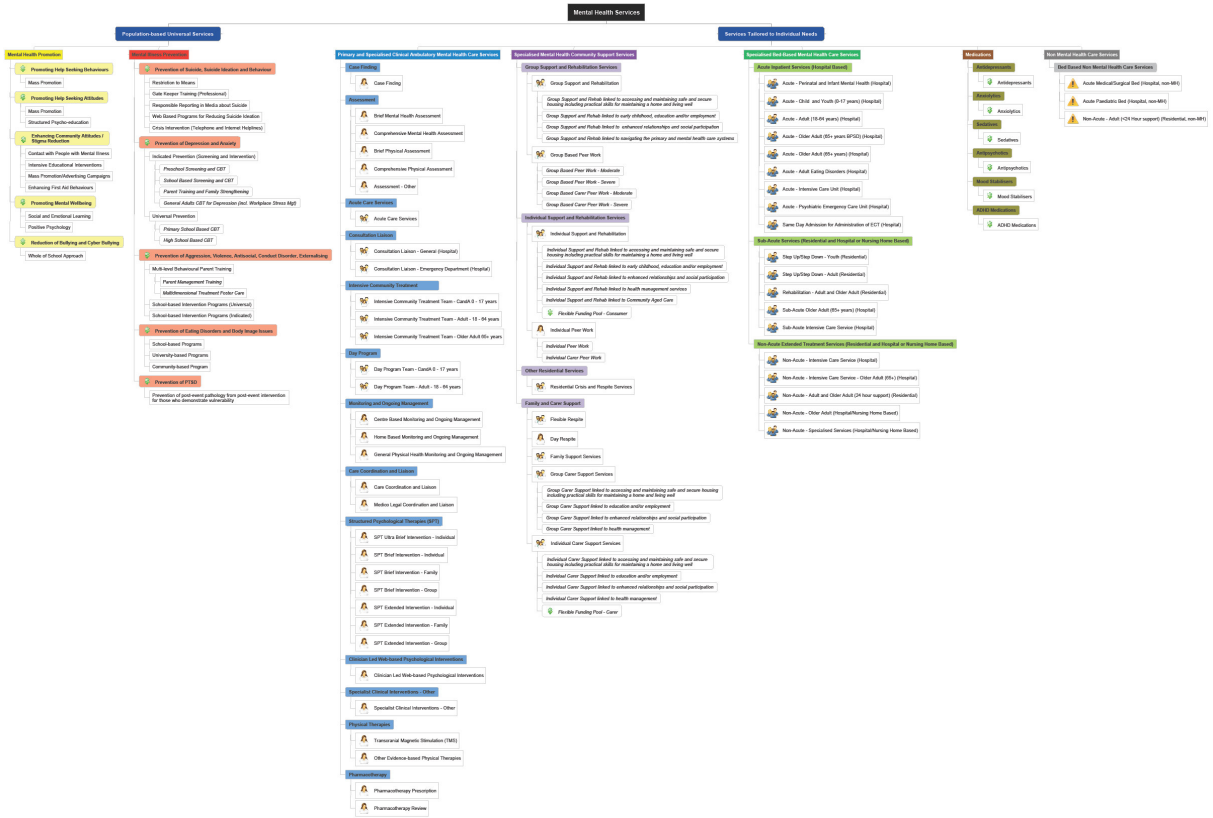
Flowing from the Taxonomy are descriptions of Service Elements and their activities. These descriptions aim to ensure clarity on the scope and function of each component in the Taxonomy. The descriptions are both quantitative and qualitative in nature and allow future users to understand the context of each element and activity and the resources estimated for those functions. This work is very extensive and can be found in the NMHSPF Service Element and Activity Descriptions document.

Note that Service Elements describe only a general function of the service and do not determine who or where or how the service is delivered. This characteristic allows jurisdictions flexibility at the end of the Project to administer the services in the manner most appropriate to their capacity, service structure and priority.

The preliminary range of service elements formed the basis for discussion at the first meetings of the Modelling Group and Expert Working Groups, and was modified and refined over the course of the project.

The structure of the NMHSPF Taxonomy is depicted in the figure below. Note that the text is very small, and this image is only included as a visual representation.

Figure 5 – NMHSPF Taxonomy



For the Taxonomy list and a full sized version of the above figure, see **Taxonomy** or refer to the NMHSPF Service Element and Activity Descriptions document.

4.3 PROMOTION AND PREVENTION STREAM DEVELOPMENT

Mental health promotion and prevention interventions are key components of an evidence-based mental health framework. Promotion and prevention initiatives incorporate broad social interventions, such as policy and environment, as well as skills and knowledge enhancement for children, adolescents, adults and older adults.

The modelling for promotion and prevention activity commenced approximately half way through the project. A group of professionals with expertise in these areas was sourced in addition to the three existing Expert Working Groups.

The method for identifying and quantifying promotion and prevention activity differed significantly from the rest of the NMHSPF Taxonomy. This is largely due to the fact that some promotion and prevention activities are not easily quantified in time and workforce type and some offer difficulty in measuring efficacy of the intervention (e.g. self help internet or telephone support).

Therefore, the Promotion and Prevention Working Group commenced the modelling process with a workshop that identified a diverse range of promotion and prevention activity. Members then reviewed published research and considered it in the context of an evidence based classification system (see **Level of Evidence Classification** and whether the outcomes of the research supported the interventions for inclusion in the NMHSPF Taxonomy.

Upon review, service elements were either:

- Added to the taxonomy if shown to be efficacious;
- Not included in the taxonomy but highlighted for further research if research was inconclusive and the intervention was supported by the PPWG membership;
- Not included in the taxonomy because research reported ineffectiveness of the intervention or the research was entirely absent and was not otherwise supported by the PPWG membership.

All the details were included in the Service Element and Activity Descriptions document. Those Service Elements that were not included in the taxonomy were also detailed.

In terms of quantifying the activity, the promotion and prevention Service Elements were treated in various ways. Some were managed as a quantification of time against a particular resource for a particular population (e.g. Screening 60 minutes by a tertiary qualified professional and applied to all year 6 students). Other elements were costed in a block format such as self help internet and phone services.

The members agreed to model Promotion and Prevention as individual care packages in each age group, including only the Service Category level Taxonomy items, each with a dollar figure. Later it was agreed to roll up these dollar amounts and represent it at the Service Stream level only i.e. Promotion, and Prevention.

4.4 PRIMARY AND SPECIALISED CLINICAL AMBULATORY MENTAL HEALTH CARE SERVICE STREAM DEVELOPMENT

The Primary Care, Community and Non Hospital (PCCNH) Expert Working Group (EWG) assumed responsibility for developing this stream in the NMHSPF Taxonomy. These services represent primary and ambulatory care by a specialist clinical professional to an individual with a diagnosis of mental illness.

Primary mental health care services are the first contact with health services and this typically involves presentations to general practitioners. These services are aimed at early detection and treatment of mental health problems and the maintenance of mental health. They are usually focussed on the high prevalence disorders of anxiety and depression and would tend to refer other conditions to specialist care. Primary mental health care is often the first port of call during the acute phase of an illness. The services are tailored to individuals or groups of individuals, usually in community settings, within a service model where mental health problems are identified and managed as part of a broader range of health care to a population. Primary mental health care services may be delivered via a range of modalities, including face-to-face contact, print, internet and telephone, and may be provided on an individual or group basis.

Specialist Clinical Ambulatory services however, are generally a secondary service that usually requires referral from another professional. There are exceptions to this however, notably in acute or emergency care services who respond to crisis situation without a prior referral. Specialist ambulatory services may be team based or individual in nature and they are usually provided to individuals with a diagnosis of mental illness experiencing severe psychological disability in a community based setting.

As all of these services are clinical in nature, members conceptualised activity in the same manner as that which is commonly reported in current service settings e.g. assessment, monitoring, various therapies. Rather than repeat work already developed, the PCCNH EWG developed some of the service elements in alignment with the AIHW Mental Health Information Classification Index.[15] While this approach worked for services provided by an individual practitioner e.g. GP, Psychologist, there were other team based services, particularly in the specialised ambulatory care space, that were better represented as a “team” of total care activity e.g.

[15] Australian Institute of Health and Welfare (2012). *Development of a Prototype Australian Mental Health Intervention Classification 2013,* Commonwealth of Australia, Canberra.

Acute Care. The team based approach allowed for a more encompassing style of service delivery that reflected modern practice and avoids having to develop unnecessary rigidity and guess work around specific service activities performed by the team e.g. quantify assessments per person. Instead, the team approach allows a group of staff to provide holistic mental health care as required by an individual. These service elements were developed from various research and models of care and encompass all of the activities of assessment, review, therapy and monitoring, but in the context of a specialist ambulatory multidisciplinary team.

For the purpose of this project, a definition of primary mental health care services was used, based on one developed by the Queensland Centre for Mental Health Research[16]. The service elements in the Primary and Specialised Clinical Ambulatory Mental Health Care Services Stream include services for individuals with:

- Mild disorders that are treatable entirely within primary health care;
- Moderate disorders that are treatable in primary health care with specialist assistance; and
- Severe disorders that require specialist care by multidisciplinary ambulatory teams and may also require hospitalisation, disability support and rehabilitation and recovery services.

In the course of the Project, several issues were identified and the Taxonomy evolved over time. Of particular note are physical health assessments and home based versus centre based care.

Noting the scope attached to physical health care, where only that which is essential to mental health care has been modelled, the PCCNH EWG members identified several clarifications relevant to young children. Members agreed that various physical health assessments were an essential part of mental health care e.g. for the 0-4 yrs age group: Speech therapy, physiotherapy, paediatrician, audiology and have been included in the modelling. However, the ongoing treatment for these services is managed by another sector and is therefore out of scope[17].

In relation to home based care and centre based care, the consumer service delivery time of staff in each of these environments differs significantly, particularly in relation to travel time expended in home based care. Members agreed to keep both the home based and centre based care options, modelling each separately via specific staffing profiles[18].

4.5 SPECIALISED BED BASED MENTAL HEALTH CARE SERVICES STREAM DEVELOPMENT

Initially, this part of the Taxonomy was named Inpatient and Hospital Based Services but was renamed to Specialised Bed Based Services to represent the integration of clinical and non-clinical service orientation and also the mix of hospital and community based environments. The members responsible for developing the Bed Based Services Stream were the Inpatient and Hospital Based Services (IHBS) Expert Working Group (EWG).

Specialised bed based services include all specialist mental health services that require overnight care in a hospital or community based residential setting with the exception of Residential Crisis and Respite Services (which appears in the Specialised Mental Health Community Support Services Stream). The services are divided into three categories of Acute, Sub-Acute and Non-Acute services and represent a mix of specialist clinical and non-clinical staff in both hospital and community environments. These services are usually used by individuals with severe and persistent mental illness and various levels of associated functional disability. The average length of stay is generally shortest for acute bed based services.

[16] Developing an operational definition of primary mental health care - QCMHR
[17] Reference: NMHSPF MG Debrief 3- 131112- Draft Notes edited
[18] Reference NMHSPF MG 120313- Draft Minutes

The most straightforward part of this Taxonomy was the development of the acute bed based services that are traditionally hospital based and share common characteristics across most jurisdictions. The area of greatest contention and diversity around Australia was the sub-acute bed services. There were several factors that made this issue complex:

- There was no nationally accepted definition for “sub acute” mental health services in Australia at the time of development, causing confusion in interpretation and understanding of concepts;
- Services defined as “sub acute” were provided in both hospital and community environments
- Service characteristics across the various models of care differ significantly including target group, average length of stay and the nature of the partnership between the public mental health service and community support sector in place to deliver the service.

The IHBS EWG members resolved the disparity by reviewing sub-acute models from a variety of jurisdictions to ensure all members could make an informed choice based on uniform information. On that basis, the membership identified which model of care would most accurately represent a ‘best example’ service across the jurisdictions and would be most appropriate in a modern mental health care system.

In the latter stages of the project, members agreed to develop separate staffing profiles for bed based services across the three age cohorts of children/youth, adults and older people. This approach allowed the modelling to accurately reflect the different mix and proportion of resources required by the different age cohorts.

4.5.1 Beds modelled within the taxonomy

Stream	Type	Service Element
Specialised Bed-Based MH Care Services	Acute	Acute - Perinatal and Infant Mental Health (Hospital)
		Acute - Child and Youth (0-17 years) (Hospital)
		Acute - Adult (18-64 years) (Hospital)
		Acute - Older Adult (65+ years BPSD) (Hospital)
		Acute - Older Adult (65+ years) (Hospital)
		Acute - Adult Eating Disorders (Hospital)
		Acute - Intensive Care Unit (Hospital)
		Acute - Psychiatric Emergency Care Unit (Hospital)
		Same Day Admission for Administration of ECT (Hospital)
	Sub-Acute	Step Up/ Step Down - Youth (Residential)
		Step Up/Step Down - Adult_(Residential)
		Rehabilitation – Adult and Older Adult (Residential)
		Sub-Acute Older Adult (65+ years)(Hospital)
		Sub-Acute Intensive Care Service (Hospital)
	Non-Acute	Non-Acute - Intensive Care Service (Hospital)
		Non-Acute -Intensive Care Service - Older Adult(65+) (Hospital)
		Non-Acute - Adult and Older Adult (24 hour support) (Residential)
		Non-Acute - Older Adult (Hospital/Nursing Home Based)
		Non-Acute - Specialised Services (Hospital/Nursing Home Based)
	Non Mental health	Acute medical/surgical bed (Hospital, non-MH)
		Acute paediatric bed (Hospital, non-MH)
		Non-Acute - Adult (<24 hour support) (Residential)(non-MH)

4.6 SPECIALISED MENTAL HEALTH COMMUNITY SUPPORT SERVICES STREAM DEVELOPMENT

The Specialised Mental Health Community Support Services Stream was developed by the Psychiatric Disability, Support, Rehabilitation and Recovery (PDSRR) Expert Working Group (EWG). This range of services was predominantly non-clinical in nature, and was largely centred around community based outreach services, with some group support and crisis respite residential service.

In formulating the Taxonomy, the membership agreed on two key principles. Firstly, it was agreed to review the existing draft work of the AIHW Non-Government Organisation National Minimum Data Set (AIHW NGO NMDS) that was working towards the development of a common taxonomy of community mental health support services. Secondly, members decided early on to also consider an outcome-oriented approach to the Taxonomy.

The AIHW NGO NMDS was an independent process in its early stages and it was agreed across the two projects to try and marry the two taxonomies. However, this goal became difficult to achieve because of the two different purposes that the taxonomies were going to perform. The NMHSPF Taxonomy is restricted by its specific intention to be the fundamental basis of all modelling. This means that there were technical restraints that required careful delineation of boundaries, grouping according to common characteristics and coherence with other parts of the Taxonomy. Therefore, upon reviewing the AIHW NGO NMDS, the PDSRR EWG could not match some elements of their Taxonomy because the NMHSPF had broken an element down further, aggregated an element into another, or had re-located the element to another part of the Taxonomy. A mapping exercise between the two documents is available at **NMHSPF Mapping with AIHW Non Government Organisations National Minimum Data Set (NGO NMDS).**

It was also very important to the PDSRR EWG members to ensure a recovery oriented, outcome focussed approach was considered in all of the Service Elements in this stream. Upon agreeing to the fundamental structure of services, members identified four outcome areas of housing, health, education/employment and social connectedness and applied them to all individual and group support and rehabilitation Service Elements for both the individuals with mental illness and their carers.

However, at a later point in the project, it became apparent that it was impossible to discern the quantity of time spent on any one of these outcome-focussed activities when it differs so significantly for each individual. Therefore, members ended up modelling the generic Service Element (e.g. Individual Support and Rehabilitation) in the Care Packages, allowing the service on the ground to determine the direction the care should take that would most benefit the client in their journey of recovery. To support the outcome focus however, members developed detailed description of each activity to support outcome-focussed care.

The other key issue addressed by the PDSRR EWG was to gain common understanding of the concepts of Personalised Support, Rehabilitation and Recovery. Stimulus material[19] was developed and provided to a subgroup of members across all of the Expert Working Groups to ensure a common understanding would be promoted across all groups. Upon review of the material, all members agreed to concepts expressed and developed key activities that would promote a consistent recovery orientation to the modelling.

The stimulus material is included among the references. See **List of References and Data Sources.**

[19] NMHSPF EWG 160712 – Item 3.1A Rehabilitation and Recovery Stimulus Material

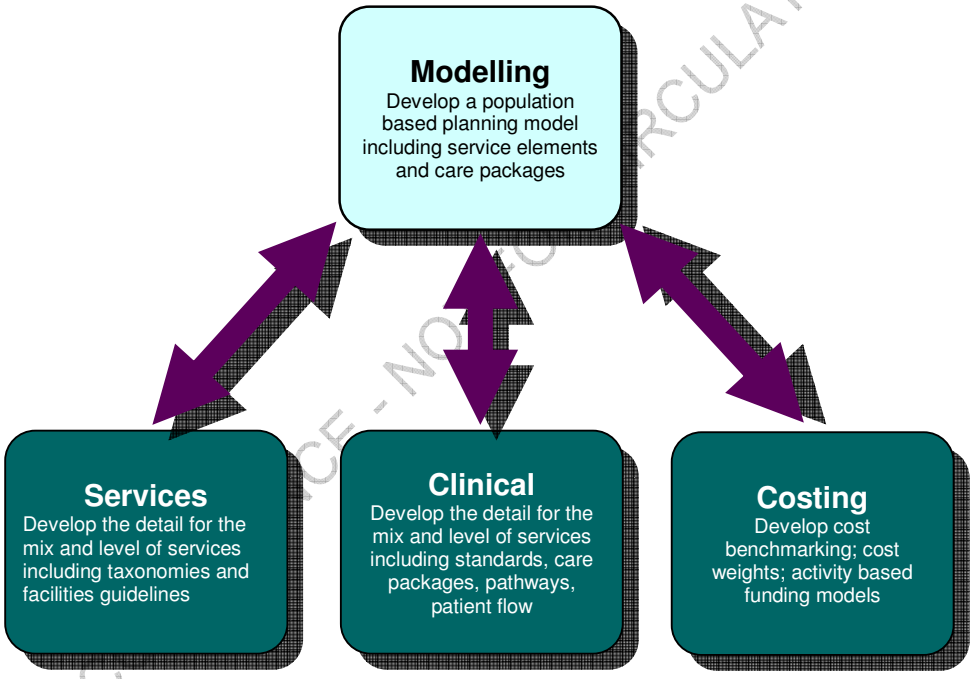
5 NMHSPF Model Structure

A Planning Framework is essentially a tool for estimating the demand for services and the range and cost of resources required to support that demand.

To develop a planning framework, the key activity performed is a modelling process. This process includes three main areas of focus.

- The first area identifies the range of services and facilities available.
- The second explores how people move through the system and considers the quantity and type of care required.
- Finally, the third main component is a costing formula. This part considers the costs associated with staff and other resources, jurisdictions may need to include weighting for other issues, such as rural and remote services where service delivery might cost more.

Figure 6 – Developing A Planning Framework



5.1 OVERVIEW OF THE MODEL

On a functional level, the NMHSPF Model is a sophisticated tool that divides population prevalence and demand data into various need groups. Packages of care over a 12 month period are determined for each need group and their associated resources, outputs and costs can then be estimated. At a contextual level, the model derives these functional aspects on the basis of severity of illness, particularly in relation to the determination of the need groups and their care requirements. The high-level overview of the structure of the NMHSPF Model is illustrated in the Figure below and is described in the sections that follow.

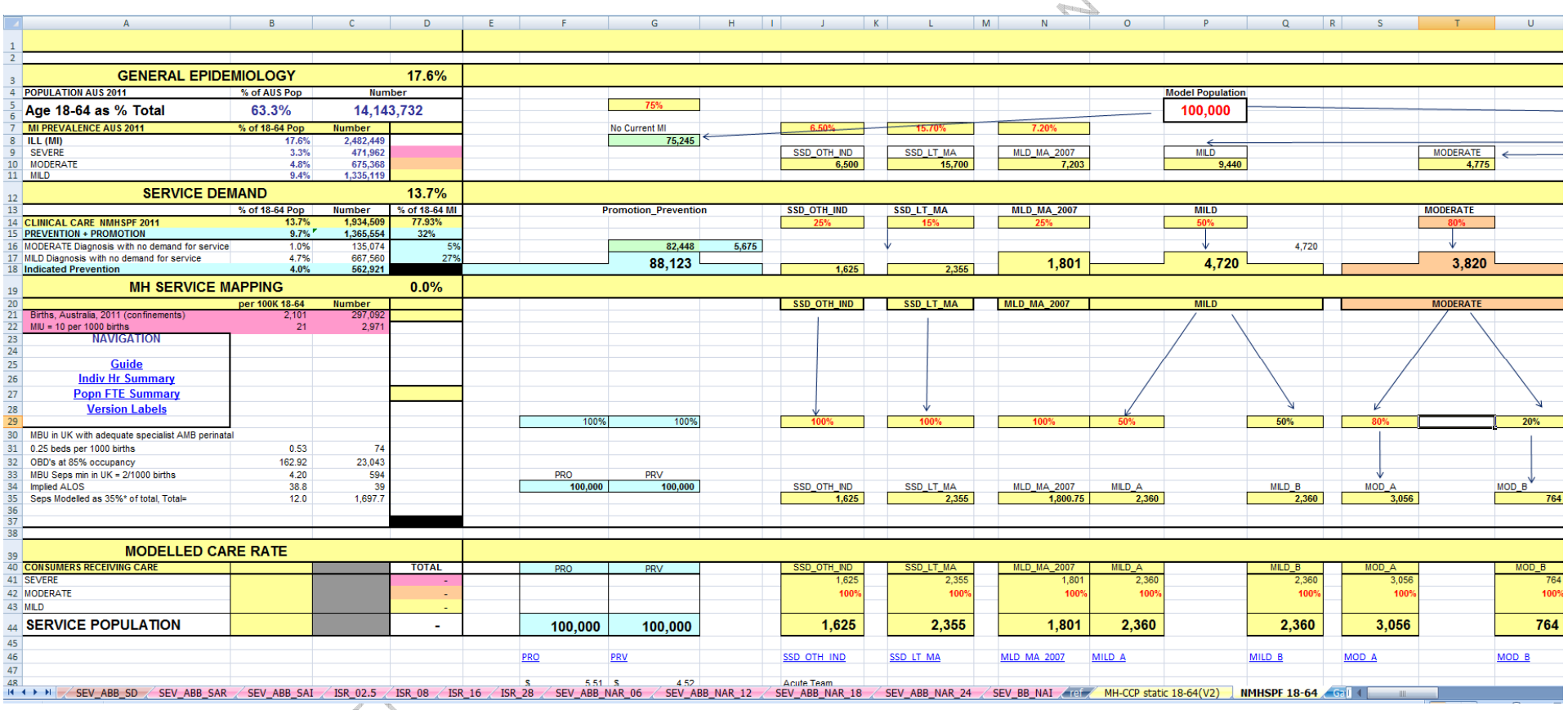
Figure 7 – High-level overview of the NMHSPF Model Structure

.

5.1.1 The Flowchart

Each age group modelled has a flowchart that summarises the relevant detail of the service mapping and care modelled for that population. A small portion of the flowchart for the age group 18-64 is shown below for illustration purposes only. Please refer to the Care Package Documents for the full flowchart and further detail.

Figure 8 – Portion of 18-64 yrs Age Group Flowchart



5.2 THE GENERAL EPIDEMIOLOGY

The first part of the model is the revised General Epidemiology based on the Australian Burden of Disease (AusBoD) study of 2007[20].

This section identifies the prevalence of mental illness in a given population over a 12 month period and proportions them across the three levels of severity (MILD / MODERATE / SEVERE). Please refer to **section** 0

[20] Begg S, Vos T, Barker B, Stevenson C, Stanley L, Lopez AD, 2007. *The burden of disease and injury in Australia 2003.* PHE 82. Canberra: AIHW. We thank A/Prof Theo Vos for assistance with using this material.

Defining Severity for more information on how these terms are defined.

The proportion of people with no current mental illness is also depicted along with calculations for two Indicated Prevention populations who do not meet criteria for a diagnosis of mental illness within that 12 month period, but are accessing mental health care. These people may have had a diagnosis in the past and are accessing care to maintain their wellbeing or instead may be escalating towards their first diagnosis. See **section 9.3 Indicated Prevention Populations** for further details on these groups.

5.3 SERVICE DEMAND

The Service Demand (also known as 'Treatment Rates') identifies what proportion of the population prevalence actually seeks services. It is understood that for various reasons, individuals with mental illness may not access services by either choice or because of various barriers. This may relate to:

- The nature and severity of their illness (e.g. many people with mild mental illness do not seek help)
- Personal characteristics (such as values, stoicism, insight, cultural or religious issues)
- Financial or environmental issues (e.g. stigma, access to service issues) or
- The individual may be well supported through informal or social networks (family, friends, workplaces).

The estimated percentage of individuals with mental illness provided mental health care in these categories has been set uniformly across the age groups as follows:

- **100%** of persons deemed to have a **SEVERE** impairment will seek and/or receive treatment,
- **80%** of persons deemed to have a **MODERATE** impairment will seek and/or receive treatment.
- **50%** of persons deemed to have a **MILD** impairment will seek and/or receive treatment,
- **Varying percentages** of persons deemed to be in the **Indicated Prevention** group will seek and/or receive treatment. For details, see **section 6.6 Service Demand Rate** Parameters.

These rates have been determined so as to reasonably align with the DSM-IV "Disorder thresholds". The service demand not only determines the quantum of people that seek mental health care, but conversely, the proportion of people that don't. In this case, the NMHSPF model estimates 50% of the MILD group and 20% of the MODERATE group may be conceptualised as "at risk" rather than requiring mental health care. This is largely because the epidemiological surveys show that those who meet epidemiological diagnostic criteria but are not impaired or distressed or feeling a need for treatment nevertheless has a higher risk for subsequent mental health problems. The model has incorporated these "at risk" groups to be the focus of Indicated Prevention programs in the NMHSPF.

For more information on how demand is established and the Service Demand Rates used in this model, please see **section 6.6 Service Demand Rate** Parameters in this document.

5.4 SERVICE MAPPING

The third part of the model is the Service Mapping which is linked to the epidemiology (and other sources). This section uses service utilisation data and other research to proportion the population across non-diagnostic categories (e.g. promotion, prevention, indicated prevention and Children of Parents with Mental Illness – COPMI) and diagnostic positive categories of MILD, MODERATE and SEVERE[21] levels of illness in the context of specific need groups.

The mapping process is not dissimilar to a 'tree diagram' where the total population is split into the broad severity categories and then from there are further broken down into smaller populations. The bottom row of the tree diagram seen in the Flowchart represents the smallest population component that will be applied to one Care Package.

The extent of service mapping and breakdown of the greater population into smaller ones is largely informed by the nature of the care required by each group. For example, the variance in the type of care required by individuals with MILD or MODERATE mental illness is very minimal to that provided for those with SEVERE mental illnesses. This is largely because people in the first two categories do not require any bed based services and due to comparatively high functioning to those diagnosed with SEVERE mental illnesses, do not require as much clinical input or community support service.

For those populations with SEVERE mental illness, several divisions of population have been made on the basis of:

- The format of care (e.g. individual versus group based options)
- Key differences in the characteristics of the population (e.g. Standard versus Complex needs)
- Key differences in the quantity or type of care accessed (ambulatory services only versus combination of bed based and ambulatory, differing acuity of service provision); and
- Population splits as determined by research.

In most cases, each population down the tree detracts from the source population (i.e. the lowest level populations would aggregate up to equal the population quantum at the next level up). This approach avoids double counting the prevalence.

However, included in the service mapping are populations or blocks of care called 'Standalone Care' or 'Sprinkles' (see Standalone items - Sprinkles). These populations are usually an additional piece of modelling that applies above and beyond the normal epidemiological splits because they represent care that applies to all people across the model (e.g. Emergency Department care. Respite care) or may apply as an additional service need to a specific population (e.g. Children of Parents with Mental Illness).Therefore, all Standalone Items are modelled as an addition to the service mapping population splits as they literally "stand alone" from other aspects of the modelling.

5.5 CARE PACKAGES

The fourth part of the model is the Care Packages (CPs) and Standalone Care (Sprinkles). These describe the type and quantity of care for the different population need groups. The care packages specify the

[21] for definitions of MILD, MODERATE and SEVERE groups, see **section 0**

Defining Severity.

'average' care for an individual in the need group during a 12 month period. The care is usually described in the context of episodes of time by a particular workforce individual or team (e.g. Assessment 12 x 30 mins by GP). The care type is sourced from all across the Taxonomy as required for that population and the quantum is determined by research, various data sources or consensus of expertise. The level of care that is specified in a care package is deemed adequate, anything less is considered unsatisfactory. The care is also usually presented as an "average", meaning that in reality, the actual service utilisation will vary across the group.

It is important to note that the Care Packages, whilst they describe a package of care for 12 months, are not a care pathway. The care package assumes that at any one time a quantum of individuals will be requiring that range and quantity of services. Who those people are, and for how long they fit into that group is unknown. A week later, the same services might be being used by a different set of individuals who happen to fit that group's criteria. Therefore, the tool only estimates care required by a proportion of people at any one time for 12 months but does not direct the recovery journey required by each individual with mental illness.

Also worth noting is that the Care Package in the NMHSPF context is totally unrelated to care packages used in other service sectors (e.g. Community Aged Care Packages). Those care packages often specify the available care specific to an individual whereas the NMHSPF model applies the care to a population cohort.

Each service element in the taxonomy has either an individual workforce or team staffing profile, but never both. An individual staffing profile refers specifically to a single practitioner (e.g. psychiatrist, GP, peer worker) providing a quantum of time in mental health care. A team based profile is a useful approach where it is difficult to separate or quantify the individual tasks made by a group of people. Team profiles provide a ratio of a variety of workforce that might perform a diversity of functions. In the NMHSPF model, team profiles are largely used for all bed based services and community support services but also apply to selected ambulatory services.

The time shown in the care packages is the Consumer Service Delivery Time[22], and includes all activity related to the care of an individual with mental illness (whether face-face or indirect) but does not include travel. Therefore, Consumer Service Delivery Time includes face-to-face care, writing notes, individual care planning and liaison. In contrast, 'Other time' is defined to include all other non-individually focused time such as staff meetings, evaluation, performance monitoring and travel. Both of these calculations are incorporated into the model through the staffing profiles (see Staffing Profiles) that are attached to the workforce nominated in the care packages.

5.5.1 Standard Versus Complex

To better account for the diversity in individual's psychosocial complexity, particularly in the MILD and MODERATE populations, an approach of developing a 'Standard' and 'Complex' package was established. For SEVERE Care Packages, the distinction between standard and complex is shown in the specification of care and description of group. In most cases for a given Care Package, the complex Care Package will have a longer assessment, more clinical support and more psychosocial interventions, where required.

'Complex', as used in this modelling project, reflects additional issues that result in the need for more mental health care. This may include additional issues relating to physical health needs (e.g. liver disease), social circumstances (e.g. housing or welfare needs), behavioural complexities, co-morbid diagnoses (e.g. drug or alcohol problems) or multiple mental health diagnoses. Note that the term 'complex' does not refer to the classification of severity of illness as this is determined by definition in the epidemiology.

[22] As agreed in the NMHSPF Modelling Group Meeting 21 May 2013.

5.5.2 Co-morbidity with Mental Health

In noting that there has been a separate planning model developed for drug and alcohol services, it was recognised that there is a high incidence of drug and alcohol co-morbidity with mental health. It was agreed[23] that the identification of drug and alcohol issues was therefore considered core business and within scope of a comprehensive mental health assessment. Similarly, the subsequent referral or other response by the mental health service provider once the drug and alcohol issue has been identified is also within scope. However, note that as the scope of the NMHSPF Project is to primarily model those services that generally lie within the responsibility of the mental health sector, any services provided by the drug and alcohol sector are not included in the model.

This approach is not trying to be exclusive of other services, but should rather be considered as one part of the greater 'jigsaw' of service needs. Other service sectors are responsible for their own modelling and each model highlights the need for the other without double counting the resourcing.

5.5.3 Early Psychosis Services

Early psychosis services for young people most often appears in the age range 17-24 years. In the NMHSPF, this care is modelled in the age groups 12-17 (targeting ages, 15-17 years) and in the 18-64 age group (targeting ages 18-24 years).

It was agreed[24] to title this Care Package 'Early Psychosis Services' (EPS) to avoid confusion with early intervention activity for other diagnoses or other age groups (e.g. older persons). The Care Package developed is balanced to meet the needs of the diverse characteristics of these populations and so do not feature some of the specificity of criteria of similar services currently in place in Australia.

The care modelled provides specialist treatment and care to young people who are experiencing, or at high risk of, a first episode of psychosis. Many of these young people also have drug and alcohol issues that require concurrent treatment in light of the interactive nature of drug and alcohol use and mental illness.

These young people are manifesting precursor signs and symptoms, and are clearly experiencing problems, but have not yet met the full criteria for any diagnosis. The EPS care packages modelled within the NMHSPF seek to intervene earlier in the course of the illness.

A growing body of research suggests that early intervention using appropriate treatments can improve short and longer-term outcomes for these young people, including increased rates of recovery, reduced rates of relapse and lower levels of disability.

The EPS Care Packages are modelled over a two year period and some are later diagnosed with Bipolar disorder or drug and alcohol issues. In the course of the second year, some young people will have been diagnosed and consequently, their care is diverted and captured in the context of another Care Package. For this reason, EPS care packages over both year 1 and year 2 are based on incidence (i.e. quantum of new cases only) rather than population prevalence[25].

[23] As agreed in the NMHSPF Modelling Group Meeting 8 April 2013.
[24] As agreed in the NMHSPF Modelling Group Meeting 8 April 2013.
[25] Sourced from NMHPSF Adult Care Package Group Notes 21 – 22 January 2013.

5.6 STANDALONE ITEMS (SPRINKLES)

Standalone items (sprinkles) are like Care Packages, except they represent a quantum of timed care for a 12 month period without being attached to a particular group. A key feature of standalone care is that the population to which it applies is added to the model rather than following the normal division that occurs in the service mapping process. They are completely separate to the AusBOD epidemiology and do not subtract from the demand for any group in other Care Packages. These 'standalone' items are thus 'sprinkled' across the model.

These standalone items are a useful modelling approach when care cannot be limited to a specific group, or cannot be quantified in individual terms. For example, emergency department services might apply to any or all of the population modelled. It is impossible to know which groups would use the emergency department or how frequently. Similarly, the population using the emergency department is not mutually exclusive from other populations or services. Hence, it is easier to model a sprinkle of total hours of emergency department time as sourced from service utilisation data. This Standalone item becomes an added block of service provision to the model so contributes to the resource count, but does not reduce either the population or care applied elsewhere in the model. As with other Care Packages, Standalone items specify an average amount of care provided by mental health staff and the time represents Consumer Service Delivery Time as defined earlier. The model allows individuals to receive care under a care package **and additional** care from one or more sprinkles.

Standalone items (Sprinkles) are largely based on incidence rather than population prevalence. Various sources of data are used to determine the quantum of service utilisation. The standalone items include:

- Presentations at emergency department (ED);
- Consultation and liaison services (to general hospital or obstetric beds with MI diagnosis);
- Child of mentally ill parent/s (COPMI);
- Mentally Ill Parent (MIP);
- Individual Support and Rehabilitation (ISR)
- Flexible Funding Pool; and
- Respite

Further explanation on some of this care is provided in the next sections.

5.6.1 Presentations at emergency department (ED)

This is a sprinkle that provides specialist mental health care for individuals with a primary diagnosis of mental illness presenting to Emergency Departments. There is no distinction between the mental health care provided in a general Emergency Department as against a specialist area of an Emergency Department such as a Psychiatric Emergency Care Centre (PECC).

5.6.2 Consultation and liaison services

These sprinkles are for consultation liaison services, specialist mental health care to general hospital or obstetric beds, where the person has a mental illness diagnosis:

Consultation Liaison to General Hospital where Mental Illness is a Secondary diagnosis,
Consultation Liaison to General Hospital where Mental Illness is a Primary diagnosis
Consultation Liaison to Obstetric Unit

5.6.3 COPMI - Children of Parents with Mental Illness

Children of Parents with Mental illness (COPMI) services are included as a Standalone item because the child who needs the services is not included in the epidemiology as they do not have an active diagnosis of mental illness themselves. However, it is also acknowledged that because of the increased risk for developing mental health issues in these children, COPMI services are a core part of mental health services. The care modelled therefore is not directed at the parent with the mental illness as their care is dealt with elsewhere in the model, but rather the additional care required to support the child.

There are two sets of sprinkles across the child and adolescent age groups for COPMI services and they are both located in the stream of Indicated Prevention services.

SSD_COPMI_High : Care for the child at high risk, and the family has:

- two parents, where one parent has a SEVERE mental illness
- two parents, where both parents have MODERATE mental illness, or
- sole parent with MODERATE mental illness

SSD_COPMI_Extreme : Care for the child at extreme risk, as the family has:

- two parents, where both parents have SEVERE mental illness, or
- sole parent with SEVERE mental illness

The COPMI packages are a sprinkle applied to children within each age group. This care aims to build resilience in the child, monitor their wellbeing, and have a plan in place should the parent have an acute episode.

5.6.4 MIP - Mentally Ill Parent

The basic assumptions applying to this group are that the parents with mental illness will come with their own package of care and also receive the sprinkle for Mentally Ill Parents (MIP). If the child has their own diagnosis of mental illness in conjunction with their COPMI status, then they are included in the COPMI modelling plus another Care Package for the care of their own illness. The COPMI estimated numbers are based on the data from "Parental mental illness is a family matter" *MJA Open 1 Supplement 1 · 16 April 2012* by Vicki Cowling and Patrick D McGorry[26].

The Mentally Ill Parent (MIP) sprinkle provides specific care to parents/caregivers with mental illness, to provide additional support where there are children aged 0-17 to be considered. Note that the normal care required to manage their mental health issues is covered by other Care Packages as appropriate and that this sprinkle only deals with the additional support required to support the parenting role. Therefore, all other care packages exclude parenting or COPMI issues as both are now specifically modelled within the MIP or COPMI packages.

The MIP package applies to both an inpatient stay or ambulatory care, and provides largely Care Coordination and Liaison to organise care for the child or children. As this is a sprinkle it would be combined with the appropriate severe Care Package for the parent/caregiver. The child would also be receiving the COPMI sprinkle, and if the child carries their own diagnosis, then they would receive COPMI plus another care package for the care of their own diagnosis.

[26] https://www.mja.com.au/open/2012/1/1/parental-mental-illness-family-matter

The MIP care package is modelled only for adults with a SEVERE mental illness. It is recognised that the 12-17 age group may also include parents with severe mental illness, however the numbers are very low and the expert opinion is that this care can be provided within the severe ambulatory care package for the 12-17 age group.

5.6.5 Individual Support and Rehabilitation (ISR)

Includes individual support services provided to the person wherever they are living, this can include people who are homeless. Examples of services delivered are:

- assist people to self-manage their own recovery and build on their interests, aspirations and strengths to live full and active lives
- develop skills to improve competence and confidence in community living
- improve health and well-being
- improve independence and resilience
- prevent relapse and limit severity of any crisis
- engage the person with desired community and social activities
- reduce social and physical dislocation by assisting people to sustain suitable housing and to develop improved social relationships
- increase opportunities to participate in the workforce
- reduce demand on acute and emergency services.

5.6.6 Flexible Funding Pool

Flexible Funding Pool could also be known as Brokerage. It was highlighted as an important tool that facilitates access to services beyond the mental health sector where individuals with mental illness are often excluded. It was also noted that the model adequately covers the act of brokering in the context of coordinating services in the specialist ambulatory Taxonomy or otherwise as core business of both community support and clinical workers.

Therefore, the flexible fund pool does not pertain to FTE, but rather the cost associated with purchasing household goods and services, community/recreational activities and access to general health services (e.g. dentists) that lie beyond the scope of mental health services[27].

In order to quantify the brokerage adequately, it is modelled as adding 1% to the quantity of Individual Support and Rehabilitation services (for both consumers and carers) as a sprinkle across the model. The model has capacity for users to turn off this calculation as required.

5.6.7 Respite

Further research performed by the QCMHR identified a significant demand over and above existing respite services. The data suggests a rough service utilisation split of one third across three forms of respite: home based respite, day respite and residential respite. A significant demand for weekend respite was also reported, and subsequently supported by feedback from the sector that identified a long waiting list for weekend respite. Therefore, the respite sprinkle has been modelled at a demand rate, not on existing service delivery, resulting in approximately 50% more services modelled than that which is currently available.[28].

For detailed explanation regarding the respite data and modelling parameters, please refer to **Demand for Respite Care.**

[27] As agreed by the Executive Group 5 July 2013.
[28] As agreed by the Executive Group 5 July 2013.

5.7 MODELLED CARE RATE

The fifth part of the model is the Modelled Care Rate that identifies the final population receiving services within each population need group after demand and service mapping has been applied to the epidemiological data. These population numbers feed directly into the care packages and Standalone items and (in conjunction with the care specified within), are used to generate all the estimates for the model (e.g. Number of beds, FTEs, outputs etc).

5.8 RESOURCE AND OUTPUT PREDICTIONS

Once all the care has been prescribed and a population has been added to it, the model connects the allocated resources through the staffing profiles to calculate the resources required and outputs expected per 100,000.

Resource and output predictions predominantly include beds, FTE, separation, time etc. For many users this is the 'bottom line'; however implementation of the model will require these resources and outputs to be adjusted for factors out of scope of the NMHSPF (e.g. rurality, remoteness, CALD populations etc. see Factors of Implementation.)

5.9 COST

The final part of the model is the allocation of cost to the resources estimated in the model. National costs are provided in the model but users can input their own costs to ensure local relevance and accuracy.

6 NMHSPF Model Parameters

6.1 ASSEMBLING THE INFORMATION

The most useful way of structuring the information needed to build a quantitative model is to follow the processes of epidemiologically based needs assessment, indicating where evidence exists, and where evidence is needed. Although it is easy to agree on a comprehensive needs-based planning model in principle, there are many factors to deal with in creating a practical tool that can be used for planning real health services.

Typically, the relevant evidence and data on incidence, prevalence, efficacy, efficiency, remission and relapse after treatment, and costs, is missing or limited in scope and detail.

In all health systems there is a degree of misalignment of need, demand, and supply, and often there is much better evidence on supply (utilisation) than on either of the other factors. Supply is driven by many factors other than need and demand, and there may be a degree of inappropriate supply included in it, sometimes called “met un-need”.

Unmet demand may sometimes be directly visible in terms of waiting lists and waiting times for specific services. It may also be visible indirectly, in terms of pressure on relevant services, or even in the form of inappropriate use of other services (as, for example, the use of acute beds for Nursing Home type patients, or demand on Emergency Department services). However, levels of demand may also be invisible until a new service becomes available. Demand is also driven by factors other than need.

The most critical measure for estimating need, namely level of illness in the population to be served, may be inferred from epidemiological studies, but there is no simple translation between levels of illness and the need for specific types of services. Moreover, detailed local population data on illness are rarely available, may be too expensive to obtain, and are rarely obtainable frequently enough to serve as a guide to how well need is being met.

The most critical data for estimating the impact of interventions are rarely available at all, let alone in a form useable for modelling. Papers that compare mental health care and specify detailed care over a time period are rare enough. Those that identify the target population in a way that can be linked to population epidemiology are also rare, partly because the populations in clinical trials are often highly selected on characteristics rarely measured in population studies. Those that follow up patients for any length of time to assess recurrence/relapse rates or report the duration of illness at diagnostic levels (illness density), either with or without treatment interventions, are extremely rare. To assemble mental health data from different sources into a coherent picture typically requires an apparatus to bridge across different measuring instruments, diagnostic systems and groupings, resources expressed in different units, and care systems in which the scope of “mental health” is unclear, so that global resource estimates are meaningless. It can be done, but it is very time consuming.

6.2 OVERVIEW OF MODEL PARAMETERS

The NMHSPF Model relies on a number of key statistics and parameters to derive estimates of resource need, prices and costs. These key parameters are:

1) Ages groups;
2) Population Numbers;
3) Prevalence Rates:
   i) Illness Prevalence;
   ii) Prevalence across severity;
4) Service Demand
5) Mapping of Treatment Numbers to Care Packages and Sprinkles
6) Ambulatory Services;
7) Bed Statistics;
8) Pricing:
   i) Staff
   ii) Beds
9) Hours worked in a year by an FTE

Note: Medications and any diagnostic tests required are being modelled as a block overhead applied to the NMHSPF model[29].

6.2.1 Variable Inputs Included in the Model

Several variable inputs are included in the model to increase the flexibility and utility of the model. Users can select Commonwealth, State or Territory or input local population data to model. A notional national set of staff prices is included in the model for the global output, and the jurisdictional staff prices can be input as an option. Similarly, the flexible funding pool has option for inclusion or exclusion, and the percentage can be varied from the 1% in the model.

There are also selected areas of the service mapping where users can identify the proportional split between service formats.

In summary, jurisdictions can customise these details within the model:

- Population
- staff prices
- flexible funding pool
- 18-64 years continuous care % split : Non acute residential vs non acute intensive
- 18-64 years Inreach % split : Inreach vs Group residential
- 65 + years continuous care % split : Non acute RACF vs Non acute residential vs non acute intensive.

The following subsections describe the main parameters used to develop the NMHSPF Model.

[29] As agreed by Modelling Group Meeting 21 May 2013.

6.3 AGE GROUPS

The NMHSPF model allows age specific modelling across 5 age groups with separated modelling within the 65+ years age:

- 0-4 years
- 5-11 years
- 12-17 years
- 18-64 years
- 65+ years
- 65+ Years Behavioural and Psychological Symptoms of Dementia (BPSD).

The age groups reflect a range of factors, including specific services available for children in their early years of life, approximate ages for attending primary school and secondary school, and the legal age of an adult, and older adult.

6.3.1 Youth/Adults 18-24 years

The project intended from the outset to do a separate 18-24 years age split. However, the complexity of the tool and risk of large amounts of duplication has rendered this split difficult, resulting in a recommendation for an additional piece of work to be funded to complete this task.

In the current tool, Standard Report 7 for 18-24 years can be selected which will include the 18-64 EPS Yr1 and Yr 2 care packages[30], and a percentage population split across the remaining relevant Care Packages for the 18-64 age group. This report will simply provide a proportional split of the adult estimated services for 18-24yrs but comes with a number of issues that make the data unreliable. The main issue is that because the modelling currently averages service demand across the whole adult population of 18 – 64 years, the volume of service utilisation by young people to 24 years is not accurately assessed. It is likely that this cohort may form a majority or minority population using particular services and that the nature of their utilisation may be more or less intense than other adult ages (e.g. average length of stay). Further this may vary in different jurisdictions.

It was agreed that to adequately model services specific to the 18-24 years age group, it would require a significant investment in researching detailed service utilisation data and require much greater exploration of the exact needs of this group for a 'should be' model and also comparison of those needs to the rest of the adult population. Current reporting methods do not necessarily support this separate age cohort and so additional work is recommended.

6.4 POPULATION

The model provides a demographic neutral (except for age) population from which it can then base estimates for service demand. Users have the option of selecting existing population data (e.g. Commonwealth, State/Territory population data) or can determine their own population or model a generic population of 100,000 people.

This standard population is an average. It does not distinguish between gender, location (rural, remote and metropolitan areas) or Aboriginality and ethnicity. For more information on these factors, see **section 3.1**

[30] 18-64 SEV_ABB_EPS_Yr1 and Yr2 : these have a rate calculated for ages 18-24, but is expressed as a rate for 18-64 for inclusion in the larger age group.

Factors of Implementation. The population numbers used in the NMHSPF were sourced from the Australian Bureau of Statistics (ABS) of the estimated resident population at 30 June 2011 for the standard population in the model. The NMHSPF Estimator Tool contains population projections for the period 2006-2026 for each jurisdiction, subdivided by Local Hospital Network (or other equivalent) and Local Government Area.

The ABS produces three main series of projections. The Series A, B and C, have been selected from a possible 72 individual combinations of various assumptions about future levels of fertility, mortality, internal migration and overseas migration over the projection period. Series B largely reflects current trends in fertility, life expectancy at birth, net overseas migration and net interstate migration, whereas Series A and Series C are based on high and low assumptions for each of these variables respectively.

The ABS Series B population projections have been chosen as the primary source for the NMHSPF Model on the basis that it provides a prudent 'middle ground' approach to the assumptions underlying the projections. The NMHSPF Estimator Tool is designed to provide users with the flexibility to see the impact of different population projections (for example, for the State or a collection of Local Health Networks).

The NMHPF Model includes 15 years of population parameters, to 2026.

For more information, see **Population Data in the NMHSPF.**

6.5 PREVALENCE PARAMETERS

The model is based on the revised General Epidemiology based on the Australian Burden of Disease (AusBoD) study of 2007. See **section 7 Epidemiology.**

6.5.1 Illness Prevalence

The total 12 Month Epidemiological Prevalence number is used to calculate the number of people diagnosed with mental illness in one 12 month period. In the NMHSPF Model, the Epidemiological Prevalence is the estimated number of people from a standard 100,000 age specific population who would meet criteria for a diagnosis of mental illness in a 12 month period.

6.5.2 Prevalence Rates across severity

The 12 month prevalence rates are subdivided into grades of severity/functional impairment labelled SEVERE, MODERATE and MILD. Note that MILD, MODERATE and SEVERE refer to the level of distress and impairment. The table below shows the prevalence rates for the age specific groups.

Table 2 - MILD, MODERATE and SEVERE Prevalence Rates for Age Groups

Age	MILD	MODERATE	SEVERE
0-4 years	**8.6%**	**4.4%**	**2.4%**
5-11 years	**8.6%**	**4.4%**	**2.4%**
12-17 years	**8.6%**	**4.4%**	**2.4%**
18-64 years	**9.9%**	**5.0%**	**3.5%**
65+ years	**5.9%**	**2.9%**	**1.9%**
65+ years BPSD	**2.0%**	**1.2%**	**0.9%**

In the course of reviewing population data, Members noted differences between the 1997 and 2007 NSMHWB data where a significant increase in mood disorders was represented due to a change in boundaries of the diagnostic criteria for mood disorders. The data highlighted an additional 25% of the population that have unmet need that were diagnostic in 2007 but not in 1997.

Therefore, it was decided to keep only three levels of severity, and for some age groups add Indicated Prevention populations and additional Mild populations identified in the service mapping with independent Service Demand Rates sourced from the two datasets.

Note that the Indicated Prevention and groups additional Mild populations are not included in the table above.

See **section 9.3 Indicated Prevention Populations** for further details on these groups.

6.6 SERVICE DEMAND RATE PARAMETERS

Also known as the Treated Prevalence or Service Demand, this is the estimated number of people in a standard population who are diagnosed mentally ill, AND will seek treatment. This enables the calculation of estimates of people to be treated by severity of impairment.

The Service Demand Rates are based on the assumption that 100% of persons deemed to have a SEVERE impairment should seek and receive treatment, but only some of the people who meet MILD or MODERATE illness criteria will seek treatment, as only some will perceive that they are ill at all, or perceive a need for any type of help, even information.

The 12 month Service Demand Rates are therefore subdivided into grades of severity/functional impairment labelled SEVERE, MODERATE and MILD and Indicated Prevention. The Model identifies the following Service Demand Rates for these categories:

- **100%** of persons deemed to have a **SEVERE** impairment will seek and/or receive treatment
- **80%** of persons deemed to have a **MODERATE** impairment will seek and/or receive treatment
- **50%** of persons deemed to have a **MILD** impairment will seek and/or receive treatment.

The Service Demand Rates are shown in the table below:

Table 3 – Demand –MILD, MODERATE and SEVERE

Care Package Code	Age Groups					
	0-4	5-11	12-17	18-64	65+MH	65+BPSD
MLD	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
MOD	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%
SEVERE	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Indicated Prevention has **varied percentages** of people who will seek and/or receive treatment.

Table 4 – Demand – Indicated Prevention

Care Package Code	Age Groups					
	0-4	5-11	12-17	18-64	65+MH	65+BPSD
MLD_MA_2007				25.0%		
SSD_CBCL		24.0%	24%			
SSD_COPMI_EXTREME	100.0%	100.0%	100.0%			
SSD_COPMI_HIGH	100.0%	100.0%	100.0%			
SSD_LT_MA				15.0%	8.5%	
SSD_LTOnly			13.2%			
SSD_OTH_IND				25.0%	11.4%	

6.7 WORKFORCE CATEGORIES AND STAFF TYPES

In the early stages of the Project, workforce categories were established to inform the Care Package development. The area of greatest contention included the classification of non-clinical staff, as this workforce area is experiencing a period of dynamic change. In consideration of stakeholder feedback and review of current workforce development activity, the following workforce categories and Staff Types were agreed[31]. The table below shows the workforce categories and Staff Types within the NMHSPF model:

Table 5- Workforce categories and Staff Types

Workforce Categories	Staff Types
Peer Worker	Consumer Peer Worker
	Carer Peer Worker
Vocationally Qualified	MH Worker
	Enrolled Nurse
	Other Vocationally Qualified
Tertiary Qualified	Nurse Practitioner
	Nurse
	Social Worker
	Psychologist
	Occupational Therapist
	Other (e.g. Pharmacist)
Medical	GP
	Psychiatrist
	Specialist Other (e.g. geriatricians and paediatricians)
	Registrar
	Junior Medical Officer

The order of workforce categories emphasises the primary importance of peer workers, and the increasing broader role of consumers and carers as outlined in the Fourth National Mental Health Plan.[32] The overall

[31] Expert Working Group meeting 12 November 2013.
[32] Australian Health Ministers (2009) *Fourth National Mental Health Plan - An agenda for collaborative government action in mental health 2009-2014,* Commonwealth of Australia, Canberra.

approach to modelling the workforce in each Care Package item was to identify the particular Staff Type wherever possible. However, where there was no consensus of expert opinion on Staff Type, the higher level Workforce Category was used.

6.7.1 Peer Workers

Consumer and carer roles in the mental health sector are still a rapidly evolving workforce. The NMHSPF have conceptualised consumer and carer roles into two areas; roles that can be performed by consumers and carers and those that must be performed by consumers and carers.

Roles that must be performed by consumers and carers have been modelled in the context of individual peer work, group based peer work and also included in the staffing profiles for bed based services and specialist ambulatory teams.

Outside of those roles Feedback from consumers, carers and community support service providers advised that all teams should have access to the experience of a peer worker and that it would be inappropriate to nominate one role within the team to a peer worker as it would depend on their qualifications and experience (as with any other mental health worker). Therefore, roles that can be performed by consumers and carers are modelled in the context of staffing profiles with a generic staff mix of tertiary and vocationally qualified staff, where an appropriately trained consumer or carer may fulfil any of those roles, alongside people with other skills, qualifications and experience.

The practical outcome of this approach is that the amount of peer work modelled only represents that which must be performed by peer workers. It is highly desirable for all service settings and teams to have access to and input from an experienced peer worker and so an overall higher ratio of peer work FTE to other FTE is highly recommended.

More details on the quantum of peer workers modelled can be found at Modelling Staff FTE.

6.7.2 Vocationally Qualified Workers

'Vocationally Qualified' Mental Health Workers are employed in a diversity of roles, with different levels of responsibility. In the current service environment, these workers are largely employed in community support services or as support officers in specialist public and private mental health services. This category also includes the work of Enrolled Nurses. Currently, these workers may or may not have a formal qualification (e.g. Certificate IV in Mental Health) and feedback from stakeholders recognised that experience is still highly regarded.

However, given that the model is based on what 'should be' and after considering the trend towards formal qualification in the workforce industry, it was agreed to define this workforce as being primarily a non-clinical workforce (that is, not a university trained clinician such as nurse, psychologist, occupational therapist or social worker) with a TAFE level qualification up to Advanced Diploma level in a mental health or related subject area. As per the discussion above, Peer workers with appropriate qualifications are included within the context of Vocationally Qualified Mental Health Workers.

6.7.3 Tertiary Qualified Workers

For the purposes of the NMHSPF, Tertiary Qualified workers are those that are university trained (or equivalent) with a minimum three year Bachelor degree in a discipline related to mental health care. This category largely performs a specialist clinical function and so is most commonly modelled across the primary, specialist ambulatory and bed based services. The most common professions modelled include nurses, psychologists, social workers and occupational therapists.

'Tertiary Qualified – Other' includes other professional care such as physiotherapy, speech therapy, pharmacy and professionals assisting with communication issues (not related to cultural background). In the community support sector, there are also tertiary qualified workers who act in the roles of program manager or supervisor who may have a community services related degree that would also be included in the 'Other' category.

The Nurse Practitioner was modelled separately to other nursing roles, as although the numbers are quite low, they have a different cost. Similarly, in keeping with the level of qualification between vocationally qualified and tertiary qualified workers, Enrolled Nurses fit in the category of Vocationally Qualified workers.

6.7.4 Medical Workforce

The NMHSPF models two professionals in the medical workforce: General Practitioner (GP) and Psychiatrist. Significant discussion was conducted around the costs between trainee psychiatrists, junior medical officers and registrars. Because of the impact of supervision and workforce development issues, these other medical workers are included only in the context of team based staffing profiles in both the specialist ambulatory and the bed based services. All other interventions that orient towards a single medical practitioner have been allocated to either a GP or Psychiatrist.

Medical students are not included anywhere in the modelling as they are not paid, are supernumerary to the modelled workforce and their supervision requirements are incorporated in the context of overhead costs for the service.

6.8 STAFFING PROFILES

A staffing profile is a tool that allows for a mix of staff across different workforce categories at a particular ratio. For bed based and team services, there is a separate and unique staffing profile for each service element in the Taxonomy, in addition to individual worker based elements. Sole practitioners are modelled as individual workforce staffing profiles as a 'one person' team usually without after hours or weekend work.

Common features across all staffing profiles include the following:

- 'Roster' of the staff mix that indicates hours worked across three shifts of Day, Evening and Night shifts and also weekend shifts
- Proportion of Client Service Delivery Time versus other time is calculated
- Standard overhead costs per service type is incorporated
- Staff prices for each Staff Category are identified with a schedule of personnel on costs in line with the proportion of after-hours work and the Staff Category
- Leave relief and public holidays are also incorporated into the calculations.

In developing the staffing profiles, consideration was given to the diversity in which specific programs are delivered. For example, in the sub-acute services, there was considerable difference in the balance of clinical and community support staff that provided the different forms that these services take. Wherever possible, the staffing profiles were based on existing evidence based models of care. Where this was not possible (e.g. community support services), significant stakeholder consultation was conducted to determine a reasonable 'average' staff profile.

Although services may differ, it was also found that often the staff mix did not differ significantly. For example, individual support and rehabilitation services in the community support stream had a similar profile to that of

both flexible respite and family support. There were significant differences in the ratio of business hours and after-hours time, but greater similarity in the roles and pay levels of the team.

It should be noted therefore, that the tool is primarily concerned with a quantum of hours, proportion of business and after hours work and pay rates. Users can determine the expertise and skill mix required by each of those roles relevant to their specific program area.

6.8.1 Team Based Staffing Profiles

In the NMHSPF model, some care is modelled as delivered via a team rather than an individual. This approach has many advantages:

- It allows for an aggregated function across a number of professionals. For example, in a Bed Based Service, very many activities occur in the course of a day by a variety of professionals. The team profile allows all of the time for each professional to be modelled and avoids having to consider every single task that occurs in one day of mental health care.
- It also allows greater detail in the resource modelling, including a range of levels for each workforce type (capturing registrars, and different levels of nursing for example). A Service Element based on a team profile is therefore counted in either days or hours and incorporates all care performed by the team (e.g. assessment, review, medication administration, psychotherapy, peer support etc.) without the need to specify all the care as separate items in a Care Package.
- The team represents an 'average' resource to perform a function. In reality, services may come in many forms, with specific entry and exit criteria and target populations that may influence the staff mix required to perform that particular service (e.g. may influence the clinical versus non-clinical components of the care). The team staffing profile aims to provide an overall average that is a reasonable estimate of the resources required across all formats that the service may take.
- The team based modelling also better reflects current clinical practice.

There are three sets of team based profiles in alignment with the three streams in the NMHSPF Taxonomy: Ambulatory, Bed-Based and Community Support and one for Individual workforce services (see tables below).

Table 6 - Ambulatory Teams

Ambulatory Teams
Individual Practitioners – Severe (Commonwealth Funded GP, Allied health, Nurse, Psychiatrist)
Acute Care Services
Consultation Liaison - General (Hospital)
Consultation Liaison - Emergency Department (Hospital)
Intensive Community Treatment Team – CandA 0 - 17 years
Intensive Community Treatment Team- Adult - 18 - 64 years
Intensive Community Treatment Team - Older Adult 65+ years
Day Program Team – CandA 0 - 17 years
Day Program Team - Adult - 18 - 64 years

Table 7 – Bed-Based Teams

Bed Based Teams
Acute - Perinatal and Infant Mental Health (Hospital)
Acute - Child and Youth (0-17 years) (Hospital)
Acute - Adult (18-64 years) (Hospital)
Acute - Older Adult (65+ years) (Hospital)
Acute - Older Adult (65+ years BPSD) (Hospital)
Acute - Adult Eating Disorders (Hospital)
Acute - Intensive Care Unit (Hospital)
Acute - Psychiatric Emergency Care Unit (Hospital)
Same Day Admission for Administration of ECT (Hospital)
Step Up/ Step Down - Youth (Residential)
Step Up/Step Down - Adult_(Residential)
Rehabilitation – Adult and Older Adult (Residential)
Sub-Acute Older Adult (65+ years)(Hospital)
Sub-Acute Intensive Care Service (Hospital)
Non-Acute - Intensive Care Service (Hospital)
Non-Acute -Intensive Care Service - Older Adult(65+) (Hospital)
Non-Acute - Adult and Older Adult (24 hour support) (Residential)
Non-Acute - Older Adult (Hospital/Nursing Home Based)
Non-Acute - Specialised Services (Hospital/Nursing Home Based)

Table 8 - Community Support Teams

Community Support Teams
Residential Crisis and Respite Services
Flexible Respite
Day Respite
Family Support Services
Group Carer Support Services
Individual Carer Support Services
Individual Support and Rehabilitation
Group Support and Rehabilitation
Group Based Peer Work - Moderate
Group Based Carer Peer Work - Moderate
Group Based Peer Work - Severe
Group Based Carer Peer Work - Severe

6.8.2 Individual Workforce Staffing Profiles

Individual workforce services in the Primary Care and Specialist Ambulatory also have staffing profiles (see table below), but they are simply modelled as a team of one with a quantum of occasions of service and duration.

Table 9 - Individual Workforce Services

Individual Workforce Services
Individual Practitioners – Mild and Moderate
Individual Practitioners – Severe

6.8.3 Development of the Staffing Profiles

The NMHSPF staffing profile template was adapted from a Queensland design, but expanded to accommodate the workforce categories and modelling parameters required for the Project.

The team staffing profiles for the bed based services were based on existing models of care from various jurisdictions. For example, as the format of Sub-Acute bed based services is very diverse across Australia, the IHBS EWG members sought presentations on the different models of care and agreed on the approach that would best adapt to a national context.

The specialist ambulatory team profiles for the adult population were largely sourced by Queensland staffing profiles as they included the same roster style of modelling. Profiles for children and adolescents and older persons however, were sourced from a variety of stakeholder input.

The specialist community support team profiles presented a significant challenge as the diversity in program format, target group and associated criteria was great. Two workshops were held in Sydney and Melbourne with stakeholders to consider how best to develop a generic national profile for these services. The work from the workshops was then tabled later with the Project membership including the Consumer and Carer Reference Group for additional validation.

The Group based peer work staffing profiles were developed by the NMHSPF Consumer and Carer Reference Group. It was agreed to separate services for MODERATE and SEVERE illness as the ratio of participants to facilitators is very different and would impact on the resource estimation once applied across the model.

All of the staffing profiles include notes on the source and logic that informs each one. Some validation profiles are provided to represent some of the source data that informed this process.

6.8.4 Structure of the Staffing Profiles

There are four sets of team based staffing profiles: Bed-based, Ambulatory, Community Support and individual workforce services. Consultation Liaison – General (Hospital) is an example of an Ambulatory Teams Staffing Profile. The different areas in the spreadsheet are described below.

Staffing Roster

The staffing profile is largely based on a roster system that allows the input of hours against each workforce, specific to the level of responsibility within each workforce type. Multiple FTE of any workforce is represented by the amount of hours within the shift cell. (For example, 32 hours in one cell might indicate 4 x FTE @ 8 hrs

each). Three shifts are identified for input during weekdays: Morning, Evening and Overnight. Weekends are just rostered as one shift only.

Underneath the roster is a calculation of FTE that incorporates the hours in the roster, plus hours for leave and public holidays. Productivity is represented in weeks. At the very bottom, the productivity is converted into total hours per shift and annual FTE.

In team based profiles where there is no clear model of care, the hours per Staff Type are averaged across the shifts. For example, in a community support service, advice might be that a program manager of 0.6FTE works 100% business hours. In this case, 22.8 hours (0.6 x 38 hours) is modelled as 4.5 hours each week day of Monday to Friday. Similarly, where 6.0FTE of a frontline worker is required for 60% business hours and 40% after hours, 27.3 hours is modelled each week day Monday to Friday (6 x 38hrs x 60%BH and then divided by 5 weekdays) and 13 hours would be modelled each weekday evening and on each weekend shift (6 x 38hrs x 40% AH and then divided by 7 (5x weekday evening and 2x weekend shifts)). This modelling is not intended to be replicated in real life, but rather be a method of adequately capturing the after-hours components on the roster.

Other team based profiles are based on actual models of care and so are very specific on the quantum of each staff on each shift. For the purposes of the model, the staffing profiles are a way of estimating the average resource used to perform particular services. Users can implement the service function in any manner relevant to their local population and service context and consequently may incorporate a range of different programs with specific target populations or other criteria that combine to represent this average profile. The detailed logic or evidence base for each staffing profile is shown at the very bottom left corner of the document.

Workforce Summary

A summary box of each workforce total sits above the roster. The workforce summary aggregates the rostered hours for each professional group into the four workforce categories of Peer Worker, Vocationally Qualified, Tertiary Qualified and Medical. The total hours generated by the workforce group is then discounted for “other time” and is represented as total daily hours and annual hours.

The staff price figures are sourced from the Salary Reference Table and indicate the cost per discipline to provide that particular staffing profile. These figures have been adjusted to include[33]:-

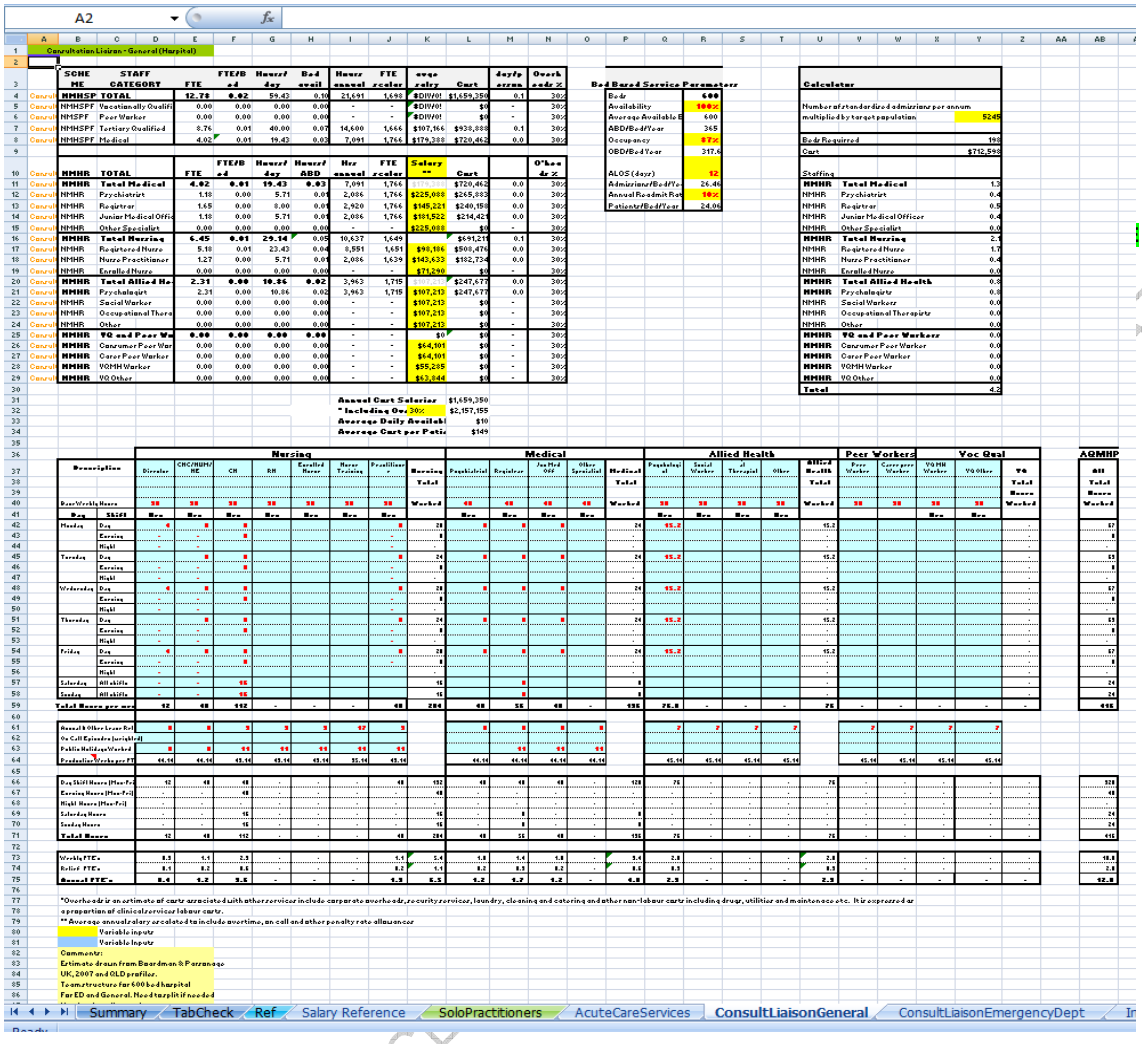
- “Other Time” includes receiving supervision, performance and monitoring and research activity, other activities that aren’t related to face to face contact, also includes time for liaison and travel.
- “Overhead Costs” includes Quality Assurance, payroll, communication, maintenance, cleaning, admin, corporate positions. Note that systemic services (including peak bodies) are responsible for strategic planning, workforce development and other capacity building activities and are covered under overhead costs.

Care Package Resource Summary

The box on the right hand side of the template summarises the necessary hours and costs associated with a care package quantum of hours and population. This program calculator does not inform the model but is useful to planners for specific team modelling.

[33] Modelling Group Meeting 21 May 2013

Figure 9 - Consultation Liaison – General (Hospital) Staffing profile



Notes

Explanatory notes are located on the bottom left corner of the spread-sheets. This might include source documents, modelling rationales and other explanations.

For Day Programs, a summary of the model of care has also been provided to clarify the modelling applied as the program involves a mix of individual and group therapy that changes the care delivery time. The care packages model day programs as “days” and so the staffing profile is converted to “days” instead of “hours”.

Bed Based Service Parameters

Across all of the staffing profiles, the majority of features in the profile are the same. However, all of the bed based profiles additionally have a table of “Bed Based Service Parameters”, a summary box that identifies the service parameters with availability, occupancy, Average Length of Stay (ALOS) and readmission rate. This information is used with the rostered hours to calculate the total FTE / bed and hours / day.

Note: there is no “Other” time in bed based services. The FTE Scalar is the annual hours per FTE. The program calculator facility at the right side has the same function but has a slightly different structure to the program calculator in the ambulatory and community support profiles.

Consultation Liaison – General (Hospital) and Consultation Liaison – Emergency Department General (Hospital) are examples of Ambulatory Teams Staffing Profiles that also contain Bed Based Service Parameters, as these are MH services provided to non-MH beds.

In the NMHSPF these non-MH bed resources are not costed (they are not mental health) however they are counted as if they are unavailable then there may be a higher demand on mental health beds. These include:

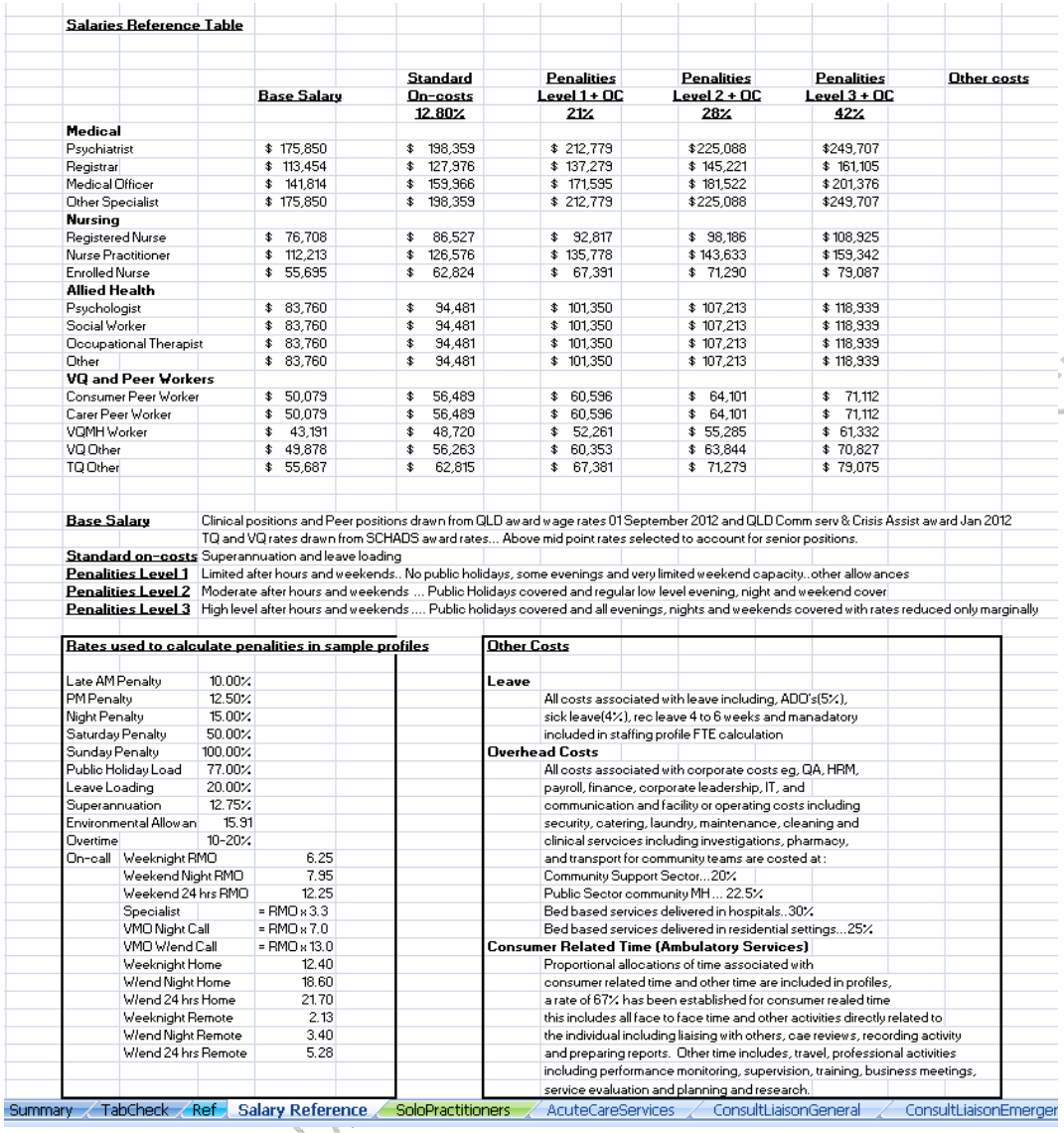
- Bed based non-mental health care services
- Acute medical/surgical bed (Hospital, non-MH)
- Acute paediatric bed (Hospital, non-MH)
- Non-acute Adult (<24 hour support)(Residential)

For full details on the Bed Based Service Parameters and Calculations, See **section 13.1.1 Bed Based Service Parameters and calculations.**

Salary Reference Table

For each set of staffing profiles, a salary reference table is used as a source document in each of the staffing profiles in that set of spread sheets. For more information, see **Section 12.3 Modelling the Staff prices.**

Figure 10 Sample Salaries Reference Table



Salaries Reference Table

	Base Salary	Standard On-costs 12.80%	Penalities Level 1 + OC 21%	Penalities Level 2 + OC 28%	Penalities Level 3 + OC 42%	Other costs
Medical						
Psychiatrist	$ 175,850	$ 198,359	$ 212,779	$225,088	$249,707	
Registrar	$ 113,454	$ 127,976	$ 137,279	$ 145,221	$ 161,105	
Medical Officer	$ 141,814	$ 159,966	$ 171,595	$ 181,522	$ 201,376	
Other Specialist	$ 175,850	$ 198,359	$ 212,779	$225,088	$249,707	
Nursing						
Registered Nurse	$ 76,708	$ 86,527	$ 92,817	$ 98,186	$ 108,925	
Nurse Practitioner	$ 112,213	$ 126,576	$ 135,778	$ 143,633	$ 159,342	
Enrolled Nurse	$ 55,695	$ 62,824	$ 67,391	$ 71,290	$ 79,087	
Allied Health						
Psychologist	$ 83,760	$ 94,481	$ 101,350	$ 107,213	$ 118,939	
Social Worker	$ 83,760	$ 94,481	$ 101,350	$ 107,213	$ 118,939	
Occupational Therapist	$ 83,760	$ 94,481	$ 101,350	$ 107,213	$ 118,939	
Other	$ 83,760	$ 94,481	$ 101,350	$ 107,213	$ 118,939	
VQ and Peer Workers						
Consumer Peer Worker	$ 50,079	$ 56,489	$ 60,596	$ 64,101	$ 71,112	
Carer Peer Worker	$ 50,079	$ 56,489	$ 60,596	$ 64,101	$ 71,112	
VQMH Worker	$ 43,191	$ 48,720	$ 52,261	$ 55,285	$ 61,332	
VQ Other	$ 49,878	$ 56,263	$ 60,353	$ 63,844	$ 70,827	
TQ Other	$ 55,687	$ 62,815	$ 67,381	$ 71,279	$ 79,075	

Base Salary	Clinical positions and Peer positions drawn from QLD award wage rates 01 September 2012 and QLD Comm serv & Crisis Assist award Jan 2012
	TQ and VQ rates drawn from SCHADS award rates... Above mid point rates selected to account for senior positions.
Standard on-costs	Superannuation and leave loading
Penalities Level 1	Limited after hours and weekends.. No public holidays, some evenings and very limited weekend capacity..other allow ances
Penalities Level 2	Moderate after hours and weekends ... Public Holidays covered and regular low level evening, night and weekend cover
Penalities Level 3	High level after hours and weekends .... Public holidays covered and all evenings, nights and weekends covered with rates reduced only marginally

Rates used to calculate penalities in sample profiles

Late AM Penalty	10.00%	
PM Penalty	12.50%	
Night Penalty	15.00%	
Saturday Penalty	50.00%	
Sunday Penalty	100.00%	
Public Holiday Load	77.00%	
Leave Loading	20.00%	
Superannuation	12.75%	
Environmental Allow an	15.91	
Overtime	10-20%	
On-call	Weeknight RMO	6.25
	Weekend Night RMO	7.95
	Weekend 24 hrs RMO	12.25
	Specialist	= RMO x 3.3
	VMO Night Call	= RMO x 7.0
	VMO Wend Call	= RMO x 13.0
	Weeknight Home	12.40
	Wend Night Home	18.60
	Wend 24 hrs Home	21.70
	Weeknight Remote	2.13
	Wend Night Remote	3.40
	Wend 24 hrs Remote	5.28

Other Costs

Leave

All costs associated with leave including, ADO's(5%), sick leave(4%), rec leave 4 to 6 weeks and manadatory included in staffing profile FTE calculation

Overhead Costs

All costs associated with corporate costs eg, QA, HRM, payroll, finance, corporate leadership, IT, and communication and facility or operating costs including security, catering, laundry, maintenance, cleaning and clinical servcices including investigations, pharmacy, and transport for community teams are costed at :

Community Support Sector...20%

Public Sector community MH ... 22.5%

Bed based services delivered in hospitals..30%

Bed based services delivered in residential settings...25%

Consumer Related Time (Ambulatory Services)

Proportional allocations of time associated with consumer related time and other time are included in profiles, a rate of 67% has been established for consumer realed time this includes all face to face time and other activities directly related to the individual including liaising with others, cae reviews, recording activity and preparing reports. Other time includes, travel, professional activities including performance monitoring, supervision, training, business meetings, service evaluation and planning and research.

Summary | TabCheck | Ref | Salary Reference | SoloPractitioners | AcuteCareServices | ConsultLiaisonGeneral | ConsultLiaisonEmerger

For each Staff Category, the salary reference table shows the base salary, standard on-costs and three levels of salary with on-costs and penalty rates. These salaries are then applied to each staffing profile at the appropriate level of on-costs and penalty rates.

Below the Salary Reference Table is text to describe how the base salary, on-costs and penalty rates were determined.

In this example, for base Salary: Clinical positions and Peer positions are drawn from QLD award wage rates 01 September 2012 and QLD Community Services and Crisis Assist Award Jan 2012. 'Other 'Tertiary Qualified and Vocationally Qualified rates are drawn from the Social, Community Health and Disability Services (SCHADS) Award. Above mid-point rates have been selected to account for senior positions.

At the bottom there are two tables:

- The 'Rates used to calculate penalties' table specifies the penalties rates, loadings, overtime and on call rates which have been factored into the salaries.

- The 'Other Costs' table specifies all the leave, overhead costs and Consumer Related Time (Ambulatory and Community Support Services only) that have been factored into the salaries.

Although notional 'national' costs have been included in the model, there is facility for users to enter their own salary costs and penalty levels will be automatically calculated.

The variable input for salary at the front of the model links and inputs into the salary spread sheets which in turn act as a source document for the look up functions in the staffing profile. Column I includes a base rate and penalty rates and is then transposed and multiplied by the overhead cost to Column K. This is converted to a "flat sheet" that picks up the final $ in Column K and uses this as the reference for the care package data. The penalty rates are set in this version of the model, and may be a variable in future iterations of the model.

Regarding individual staffing profiles, these are modelled as a staffing profile for each workforce based on QCMHR Analysis of Primary Mental Health Care data.

6.9 STAFF/FTE RESOURCES

6.9.1 FTE Hours of Service per Year

The estimator tool estimates FTE required to deliver the modelled hours of services. The Annual FTEs (FTE Hours of Service Per Year) are calculated in the staffing profiles spread sheets. NOTE: Annual FTE includes the fill staff for annual and sick leave. For example, a 32 position team needs 40 Annual FTE.

6.9.2 Consumer Service Delivery Time and Other Time

Any time spent on an activity directly relating to an individual (e.g. face to face care, writing notes, individual care planning and liaison) is known as 'Consumer Service Delivery Time'. A rate of 67% has been established for this time in the specialist ambulatory staffing profiles.

All other non-individually focused time is considered 'Other Time'. This includes travel, professional activities (performance monitoring, supervision, training), business meetings, service evaluation, program planning and research. A rate of 33% has been established for other time in the specialist ambulatory staffing profiles.

In the Community Support Staffing Profiles, the rates of Consumer Service Delivery Time and Other Time vary according to role and nature of service provision as advised by stakeholders. Bed based staffing profiles do not include the Consumer Service Delivery Time or Other Time as the productivity of the team is determined by the roster in association with the bed based service parameters.

6.9.3 Workforce Development and other overhead costs

For this project, overhead costs are represented as a proportion of salary costs associated with the classifications defined in the staffing profiles. The definition of overhead costs considers variation across service settings. Overhead costs for bed based services will vary across hospital and community residential settings as do costs for services provided in the community by the public mental health sector and community support sector.

Common overhead costs: program administration and leadership and other corporate supports which may include quality assurance, human resources, payroll, finance, information technology and communication services. Facilities will also require varying levels of maintenance and cleaning and some may be leased.

Community residential or hospital based services: costs associated with security, catering, laundry, utilities and clinical services, such as various investigations and pharmaceuticals, need to be considered.

Mobile community based services: transport and vehicles (including maintenance) represent a significant cost.

Workforce education and program evaluation have also been included (note: the Modelling Group allocated an additional 2% to the community support sector specifically for this purpose).

Obviously there will be a myriad of arrangements in place to deliver and charge for the costs identified with varying levels of efficiency. After consulting with members of the expert working groups and service providers in a number of jurisdictions, the following standardised rates have been established for the project. They represent 'best estimates' of costs for these overheads.

Community support sector services	20.0%
Public-sector community mental health services	22.5%
Bed-based services located in hospitals	30.0%
Bed based services located in residential settings	25.0%

Note: The rates for bed-based residential services do not consider income associated with legislated or informal charges for accommodation and rehabilitation services.

6.10 BED BASED RESOURCES

Bed Based Services are defined as overnight care in a residential setting where staff are on site for a minimum of 50 hours per week. The model estimates the demand for beds/places for a given population. Bed Based Service Parameters include:

- Availability%
- Occupancy %
- Average Length Of Stay ALOS (days)
- Annual Readmit Rate%

6.10.1 Non-Mental Health Beds

The bed based resource count includes beds that are not provided by specialist mental health services because if they were unavailable, it would result in an increase of the demand for specialist mental health beds. However, the resources for these non-mental health beds are not costed as the financial burden usually lies beyond the mental health budget. The non-mental health beds are modelled as a bed count only, and where specified in care packages, the care is provided by consultation liaison services. These non mental health beds include:

Table 10- Non Mental Health Beds

_	Non-mental health care services
BH	Acute medical/surgical bed (Hospital, non-MH)
BC	Acute paediatric bed (Hospital, non-MH)
DA	Non-Acute - Adult (<24 hour support) (Residential)(non-MH)

6.10.2 Bed Days (BD)

The length of stay of an admitted patient is measured in bed days. A same-day patient is allocated a length of stay of one day. The Bed days for an overnight or multi-day stay is calculated by subtracting the admission date from the separation date and deducting total leave (with and without permission) days.

6.10.3 Average Length of Stay (ALOS)

The average length of stay (ALOS) in measured as days in a hospital or other bed per discharged in-patient and represents the average duration of a single episode of hospitalization.

The average length of stay (ALOS) for each bed appears on the Bed Based Service Parameters box within the staffing profile for the bed. This is just for information only, as the actual stay is specified within the care packages, and this may vary between care packages.

6.10.4 Relapse and Readmission Rates

Readmission rates are estimated for each bed and appear on the Bed Based Service Parameters box within the staffing profile for the bed.

Relapse and readmission rates are specified in each staffing profile for a specific bed type.

6.10.5 Adjusting Readmission Rates

Where the required rates are different for a particular care package, adjustments are made within the care package. The adjustment is shown as an additional row in the care package with the percentage to reach the required readmission rate. The adjustment also includes the original staffing profile readmission rate applied, so this is taken into account.

The table below shows the steps for Calculating the Readmission Rate Adjustment.

Table 11 -Calculating the Readmission Rate Adjustment

Step	Step - Summary	Step – Detailed	Example
A	Identify Age Group and care package	Select age group and care package, where readmission differs from standard, for this example	Age: **18-64** Care Package **SEV_ABB_EPS_Yr1**
B	Identify service element code	Identify Service element code for bed.	**BA** : **Acute – Adult (18-64 years) Hospital**
C	Note the Population applicable % of the original admission	The care package shows BA : Acute – Adult (18-64 years) Hospital **55%** x 1 x 14 days	Pop'n applicable % of original admission = 55% **C = 55%**
D	Identify standard annual readmission	Standard annual readmission is set via staffing profile for the bed	annual readmission is 10% **D = 10%**
E	Identify annual readmission required for the Care Package / bed	This Care package requires 20 % annual readmission rate for bed BA. Note: readmission rate is always used as (100%+ readmission)	Requires 20% readmission **E= 20%**
F	Calculate required admission % total	Required admission % total = Population applicable % of original	F = C x (100+ E) F = 55% x 120%

		admission * (100%+ original l readmission)	**F = 66%**
G	Calculate adjustment proportion	Adjustment proportion = annual readmission divided by (100%+ Standard readmission)	G = D / (100+D) G= 10/110 **G =1/11**
H	Calculate adjustment admission %	adjustment admission % = % Pop'n applicable of original admission x adjustment proportion	H= C x F H = 55% x 1/11 **H= 5%**
I	Adjustment is shown as an additional row	Additional row is added following the original admission row.	BA : Acute – Adult (18-64 years) Hospital **5%** x 1 x 14 days
J	Calculate admission % total	original admission % plus adjustment admission %	J = C + I J = 55% = 5% **J=60**
K	Calculate admission % total	= admission % total * (100% + standard annual readmission) NB this is the final result.	K = J x (100+ D) F = 60% x 110% **F = 66%**
L	Check that result equals requirement	Check that admission % total = required admission % total Does result equal the requirement?	**K = F** **66% = 66%** **yes**

6.10.6 Occupancy

The occupancy rate for each bed appears on the Bed Based Service Parameters box within the staffing profile for the bed. Where beds are 'owned' by others, for example, drug and alcohol, paediatric or general bed, all of the occupancy belongs to them.

6.10.7 Separations per Person

Separation is the process by which an episode of care for an admitted patient ceases. The separations data was obtained from the AIHW Data cubes.

6.10.8 Availability

Availability % for each bed appears on the Bed Based Service Parameters box within the staffing profile for the bed.

6.10.9 Occupied Bed Days (OBDs)

Occupied Bed Days are calculated by Multiplying Readmission Rate by Service Demand Rate by Average Length of Stay to get the number of OBDs per 100,000 of age specific population. OBD is then divided by available bed days to calculate required number of beds per 100,000 of age specific population.

6.10.10 Patients per Bed Year

This provides an average estimate of the number of persons that will occupy a bed in a year. It is calculated by dividing the Average Occupied Bed Days (OBDs) per Year by the Average length Of Stay (ALOS) for a bed type.

6.11 PRICING

The NMHSPF Model includes total prices of all the resources (staff FTE, consumables and medications) with options for the user to input their own staff prices specific to their local needs. This means that the dollar FTE values are indicative only as each user will then modify as required.

6.11.1 FTE Staff Prices

For each Staff Category, there is a front page that depicts a default setting of national cost with options for local input by the user. The national costs have been determined as an average cost per Staff Category by picking a pay point that is reasonable (external to the profile) and then add on an estimate of penalty rates, as reflected within the staffing profile.

AIHW rates include penalty rates so cannot be used directly as there is little information on the boundaries of base rate and penalties included. Qld and NSW pay rates are very similar and so as two large jurisdictions, using the NSW wage rates was considered to be a reasonable comparison point to start with. The 75th percentile from NSW Award rates were built up to include penalty rates and overheads, and then compared with the AIHW NSW all inclusive rates. The proportion between the NSW base rate and NSW total with penalties was then applied in reverse to the total AIHW rates to determine the likely AIHW national base rate.

For fee-for-service rates, jurisdictional data was compared against the new approach.

For GPs, private psychiatrists and private allied health, the QCMHR Commonwealth Analysis for Primary Mental Health Care was used.

For Community Support services, the staffing profiles were developed on advice from stakeholders, including the determination of roles in the context of the SCHADS Award.

In general the Community Support staffing profiles are combinations of the following award rates: SCHADS Level 3.2 for Vocationally Qualified Mental Health Worker, L 5.1 Vocationally Qualified Other (e.g. senior worker/supervisor) and L 6.2 Tertiary Qualified Other (Program Manager). For more information on the scope of roles under this award, please see **NSW SACS Reclassification Guide**.

Detailed information relating to the modelling of staff costs can be found in **section 12.3 Modelling the Staff prices.**

6.11.2 Bed Prices

Bed costs in the NMHSPF model are driven by salaries, with the addition of on-costs (28%) and administration costs (10%). This does not cover all the costs associated with a specialist mental health inpatient or other residential service. Missing ancillary (or overhead) costs include hotel costs (food, linen, etc), cleaning, electricity, etc, which should be applied on a per bed basis.

NOTE: The NMHSPF Model does not use a nominal bed price such as bed day cost in calculating the cost of providing bed based services.

6.11.3 Prescription Medicine Prices

Prescription medications are modelled separately for severe and combined for mild/moderate.

7 Epidemiology

7.1 SUMMARY OF EPIDEMIOLOGICAL INFORMATION USED TO INFORM THE MODEL

Mr Gavin Stewart is in the process of completely rewriting the epidemiology which will be included in the Technical Manual by the end of October 2013. What follows is the epidemiology from NSW MH-CCP which will help readers understand the approach to modelling the epidemiology in this Project.

7.2 MENTAL ILLNESS(ES) IN THE AUSTRALIAN BURDEN(S) OF DISEASE(S)

In summary, NSW MH-CCP defines "Mental Illness" (MI) as a weighted combination of a selected list of 16 illnesses and conditions in the AusBoD 2007 data for ages 18 and over, and supplements these up to the level of the SMHWBCA 1998 data for ages 4-17, extended back to age 0 on the basis of recent studies of diagnosed problems in infancy and early childhood.

In case that seems like an unconventional thing to do, it is only because MH-CCP explicitly states the weights used. In fact every report on "mental illness" does the same thing, informally. If it is a survey, the weights will depend on what conditions the survey measured and the threshold for diagnosis, sample frame/s, application (or not) of hierarchical exclusion rules, differential response rates from people with different conditions, and many other factors. For example, the *Survey of Mental Health and Wellbeing-Adult* (SMHWBA 1997), reported as "mental illness" the sum of the groups *J03 Anxiety / Depression* and a mixture of the substance use conditions *J01a-J01e*, while screening out older people with *K01 Dementia.*

It is also important to note that the conditions that AusBoD 2007 groups together as “mental disorder” for reporting the Burden of Disease include many that are not directly in scope for Program 3.1 services in NSW Health, such as substance use conditions and autism (see below).

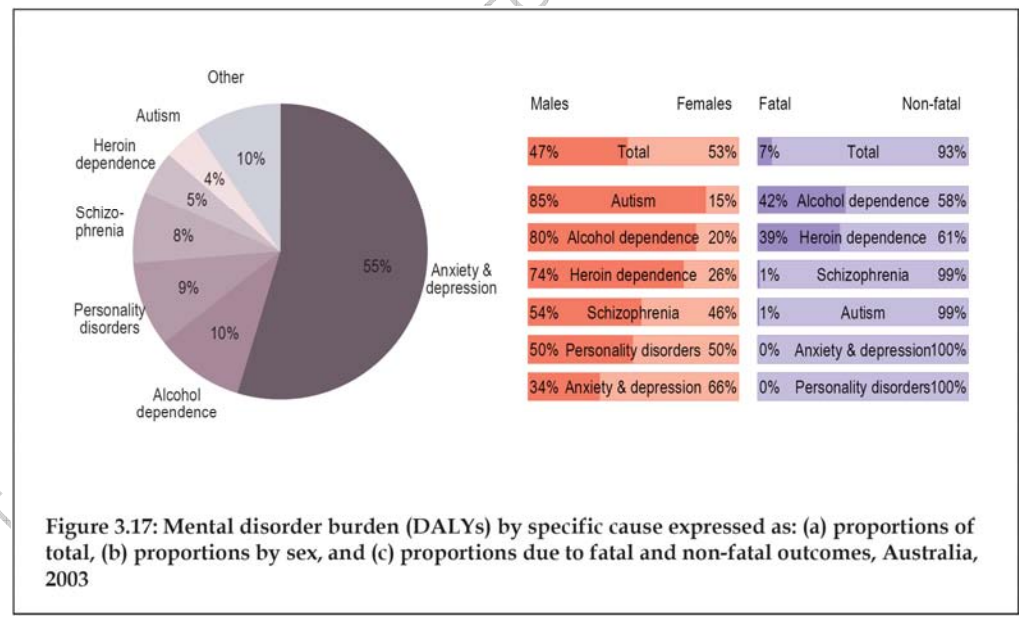


Figure 3.17: Mental disorder burden (DALYs) by specific cause expressed as: (a) proportions of total, (b) proportions by sex, and (c) proportions due to fatal and non-fatal outcomes, Australia, 2003

Comparison of the conditions shown on the AusBoD 2007 pie chart (above) for the burden of “mental disorder” with those in the MH-CCP “control panel” should make it clear why additional work with the AusBoD 2007 data was needed. Apart from anything else, there is a model to be developed for Drug and Alcohol services, so MH-CCP cannot simply use the overall AusBoD 2007 prevalence for all the diagnostic groups in the pie chart. They conform to the way “mental illnesses” is reported internationally, but MH-CCP is only concerned with the scope of services for "mental health" as it is defined in Program 3.1 of the NSW Health

Department in 2009. At the same time, it has to deal with service needs arising from other conditions such as dementia, which AusBoD 2007 classifies with neurological and sense order conditions (see chart below); or intellectual disability, which AusBoD 2007 does not report separately, since the Burden of Disease for the AusBoD 2007 group (K09) is attributed to the illnesses and conditions judged to be the primary causes.

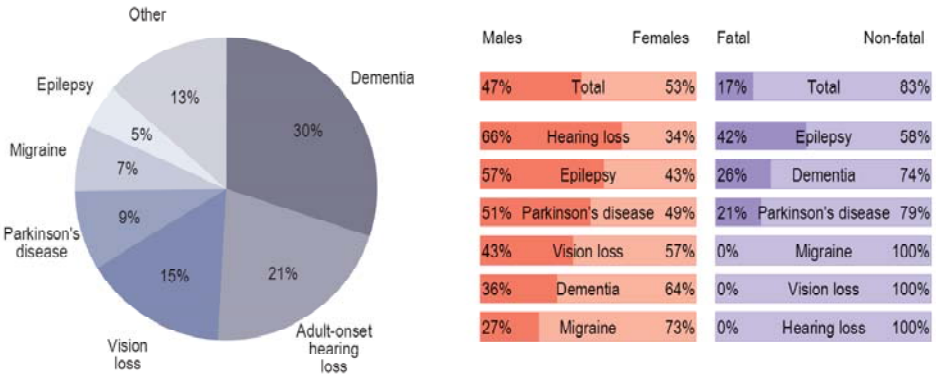


Figure 3.19: Neurological & sense disorder burden (DALYs) by specific cause expressed as: (a) proportions of total, (b) proportions by sex, and (c) proportions due to fatal and non-fatal outcomes, Australia, 2003

Thus, when people look at the chart below and say that "mental illness" accounts for 13% of the Burden of Disease in Australia, this is correct, but only for the particular combination in question.

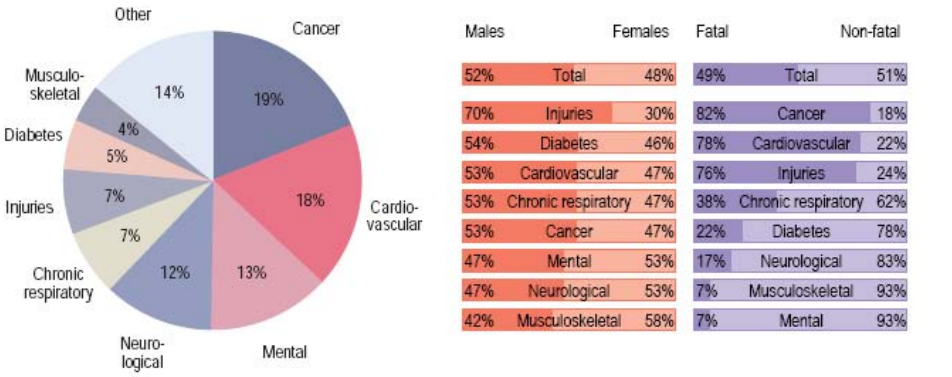


Figure 3.1: Burden (DALYs) by broad cause group expressed as: (a) proportions of total, (b) proportions by sex, and (c) proportions due to fatal and non-fatal outcomes, Australia, 2003

7.2.1 Comorbidities

MH-CCP Version 2.008 puts its epidemiological cards on the table - the "control panel" shown above. Weights (the column headed MI-wt) have been set at a value ranging from 1.00 to 0.00 on all the diagnoses to represent the "mental illness" proportion of their prevalence, or rather, the portion not counted elsewhere. Those in the upper panel have 1.00 since AusBoD 2007 was generally at pains to exclude double counting of comorbidity within that group. Those in the lower panel were assigned on the best evidence available, which was better in some cases than others, and the weights are based on three considerations, designed to minimise double counting.

- If people with the illness or condition were unlikely to have been included at all in the data sources from which the "regular" mental illnesses in the top panel were drawn, estimates of comorbidity were taken at full value. The closest example is *K01 Dementia*.
- If they were likely to have been wholly included, then no additional mental illness should be added. The closest example is *J07b Asperger's syndrome*.
- If they were primarily treated by other services, then Australian mental health inpatient data was reviewed to estimate the proportion treated there, relative to the "regular" mental illnesses in the top half of the panel, to estimate a SEVERE MI proportion from which the MILD and MODERATE rates (and thus total) were inferred from the disability weights in AusBoD 2007 . The best examples are substance use conditions (*J01a-J01e*).

Decisions were made on a case by case basis, and (within the substance use groups, comparatively and taking internal poly-drug use into account by assigning an overall weight to the whole group), by reviewing the sampling frame for the data used in the AusBoD 2007 estimates and published data on comorbidity. Experts were invited to comment on the weights as they evolved. The only critique received was of a previous version in which *J07b Autism* received no additional weight, on the argument that the evidence base for comorbidity in *K09 Intellectual Disability* included a substantial proportion of children and young adults with autism, and likewise the evidence base for comorbidity in *J07b Autism* also included many children and young adults with intellectual disability. However, those with both conditions showed a further excess of mental health problems, which is thus included in the group labelled *J07b Autism - Excess over K09.*

The obvious question is why there are only 16 of the AusBoD 2007 diagnostic groups in the "control panel" with "MI weights" beside them, rather than all the 100+ diagnostic groups in AusBoD 2007. After all, a great many physical illnesses are associated with psychological distress or depression, typically at about twice the rate found in the equivalent general population[34], and dealing with that generates consultation-liaison work.

The short answer is that a great deal of the milder or moderate mental illnesses associated with physical illness can be addressed as part of the treatment of the primary physical illness. In the same way, mental health services can address a great deal of the milder physical illnesses seen in mental health care. The "MI" group as defined in MH-CCP is assumed to carry the ordinary rates of other illnesses into treatment, and the treatment of their primary mental illness must allow for that. For example, this is one of the contributing factors to the longer average lengths of stay of older people. In addition, the prevalence of "MI" already include anyone whose physical illness did not preclude them from participation in surveys or other data collections where rates of mental illness were estimated and included in the AusBoD 2007 data, so that the "MI" estimates have already been raised by any effect of physical illness in those cases. Overall, it seems reasonable to suppose that estimates of the numbers of people requiring consultation-liaison services for the mental health comorbidity associated with physical illnesses have been included in the prevalence of "MI".

7.2.2 Diagnostic prevalence of Mental Illness in version 1.11 and version 2.008

The target definition of "MI" (Mental Illness) in all these analyses was the conventional one in psychiatric epidemiology that captures (roughly) the top 15-20% of the population distribution of the collections of symptoms and signs and functional disturbances that receive diagnostic labels. Equivalently, especially in children and adolescents, it refers to the top 15-20% of the score range on "gold standard" symptom

[34] Prince M, Patel V, Saxena S, Maj M, Maselko J, Phillips MR, Rahman A. No health without mental health. *Lancet 2007*; 370: 859–77

checklists that are used in both surveys and clinical practice. This is a very low threshold for diagnosis or classification, since for example two weeks of a moderate number of symptoms will pass the threshold for a diagnosis of depression. For epidemiological purposes, a low threshold for diagnosis is appropriate, since illnesses need to be studied through their whole range of severity, for all sorts of good reasons. The problem is that this criterion assigns diagnoses to a large number of adults – roughly half the prevalent "cases" – who do not regard themselves as ill, do not want any form of care, do not seek out care, and (not surprisingly) do not receive treatment for their "mental illness". Similarly, this low threshold classifies a large number of children and adolescents as having mental health problems – again, roughly half the "cases" – whose parents do not regard their offspring as having more problems than their peers, or as being in need of treatment.

As described in MH-CCP Version 1.11, for service planning we need to combine this overall prevalence with a "severity" classification that is relevant to the need for health services of different kinds, especially primary care versus specialist care. Since the Australian healthcare system has different providers, funded by different level of Government, this is particularly important for planning specialist State mental health services. This severity distinction is implemented in MH-CCP by a second set of weights that divide up the prevalence of MI into three sub-groups, by severity, labelled MILD, MODERATE, and SEVERE. As an "anchor" for these weights we used the established definition for adults already given in MH-CCP Version 1.11,

The General Epidemiology of MH-CCP Version 1.11 has been adopted for planning purposes in some other State jurisdictions in Australia, so for many purposes the "bottom line" in comparing the current version of MH-CCP with Version 1.11 is in the following tables. These apply both versions of the modelled epidemiology to the standard 2006 NSW population. Those with an eye for detail will notice that the overall prevalence of illness (ILL) in those aged 0-17 in the MH-CCP Version 1.11 table is shown as 15.5% whereas it appeared as 15.4% previously. This is because it is a population-weighted combination of the four sub-models in this age range, and the relative population proportions of these age groups changed slightly between 1996 and 2006.

MH-CCP V 1.11

Prevalence	WELL	MILD	MODERATE	SEVERE	ILL	TOTAL
Age 0-17	84.5%	7.4%	6.0%	2.1%	15.5%	100%
Age 18-64	82.2%	10.8%	4.2%	2.8%	17.8%	100%
Age 65+	87.1%	6.7%	4.2%	2.0%	12.9%	100%
All Ages	83.4%	9.6%	4.5%	2.5%	16.6%	100%
Pop 2006	WELL	MILD	MODERATE	SEVERE	ILL	TOTAL
Age 0-17	1,360,945	119,549	96,778	33,029	249,355	1,610,300
Age 18-64	3,522,270	462,780	179,970	119,980	762,730	4,285,000
Age 65+	802,344	61,503	38,669	18,184	118,356	920,700
All Ages	5,684,544	654,336	306,720	170,400	1,131,456	6,816,000

MH-CCP 2.008

Prevalence	WELL	MILD	MODERATE	SEVERE	ILL	TOTAL
Age 0-17	84.6%	8.8%	4.4%	2.3%	15.4%	100%
Age 18-64	81.5%	10.0%	5.0%	3.5%	18.5%	100%
Age 65+	85.2%	7.9%	4.0%	2.9%	14.8%	100%
All Ages	82.8%	9.4%	4.7%	3.1%	17.2%	100%
Pop 2006	WELL	MILD	MODERATE	SEVERE	ILL	TOTAL
Age 0-17	1,361,894	140,956	70,999	36,452	248,406	1,610,300
Age 18-64	3,493,993	426,644	215,615	148,748	791,007	4,285,000
Age 65+	784,815	72,531	36,968	26,387	135,885	920,700
All Ages	5,640,701	640,131	323,582	211,587	1,175,299	6,816,000

Overall (All Ages), the change to AusBoD 2007 epidemiology and the inclusion of comorbidity from other diagnoses and conditions has not changed things very much, and all the estimates are well within the ranges

of those with which people are familiar. The main difference is for those aged 65 and over, because of the inclusion of MI comorbidity from those with *K09 Dementia*.

However, rather than describe details of these tables, it is more important to move on to the epidemiology derived from them in order to change from the low-threshold diagnosis / problem definitions of "illness" appropriate to psychiatric epidemiology, to the more relevant threshold of perceived need for services that is appropriate for planning in NSW Health.

7.2.3 Treated Prevalence in NSW MH-CCP Version 1.11 and version 2.008

The "treated prevalence" of an illness or condition is the percentage of the population receiving treatment for that illness or condition. This is usually less than the diagnosed prevalence of the illness or condition, for two main reasons:

- A proportion of people who meet diagnostic criteria for an illness or condition will not have any perceived need for treatment. That is, from an epidemiological point of view they might be said to have an “unmet need”, but from their own point of view they do not, and thus they do not have an “unmet demand” for healthcare[35].
- A proportion of people will have a need, and a demand, for healthcare, and will not receive it, for a variety of reasons. This is “unmet need”, and it is also “unmet demand”.

To complicate matters, there are also people who demand, seek, and receive healthcare without having a demonstrable need – so-called “met un-need” – but this demand is not modelled in MH-CCP. Thus in MH-CCP the term "demand" always means a person with a perceived need for service that is based on meeting standard criteria for a mental illness, however mild it might be.

Using a low epidemiological threshold for MI that classifies about 15-20% of the population as "ILL" means that at the milder end of the spectrum many of the people will not agree with the epidemiologists, will regard themselves as “WELL”, and will deny they have any need for treatment. Or, if they are parents and have been interviewed about their offspring or have filled out a standard checklist on them, they will not have reported that their child is more problematic than his/her peers. The latter effect explains much of the difference between the AusBoD 2007 data and the raw diagnostic data of the SMHWBCA 1998 that it used, because AusBoD 2007 only counted "cases" where the parent agreed that the child had more problems than his/her peers. This reduces diagnostic prevalence by 50% - 67%. For consistency with the AusBoD 2007 treatment of the adult data from the SMHWBA 1997, we reinstated the SMHWBCA 1998 prevalence of about 15%.

In MH-CCP Version 1.11 the difference between epidemiologically defined “need” (diagnosis), and self-defined “demand” was represented in the sub-model for adults 18-64 only. A parameter for “Percentage Reached” was introduced between the prevalence and the “Service Population” for whom Resource and Output calculations were made. On the evidence in the SMHWBA 1997 that a large percentage of those with diagnoses did not want care of any kind, the Percentage Reached was set at 50% for people with MILD illness, 80% for people with MODERATE illness, and 100% for people with SEVERE illnesses. This is somewhat higher than the actual demand found in both SMHWBA 1997 and SMHWBA 2007.

In some ways the term "Treatable Prevalence" would be preferable as a way of describing the prevalence estimates used for the Service Population in MH-CCP, since people with MILD and MODERATE illnesses who report that they do not even have an unmet need for information are not treatable by clinical services in any ordinary healthcare system. However, MH-CCP Version 2.008 is a model for providing adequate treatment for all need-based demand, so the term "Treated Prevalence" is technically correct. In MH-CCP it refers to the prevalence of illness for which the model supplies adequate NSW Care Packages to people who meet diagnostic criteria and want professional care. The provision of actual services (supply) can then be

[35] Andrews G, Henderson S (Eds) *Unmet need in psychiatry: problems, resources, responses*. (Scientific symposium of the World Psychiatric Association Section of Epidemiology and Public Health, Sydney, 1997). Cambridge: Cambridge University Press, 2000.

assessed against 100% of "MH-CCP Treated Prevalence", and percentage Targets can be set that represent an efficient use of the resources and funds available.

Applying this to Version 1.11, "Percentage Reached" was set to 100% for all groups other than Adults Aged 18-64 with MILD illnesses (50%) or MODERATE illnesses (80%). The effect is to re-classify 6.2% of the prevalence from ILL to WELL (see below). Note that this is based on survey evidence that at least this proportion of Adults regarded themselves as not needing any treatment.

MH-CCP V 1.11 "Service Populations"							
Prevalence	WELL		MILD	MODERATE	SEVERE	ILL	TOTAL
Age 0-17	84.5%	0.0%	7.4%	6.0%	2.1%	15.5%	100%
Age 18-64	82.2%	6.2%	5.4%	3.4%	2.8%	11.6%	100%
Age 65+	87.1%	0.0%	6.7%	4.2%	2.0%	12.9%	100%
All Ages	83.4%	3.9%	6.1%	4.1%	2.5%	12.7%	100%
Pop 2006	WELL		MILD	MODERATE	SEVERE	ILL	TOTAL
Age 0-17	1,360,945	-	119,549	96,778	33,029	249,355	1,610,300
Age 18-64	3,522,270	267,384	231,390	143,976	119,980	495,346	4,285,000
Age 65+	802,344	-	61,503	38,669	18,184	118,356	920,700
All Ages	5,685,559	267,384	412,441	279,423	171,193	863,057	6,816,000

For discussion, we propose a change in labelling associated with the general application of these “Percentage Reached” parameters for all age groups in MH-CCP Version 2.008, as below.

MH-CCP 2.008 "Treated Prevalence"							
Prevalence	Promote	Prevent	MILD	MODERATE	SEVERE	CC	TOTAL
Age 0-17	84.6%	5.2%	4.4%	3.5%	2.3%	10.2%	100%
Age 18-64	81.5%	6.0%	5.0%	4.0%	3.5%	12.5%	100%
Age 65+	85.2%	4.7%	3.9%	3.2%	2.9%	10.0%	100%
All Ages	82.8%	5.6%	4.7%	3.8%	3.1%	11.6%	100%
Pop 2006	Promote	Prevent	MILD	MODERATE	SEVERE	CC	TOTAL
Age 0-17	1,446,431	84,537	70,539	56,848	36,482	163,869	1,610,300
Age 18-64	3,750,547	256,554	213,274	172,454	148,726	534,453	4,285,000
Age 65+	828,505	43,690	36,252	29,564	26,379	92,195	920,700
All Ages	6,025,483	384,782	320,065	258,865	211,587	790,517	6,816,000

In this table, we have simply placed the percentage of the overall MI prevalence removed from the MILD group (50% of MILD) and MODERATE groups (20%) in a group labelled "Prevent" (for "Indicated Prevention") which is distinguished from the remainder of the WELL group, now labelled "Promote" (for Mental Health Promotion). There are several reasons why it is sensible to do this: mainly evidence that there is elevated risk in the group designated here as “Prevent”.

In 2000, all we had was the evidence from SMHWBA 1997 that the 6.2% reclassified from ILL to WELL were people who did not want treatment. Since that time, however, there has been an evidence-based debate[36] in

[36] Mechanic D. Is the prevalence of mental disorders a good measure of the need for services? *Health Affairs*. Chevy Chase: Sep/Oct 2003.Vol.22, Iss. 5; pg. 8

Narrow WE, Rae DS, Robins LN, Regier DA. Revised prevalence estimates of mental disorders in the United States: using a clinical significance criterion to reconcile 2 surveys' estimates. *Archives of General Psychiatry 2002*. 59(2):115-23.

Kessler RC. Merikangas KR. Berglund P. Eaton WW. Koretz DS. Walters EE. Mild disorders should not be eliminated from the DSM-V. *Archives of General Psychiatry 2003;* 60(11):1117-22.

Regier DA, Narrow WE, Rae DS. For DSM-V, it's the "disorder threshold," stupid. *Archives of General Psychiatry 2004.* 61(10):1051; author reply 1051-2.

Druss BG. Wang PS. Sampson NA. Olfson M. Pincus HA. Wells KB. Kessler RC. Understanding mental health treatment in persons without mental diagnoses: results from the National Comorbidity Survey Replication. *Archives of General Psychiatry 2007*, 64(10):1196-203.

the US around the use of a "Disorder threshold" in DSM-IV, which requires distress or functional impairment as well as meeting the diagnostic criteria. With the aid of data from the NCS-R survey, in which people interviewed in the NCS survey of 1992 were reinterviewed ten years later, it is clear that the group with mild illnesses who are excluded by a "Disorder threshold" were not really WELL when their subsequent history was assessed. Even a group who were just below the diagnostic threshold were not really WELL. Both had increased risks of future illness and other adverse outcomes, at similar levels to those who had mild illnesses.

This description is reasonably close to a definition in MH-CCP Appendix F: Prevention and Promotion Estimates , namely:

***Indicated prevention interventions*:** are targeted to high risk individuals who are identified as having minimal but detectable signs and symptoms foreshadowing mental disorder or biological markers indicating predisposition for mental disorder, but who do not meet DSM IV diagnostic levels at that time. Examples include parent–child interaction training programs for children with behavioural problems and their parents.

Indicated prevention programs are assumed to target the 10% of the population experiencing mild mental health problems/ disorders. People with mental health problems or mild mental health disorders may be identified and/or assessed by mental health or other services. They may also be detected through the screening process for an indicated prevention program.

Since the estimate in the tables for MH-CCP refers to a group who meet diagnostic or related criteria but do not want treatment (or their parents do not want it for them) it is not quite the same type of group as in the US studies, but it is certainly a group of about 10% when combined with the MILD group. It is also one with an identifiable need, even though it would be difficult to meet because people in this group do not perceive that they have one. Nevertheless, the inclusion of a distinct group of this kind means that the overall MI prevalence is accounted for in a way consistent with the objective of MH-CCP, and even the name of the model. That is, there is Clinical Care (CC) for those in the remaining MILD / MODERATE / SEVERE groups, and Prevention (P) for the portion removed from MILD and MODERATE, and Mental Health (MH) promotion for everyone else.

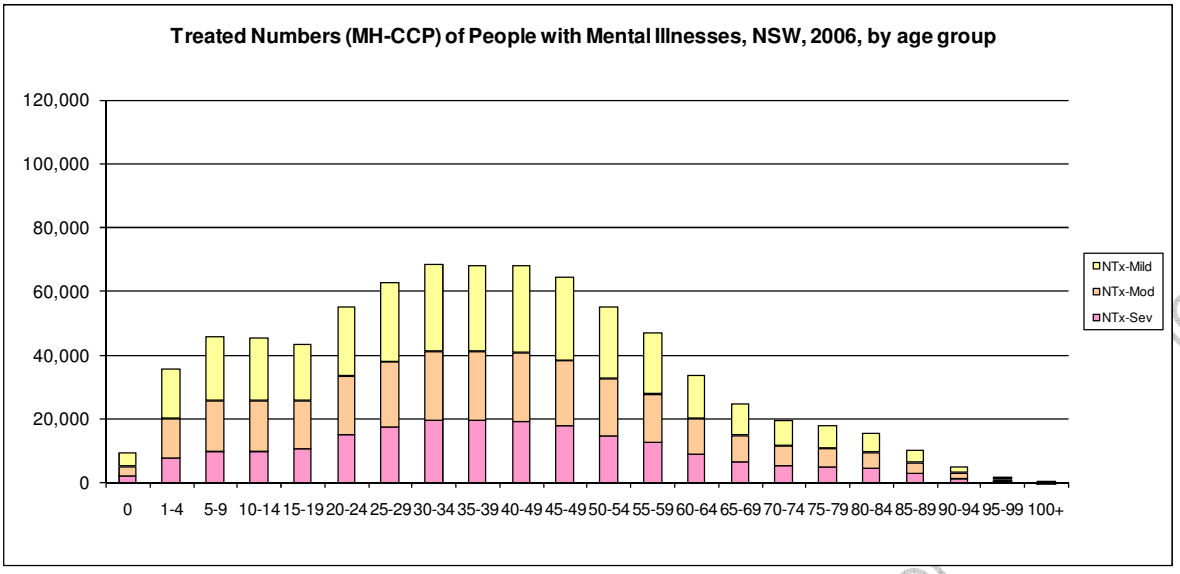
MH-CCP 2.008 "Treated Prevalence"

Prevalence	Promote	Prevent	MILD	MODERATE	SEVERE	CC	TOTAL
Age 0-17	84.6%	5.2%	4.4%	3.5%	2.3%	10.2%	100%
Age 18-64	81.5%	6.0%	5.0%	4.0%	3.5%	12.5%	100%
Age 65+	85.2%	4.7%	3.9%	3.2%	2.9%	10.0%	100%
All Ages	82.8%	5.6%	4.7%	3.8%	3.1%	11.6%	100%
Pop 2006	Promote	Prevent	MILD	MODERATE	SEVERE	CC	TOTAL
Age 0-17	1,446,431	84,537	70,539	56,848	36,482	163,869	1,610,300
Age 18-64	3,750,547	256,554	213,274	172,454	148,726	534,453	4,285,000
Age 65+	828,505	43,690	36,252	29,564	26,379	92,195	920,700
All Ages	6,025,483	384,782	320,065	258,865	211,587	790,517	6,816,000

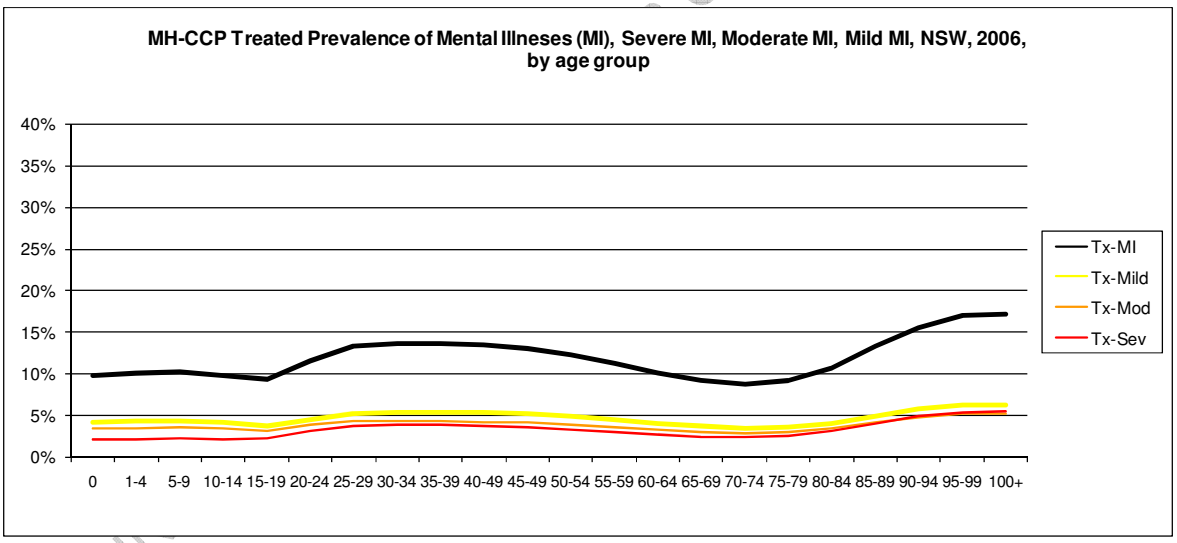
In relation to the "Treated Prevalence" estimates as a whole, it is logical to apply the same rates to the (higher) levels of MI now modelled for older people, since most of the increase in BPSD associated with dementia is MILD (note that the dementia may or may not be) and defined by symptom checklist data, where again many people would not regard themselves (or be regarded by their carers) as in need of treatment.

In the case of Children and Adolescents, there is strong evidence, both from the AusBoD 2007 re-analysis of the SMHWBCA data and from the British Child and Adolescent Mental Health Survey (BCAMHS 1999) that applying DSM-IV criteria to diagnosis in children and adolescents produces a prevalence of 9.5% rather than the 15% reported in SMHWBCA 1998. A more detailed analysis of this is included for those interested, showing that the AusBoD 2007 data agrees remarkably well with the BCAMHS 1999 data for the subset of diagnoses they have in common, and the gap to the 9.5% found in BCAMHSs 1999 is accounted for by the omission of Disruptive behaviour Disorders other than ADHD from AusBoD 2007. See the discussion in the child / adolescent section of MH-CCP Appendix A.

The overall effect of modelling demand in the manner described is shown in the chart below.



The chart above shows the expected numbers in the standard 2006 NSW population who are predicted to have a diagnosable need and a perceived need for treatment - that is, demand - under the revised model. This may also relieve concerns about the high prevalence in the oldest groups, age 75 and more. The rates are high, but the numbers are small, and decrease rapidly as people die. Note that the detail is available because the AusBoD 2007 numbers underlie the whole.

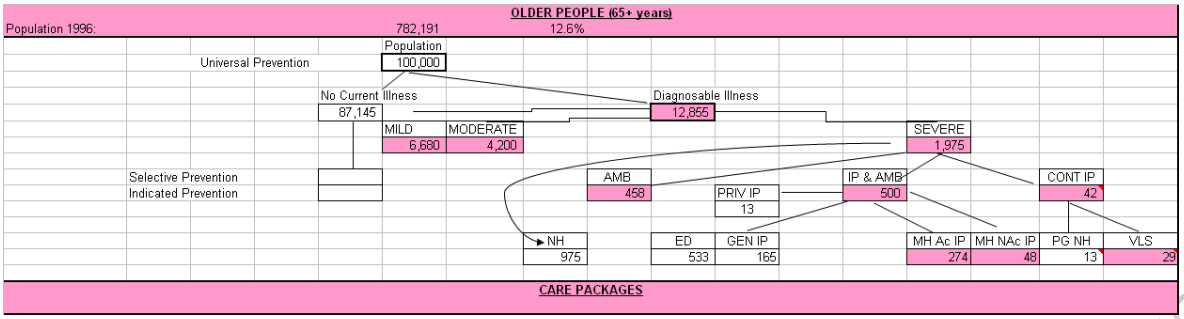


The Service Population for Clinical Care contains MILD, MODERATE and SEVERE groups in more or less equal proportions. The specific definitions of MILD, MODERATE and SEVERE were given in MH-CCP Version 1.11 for adults, and have been extended to other age groups in the Appendixes on *General Epidemiology* here. These should be read carefully when considering NSW Care packages, since most of MILD and MODERATE illness does not require specialist care.

7.3 GENERAL EPIDEMIOLOGY

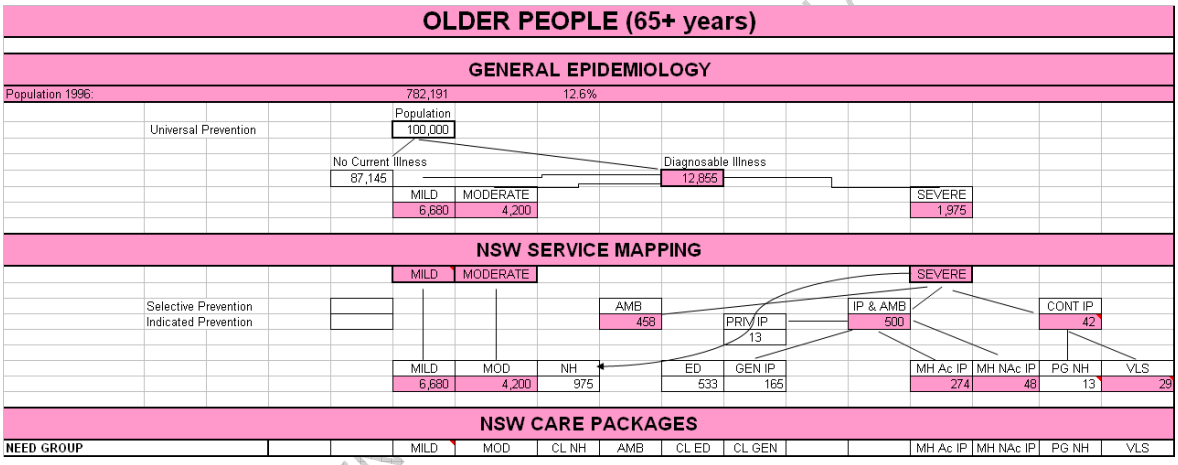
7.3.1 Overview of Changes

In MH-CCP Version 1.11 the "Epidemiology" panel of the model was presented as shown below:



It begins with the 1996 standard NSW population, in this case for people aged 65 and over (782,191 people, 12.6% of the NSW population). It shows estimates of the number of people, per 100,000 aged 65+, who would have a diagnosable mental illness in a 12-month period (12,855 or 12.9% in the example). This group is divided by severity into MILD (6,680 or 6.7%), MODERATE (4,200 or 4.2%) and SEVERE (1,975 or 2.0%) groups. There is also a division into the numbers of people who would need each of the specific Care Packages identified in the model.

For Version 2.008 we have separated the *General Epidemiology* from the *NSW Service Mapping.* To illustrate the change, the figure below has rearranged the previous figure into the new form.



The panel called *General Epidemiology* covers only the general 12 month prevalence estimates divided by severity. The panel called *NSW Service Mapping* covers the secondary division into *Need Groups* for particular *NSW Care Packages*. These packages are mainly defined by the *Service Elements* in the NSW Health system, and the estimates often rest on NSW service data. This section of the model is much more specific to NSW than the *General Epidemiology.*

7.3.2 Overall Changes in General Epidemiology

The 12-month prevalence estimates for MH-CCP version 1.11 and the current version are shown below, and have been applied to the 2006 NSW standard population to show the numerical effect.

MH-CCP V 1.11						
Prevalence	**WELL**	**MILD**	**MODERATE**	**SEVERE**	**ILL**	**TOTAL**
Age 0-17	84.5%	7.4%	6.0%	2.1%	15.5%	100%
Age 18-64	82.2%	10.8%	4.2%	2.8%	17.8%	100%
Age 65+	87.1%	6.7%	4.2%	2.0%	12.9%	100%
All Ages	83.4%	9.6%	4.5%	2.5%	16.6%	100%
Pop 2006	**WELL**	**MILD**	**MODERATE**	**SEVERE**	**ILL**	**TOTAL**
Age 0-17	1,360,945	119,549	96,778	33,029	249,355	1,610,300
Age 18-64	3,522,270	462,780	179,970	119,980	762,730	4,285,000
Age 65+	802,344	61,503	38,669	18,184	118,356	920,700
All Ages	5,684,544	654,336	306,720	170,400	1,131,456	6,816,000

MH-CCP 2.008						
Prevalence	**WELL**	**MILD**	**MODERATE**	**SEVERE**	**ILL**	**TOTAL**
Age 0-17	84.6%	8.8%	4.4%	2.3%	15.4%	100%
Age 18-64	81.5%	10.0%	5.0%	3.5%	18.5%	100%
Age 65+	85.2%	7.9%	4.0%	2.9%	14.8%	100%
All Ages	82.8%	9.4%	4.7%	3.1%	17.2%	100%
Pop 2006	**WELL**	**MILD**	**MODERATE**	**SEVERE**	**ILL**	**TOTAL**
Age 0-17	1,361,894	140,956	70,999	36,452	248,406	1,610,300
Age 18-64	3,493,993	426,644	215,615	148,748	791,007	4,285,000
Age 65+	784,815	72,531	36,968	26,387	135,885	920,700
All Ages	5,640,701	640,131	323,582	211,587	1,175,299	6,816,000

- The *General Epidemiology* estimates of Version 1.11, which were assembled from a variety of sources specifically for the model, have been largely replaced with a single set of estimates drawn from the Australian Burden of Diseases study[37] published in 2007 (AusBoD 2007).
- The AusBoD 2007 epidemiology covers all the relevant primary mental health diagnoses.
- It has also been used to include estimates of the additional mental illnesses in people with primary diagnoses of intellectual disability, autism spectrum disorders, and substance use conditions; as well as Behavioural and Psychological Symptoms of Dementia (BPSD) [38].

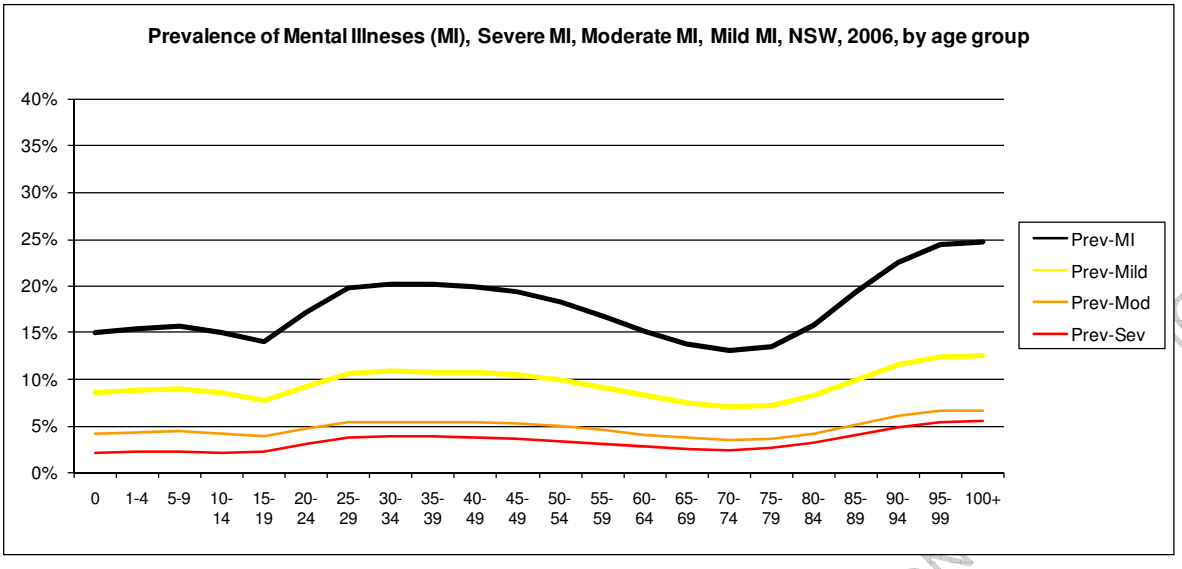
The overall effect is relatively small. The estimated prevalence of illnesses has increased from 16.6% to 17.2%, and for the SEVERE levels of illness where specialist State mental health services are concentrated, the increase in the estimate is from 2.5% overall to 3.1%. This is mainly the result of including estimates of the additional mental health need in other diagnostic groups where the prevalence would not have been captured in the primary mental illness data.

7.3.3 Expanded Detail on Age-specific Prevalence

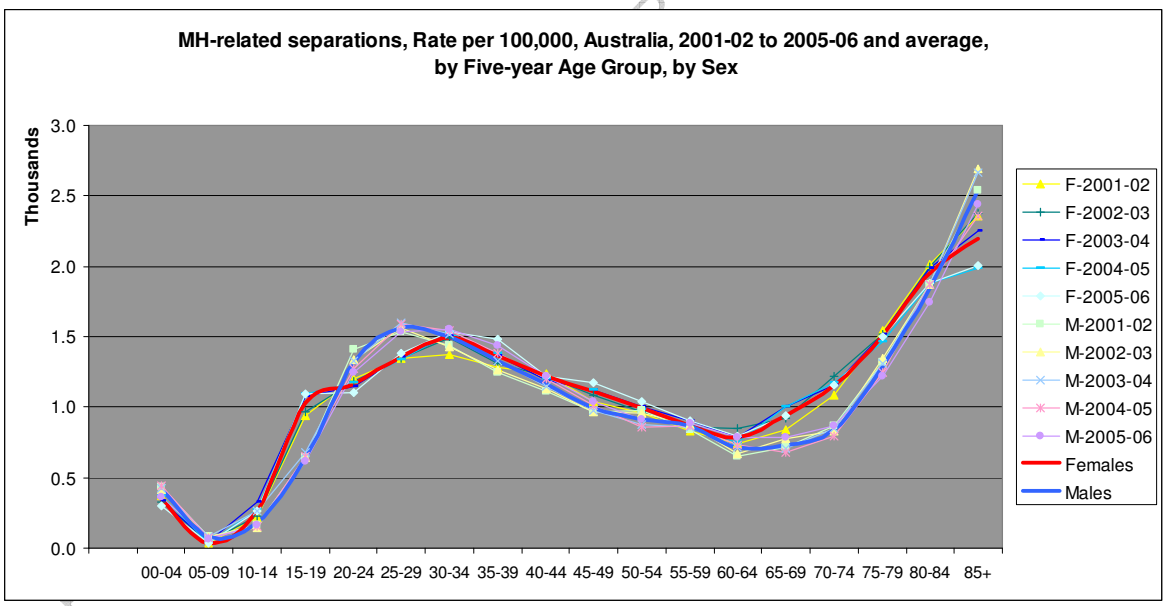
An additional advantage of using the AusBoD 2007 estimates is that they are available for males and females, and for ages 0, 1-4, and 5-year age groups from 5-9 through 95-99 and 100+. This reduces the work of maintaining the *General Epidemiology* component of the model and makes it more flexible. The prevalence profile across age groups is shown in the figure below.

[37] Begg S, Vos T, Barker B, Stevenson C, Stanley L, Lopez AD, 2007. *The burden of disease and injury in Australia 2003.* PHE 82. Canberra: AIHW. We thank A/Prof Theo Vos for assistance with using this material.

[38] Brodaty H, Draper BM, Low L-F. Behavioural and psychological symptoms of dementia: a seven-tiered model of service delivery. *Medical Journal of Australia 2003*; 178: 231–234

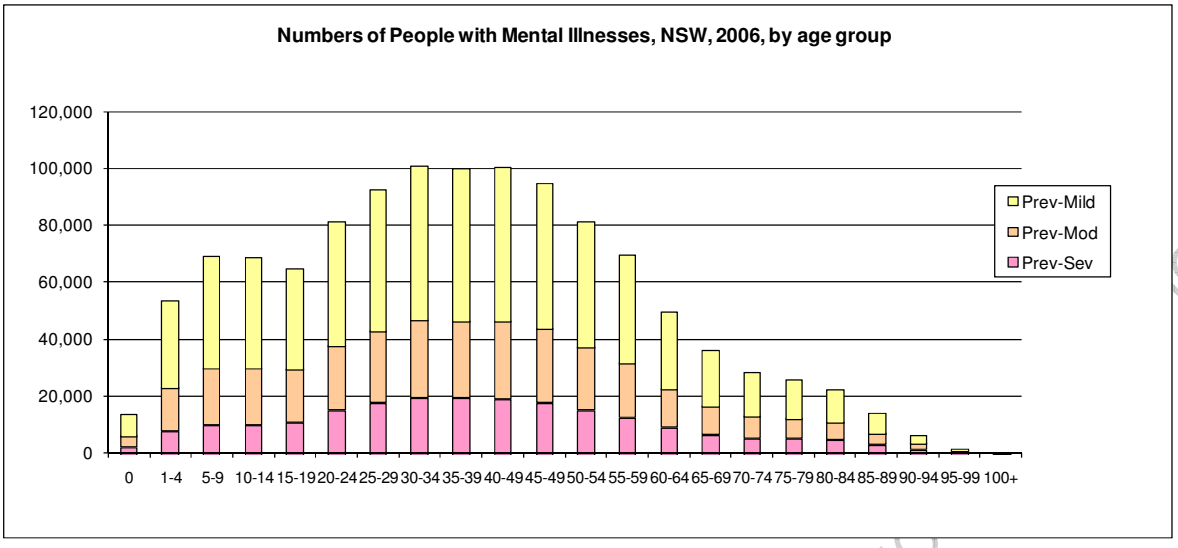


The figure below shows the age profile of mental health-related separation rates in Australia. For adults it is similar to the age profile of the estimated prevalence of SEVERE illness, but at a lower rate. For example, the estimated prevalence of SEVERE illness is 3.8% for the 25-29 age group, and the separation rate is 1.5% (1.5 thousand per 100,000). For the age group 60-64 the corresponding figures are 2.8% and 0.8%. Note also that the overall Australian separation rates were much the same for males and females at each age, and very similar in each of the 5 years.



7.3.4 Population Distribution by Age, NSW, 2006

The effect of applying the age-specific prevalence rates to the standard NSW population of 2006 is shown below. The figure shows the numbers expected to meet diagnostic criteria in a 12 month period, by severity. Note that the age group labelled "0" refers to babies in the first year; the age group labelled "1 refers to 1-4 year olds, and all other groups are the standard 5-year groups from 5-9 through 95-99, with a 100+ age group at the end. The drop in overall prevalence for ages 15-19 is the result of replacing the AusBoD 2007 estimates for adolescents aged 15-17 with others from the *Survey of Mental Health and Wellbeing (Child and Adolescent)*, for reasons explained later.



Note that the more detailed age division in the standard AusBoD 2007 tables makes it easier to apply the *General Epidemiology* to alternative age groupings. Thus the table presented earlier aggregates this detail into the standard age groups (repeated below).

MH-CCP 2.008						
Prevalence	**WELL**	**MILD**	**MODERATE**	**SEVERE**	**ILL**	**TOTAL**
Age 0-17	84.6%	8.8%	4.4%	2.3%	15.4%	100%
Age 18-64	81.5%	10.0%	5.0%	3.5%	18.5%	100%
Age 65+	85.2%	7.9%	4.0%	2.9%	14.8%	100%
All Ages	82.8%	9.4%	4.7%	3.1%	17.2%	100%
Pop 2006	**WELL**	**MILD**	**MODERATE**	**SEVERE**	**ILL**	**TOTAL**
Age 0-17	1,361,894	140,956	70,999	36,452	248,406	1,610,300
Age 18-64	3,493,993	426,644	215,615	148,748	791,007	4,285,000
Age 65+	784,815	72,531	36,968	26,387	135,885	920,700
All Ages	5,640,701	640,131	323,582	211,587	1,175,299	6,816,000

If the (numerical) population distribution by age is compared with profile of prevalence by age, it highlights the fact that the rapid rise in estimated prevalence from age 70 has only a small effect on absolute numbers, because the population is rapidly decreasing above that age.

Diagnostic Data

The figures and tables above represent the *General Epidemiology* as used in MH-CCP Version 2.008. The details of how it is derived are in technical appendixes, but an overview of the methodology is provided here. The *General Epidemiology* is not presented in diagnosis-specific form, since at this stage the *NSW Care Packages* in MH-CCP are not diagnosis-specific.

However, we have preserved the diagnostic detail available in the AusBoD 2007 modelling when adapting it to MH-CCP . The table below summarises the key parameters that have been applied to the AusBoD 2007 prevalence estimates when combining the primary mental illness (MI) diagnoses.

MH-CCP ALL AGES (Weighting by Diagnosis)					
Dx=PRIMARY Diagnosis (MI)	Dx(%)	MI-wt	MILD-wt	MOD-wt	SEV-wt
J02 Schizophrenia	0.44%	1.00	-	-	1.00
J04 Bipolar Disorder	0.45%	1.00	-	-	1.00
J03 Anxiety/Depression	8.89%	1.00	0.57	0.29	0.14
J05 Personality Disorder, isolated	2.10%	1.00	0.65	0.32	0.03
J06 Anorexia Nervosa	0.06%	1.00	-	0.35	0.65
J06 Bulimia Nervosa	0.06%	1.00	-	0.35	0.65
J07a ADHD	0.63%	1.00	0.57	0.29	0.14
SMHWB(C&A) - *Balance*	2.29%	1.00	0.57	0.29	0.14
Subtotal (Dx of Primary MI)	14.91%	14.9%	8.1%	4.1%	2.7%
Dx=PRIMARY Diagnosis (non-MI)	Dx(%)	MI-wt	MILD-wt	MOD-wt	SEV-wt
J07b Autism - *Excess over K09*	0.3%	0.27	0.57	0.29	0.14
J07b Asperger's Syndrome + PDD (nos)	0.1%	-	-	-	-
K01 Dementia - BPSD	1.0%	0.61	0.49	0.26	0.24
K09 Intellectual Disability-MI	2.1%	0.34	0.57	0.29	0.14
J01a Alcohol-MI	4.3%	0.14	0.57	0.29	0.14
J01b Heroin-MI	0.2%	0.41	0.57	0.29	0.14
J01c Benzodiazepines-MI	0.2%	0.28	0.57	0.29	0.14
J01d Cannabis-MI	1.2%	0.14	0.57	0.29	0.14
J01e Stimulants-MI	0.3%	0.14	0.57	0.29	0.14
Subtotal (Dx with MI Concurrent)	9.68%	2.3%	1.3%	0.7%	0.4%
TOTAL MI% for MH-CCP		**17.2%**	**9.4%**	**4.7%**	**3.1%**

The left hand column shows the diagnostic groups and the codes (J02, K09 etc) by which the relevant spreadsheets are labelled in the AusBoD 2007 work. The second column shows the prevalence of that diagnostic group. The third column shows the weight applied to each primary diagnostic group when combining the prevalence data into the MH-CCP estimate of the 12 month prevalence of Mental Illnesses (MI). Thus 100% of the prevalence of all the standard Mental Illness (MI) diagnoses are included because all the MI-weights in the top half of the table are 1.00. The weights in the lower half are less than 1.00 because they represent an estimate of the excess MI comorbidity not already included in the primary MI prevalence data.

The weights in the last the columns divide the overall MI prevalence into the three severity groups of MILD / MODERATE / SEVERE as defined in MH-CCP Version 1.11. When these weights are applied, the contribution of each diagnostic group to the 12-month prevalence per 100,000, within each age group, is shown below.

7.3.5 Child / Adolescent Summary

MH-CCP AGES 0-17 (Prevalence per 100,000)					
Dx=PRIMARY Diagnosis (MI)	Dx(%)	MI%	MILD%	MOD%	SEV%
J02 Schizophrenia	14	14	-	-	14
J04 Bipolar Disorder	13	13	-	-	13
J03 Anxiety/Depression	2,171	2,171	1,240	620	310
J05 Personality Disorder, isolated	90	90	58	29	3
J06 Anorexia Nervosa	40	40	-	14	26
J06 Bulimia Nervosa	52	52	-	18	34
J07a ADHD	2,402	2,402	1,372	686	343
SMHWB(C&A) - Balance	9,673	9,673	5,527	2,764	1,382
Subtotal (Dx of Primary MI)	14,454	14,454	8,198	4,131	2,125
Dx=PRIMARY Diagnosis (non-MI)	Dx(%)	MI%	MILD%	MOD%	SEV%
J07b Autism - *Excess over K09*	254	69	39	20	10
J07b Asperger's Syndrome + PDD (nos)	83	-	-	-	-
K01 Dementia - BPSD	-	-	-	-	-
K09 Intellectual Disability-MI	2,031	815	466	233	116
J01a Alcohol-MI	361	51	29	14	7
J01b Heroin-MI	18	7	4	2	1
J01c Benzodiazepines-MI	5	1	1	0	0
J01d Cannabis-MI	165	23	13	7	3
J01e Stimulants-MI	43	6	3	2	1
Subtotal (Dx with MI Concurrent)	2,959	972	556	278	139
TOTAL MI PER 100,000 for MH-CCP		15,426	8,753	4,409	2,264

The main feature of the data for this age group is the non-AusBoD group labelled *SMHWB(CandA) -- Balance*. When added to *J03 Anxiety / Depression* and *J07a ADHD*, this group sets the total MI prevalence to the reported rate of mental health problems based on the "gold standard" measures[39,40] in the *Survey of Mental Health and Wellbeing (Child and Adolescent)* [41,42].

AusBoD 2007 used the diagnostic data from SMHWB (CandA) and discounted it considerably. Conduct Disorders were not included in the AusBoD modelling since there is no corresponding adult group. Since SMHWB(CandA) did not assess Anxiety Disorders, the AusBoD data in the group *J03 Anxiety / Depression* is only Depression (3%) for ages below 18. In addition, the prevalence reported by SMHWB(CandA) for both Depression and ADHD was discounted by at least half in the AusBoD 2007 modelling. Thus the rate of MI in the AusBoD 2007 data alone is 4.8% for the primary MI diagnoses, and 5.8% with excess MI Comorbidity included. By contrast, "fifteen percent of children and adolescents met the criteria for one of the three mental disorders assessed in the survey".

AusBoD 2007 applied a "severity" criterion to the SMHWB(CandA) prevalence data. It only counted diagnosed cases where the parent judged the child / adolescent to have more problems than others of the same age and sex. The effect for *J07a ADHD* is dramatic, as shown below.

---

39 Achenbach TM. *Manual for the Child Behaviour Checklist/4–18 and 1991 profile*. Burlington: University of Vermont Department of Psychiatry, 1991.

40 Achenbach TM. *Manual for the Teacher's Report Form and 1991 profile*. Burlington: University of Vermont Department of Psychiatry, 1991.

41 Sawyer MG, Arney FM, Baghurst PA, Clark JJ, Graetz BW, Kosky RJ, Nurcombe B, Patton GC, Prior MR, Raphael B, Rey J, Whaites LC and Zubrick SR. *Mental Health of Young People in Australia*. Canberra: Mental Health and Special Programs Branch, Commonwealth Department of Health and Aged Care, 2000. URL: http://www.health.gov.au/internet/main/publishing.nsf/Content/mental-pubs-m-young

42 Sawyer MG, Arney FM, Baghurst PA, Clark JJ, Graetz BW, Kosky RJ, Nurcombe B, Patton GC, Prior MR, Raphael B, Rey J, Whaites LC and Zubrick SR. The mental health of young people in Australia: key findings from the child and adolescent component of the national survey of mental health and well-being. *Australian and New Zealand Journal of Psychiatry 2001*; 35:806–814.

	Reported SMHWB(CandA) %	Included in AusBoD %
Males 6-12	19.3%	6.4%
Males 13-17	10.0%	2.2%
Females 6-12	8.8%	2.9%
Females 13-17	3.8%	1.3%

In SMHW(CandA) "ADHD" was as defined in a non-standard way, because funding for the survey did not allow the full range of diagnoses to be studied. In particular, the Anxiety Disorders module of the DISC-IV[43] interview was omitted. This meant that there was no data on the prevalence of Anxiety Disorders as such. It also meant that it was not possible to exclude Anxiety Disorders as a possible cause of the ADHD symptoms, so that the diagnostic group should properly be described as "ADHD or (some) Anxiety Disorders". Obviously this is problematic for the AusBoD 2007 modelling in which *J03 Anxiety / Depression* was modelled as a single group, when for the child / adolescent age groups it only included Depressive disorders.

Apart from that, it is debatable to rely on the parent's global assessment of the child's problems to reject the diagnostic conclusion from a structured interview. However, in the present context it is more important that it is inconsistent with the fact that AusBoD 2007 accepted similar diagnostic data for adults 18 and over, even though half of all diagnosed adults reported no need for treatment. This is roughly the equivalent, in terms of help-seeking, of a parent deciding that a child or adolescent does not have problems. Thus AusBoD 2007 might equally well have discounted the *SMHWB (Adult)* prevalence data by about 50%. Instead, it used self-reported disability data to discount these cases, via *Disability Weights* that were zero for diagnosed cases who reported ordinary levels of functioning. Either approach is valid for estimating the Burden of Disease, but they are inconsistent ways of dealing with prevalence.

For the purposes of MH-CCP, we need an overall prevalence of "mental Illness" that covers the same range of severity for each diagnostic group and each age group. The algorithms for diagnostic interviews set this at the relatively low diagnostic thresholds used in psychiatric epidemiology, which (for the common diagnoses) require only about two weeks of being symptomatic in a 12-month period, and lead to 12-month prevalence in the range 15-20 per cent. Using this definition recognises that at least half the children and adolescents in the MILD group will not be considered unusually problematic by their parents, just as at least half of the diagnosed adults in the SMHWB (Adult) in both 1997 and 2007 said they had no need for treatment, not even information".

In MH-CCP the difference between meeting basic criteria for diagnosis (for example, two weeks of depressive symptoms in 12 months) and the additional impairments that generate service needs is dealt with by applying different *Treatment Rate* parameters to the MILD (50%) MODERATE (80%) and SEVERE (100%) groups, and then devising care plans appropriate to the level of illness being treated. Thus the MILD cases should be included in the overall prevalence, but unfortunately, it is not a solution to replace the AusBoD 2007 data with the SMHWB(CandA) diagnostic data, because it is incomplete and (for ADHD) non-standard. It is shown below for reference.

[43] Shaffer D, Fisher P, Lucas C, Dulcan MK, Schwab-Stone ME. NIMH Diagnostic Interview Schedule for Children, Version IV (NIMH DISC-IV): description, differences from previous versions and reliability of some common diagnoses. *Journal of the American Academy of Child and Adolescent Psychiatry2000*; 39:28–38.

Table 2. One-year prevalence (%) of mental disorders in 6–17-year-old children

	All children and adolescents (n=3597)		Male (n=1792)		Female (n=1805)	
Disc disorder	%	Population estimate*	%	Population estimate	%	Population estimate
Depressive disorder†	3.0	95 000	3.2	52 000	2.8	43 000
Conduct disorder	3.0	95 000	4.4	71 000	1.6	24 000
ADHD	11.2	355 600	15.4	250 000	6.8	105 000

*Estimated number of children and adolescents with a mental disorder in Australia. †In the published report of the survey [8], 3.7% of children were identified as having depressive disorder. Use of the more recent scoring algorithms has revised this to 3.0%.

In MH-CCP Version 1.11 we used the Western Australian Child Health Survey (WACHS)[44] data on the rate of significant mental health problems on the "gold standard" Achenbach CBCL[45] measure. We also stated that the model would be refined by replacing the WACHS estimates with the SMHWB (CandA) estimates when available. We have done this, and replaced the AusBoD 2007 data wherever it used SMHWB(CandA) discounted diagnostic data. The SMHWB (CandA) estimates are 3.6% lower than the WACHS estimates, and have a different age pattern (see below).

WACHS, WA, 1992			SMHWB, AU, 1998		
Age	**Sex**	**Prev**	**Prev**	**Age**	**Sex**
4 to 11	Both	16.0%	14.7%	4 to 12	Both
12 to 16	Both	20.6%	13.1%	13 to 17	Both
4 to 16	Male	20.0%	14.4%	4 to 17	Male
4 to 16	Female	15.4%	13.8%	4 to 17	Female
Both	Both	**17.7%**	**14.1%**	Both	Both

The overall difference is explained by the authors of the SMHWB (CandA) reports as follows:

Fourteen percent of children were identified as having mental health problems in this survey. This is very similar to the median prevalence of 12% reported by Verhulst and Koot [46] in their review of 49 international studies conducted between 1965 and 1993. However, the prevalence is lower than the 18% reported in the Western Australian Child Health Survey [47]. The reason for this difference is that parent-reported and adolescent reported mental health problems are described separately in the present survey, whereas results reported in the Western Australian survey were based on the combined reports of parents and teachers. When the prevalence of parent-reported and adolescent-reported problems in each survey were compared, the results were very similar.

This cannot be the whole story, since each of these instruments (used alone, or in combination) has its own normative reference cutoff that would be expected to produce the same percentage. However, it cannot be resolved until Australia invests in an adequate SMHWB for this age group. The results in SMHWB(CandA) are shown below for reference.

[44] Zubrick SR, Silburn SR, Garton A, Burton P, Dalby R, Carlton J, Shepherd C, Lawrence D. *Western Australian Child Health Survey: Developing health and well-being in the nineties*. Perth, Western Australia. ABS and the Institute for Child Health Research,1995. (ABS Cat No 4303.5).

[45] Achenbach TM. *Manual for the Child Behaviour Checklist/4–18 and 1991 profile*. Burlington: University of Vermont Department of Psychiatry, 1991.

[46] Original reference 14. Verhulst FC, Koot HM. *The Epidemiology of Child and Adolescent Psychopathology*. London: Oxford University Press, 1995.

[47] Original Reference 4. Zubrick SR, Silburn SR, Garton A et al. *Western Australian child health survey: developing health and well-being in the nineties*. Perth: Australian Bureau of Statistics and the Institute for Child Health Research, 1995.

Table 1. Prevalence (%) of mental health problems in 4–17-year-old children

CBCL Scale	Total percentage (n = 4083)	Males (n = 2082)	Females (n = 2001)
Broad band scales			
Total problems	14.1 (521 886)*	14.4	13.9
Externalizing problems	12.9 (475 748)*	12.9	12.9
Internalizing problems	12.8 (473 989)*	14.5	11.1
Syndrome scales			
Somatic complaints	7.3	8.4	6.1
Delinquent behaviour	7.1	7.1	7.1
Attention problems	6.1	6.5	5.6
Aggressive behaviour	5.2	5.6	4.8
Social problems	4.6	5.6	3.6
Withdrawn	4.3	5.2	3.4
Anxious/depressed	3.5	3.9	3.2
Thought problems	3.1	3.3	2.8

*Population estimate.

In effect we have used the (age-sex-specific) "Total problems" percentage for the total of the groups *J03 Anxiety / Depression + JO7a ADHD + [SMHWB(CandA) – Balance]* for the age range 4-17.

For the age group 0-3 we have used the SMHWB(CandA) rates for ages 4-12, namely 15.0% for boys and 14.4% for girls. This reflects a literature that barely existed when MH-CCP Version 1.11 was being assembled, namely studies of birth cohorts followed through childhood, of which the Longitudinal Study of Australian Children (LSAC) is an example, though it will be some time yet before relevant details from the LSAC are available[48]. Nevertheless, current data indicate that LSAC data on the relationship between mental health problems in parents and children[49] are similar to findings with the (UK) Millennium Cohort Study[50]. It ought not to be too surprising if the factors that contribute to psychological distress in adults have a similar effect on their children, and that the overall problem rates are similar in adults and young children.

For example, a study of 211 randomly selected children from the Copenhagen Child Cohort (CCC 2000) estimated the rate of diagnosable mental health problems as 16% (95% CI 12-22%) in 1 ½ year olds[51]:

[48] Sanson A, Misson S, Wake M, Zubrick SR, Silburn S, Rothman S, et al. LSAC Technical Paper No.: 2: Summarising Children's Wellbeing – The LSAC Outcome Index. Melbourne (AUST): Australian Institute of Family Studies; 2005.

[49] Emerson E, Llewellyn G. The mental health of Australian mothers and fathers of young children at risk of disability. *Australian and New Zealand Journal of Public Health, 2008*; 32:53-9.

[50] Eric Emerson E, Llewellyn G, McCulloch A, Hatton C, Blacher J, Graham H. Child Disability and Parental Well-Being. (presentation at LSAC conference, December 2007) see www.aifs.gov.au/growingup .

[51] Skovgaard AM, Houmann T, Christiansen E, Landorph S, Jørgensen T, and CCC 2000 Study Team (Olsen EM, Heering K, Kaas-Nielsen S, Samberg V, Lichtenberg A). The prevalence of mental health problems in children 1½ years of age – the Copenhagen Child Cohort 2000. *Journal of Child Psychology and Psychiatry,2007*; 48(1):62–70. Note that the data quoted and the Table used are not affected by a correction elsewhere (Skovgaard A.M., Houmann T, Christiansen E., Landorph S., Jørgensen T., and The CCC 2000 Study Team, Olsen E.M., Heering K., Kaas-Nielsen S., Samberg V., Lichtenberg A. The prevalence of mental health problems in children 1½ years of age- the Copenhagen Child Cohort 2000. *Journal of Child Psychology and Psychiatry, 2007*; 48: 62–70.

Table 2 ICD 10 diagnoses axis I, II and III ($N = 211$)

	n	%	CI 95 %
Axis I Psychiatric Syndrome			
Developmental Disorders (F 88–89)	6	2.8	(1.1–6.1)
Hyperactivity/Attention Deficit Disorders (F 90)	5	2.4	(0.8–5.4)
Disorders of Conduct and Emotions (F 92–93)	9	4.3	(2.0–7.9)
Reactive Attachment Disorder (F 94)	2	0.9	(0.1–3.4)
Eating Disorder (F 98.2)	6	2.8	(1.1–6.1)
Sleeping Disorder (F 51)	3	1.4	(0.3–4.1)
Adjustment Disorder (F 43)	2	0.9	(0.1–3.4)
Other (F 63.3)	1	0.5	(0.0–2.6)
All	34	16.1	(11.9–22.1)
Axis II Specific Developmental Disorder			
Developmental Disorder (F 80, F 82)*	4	1.9	(0.3–4.1)
Axis III Intellectual Level			
Psychomotor Retardation (R 62.0)**	3	1.4	(0.3–4.1)

*co-morbid axis I and axis II diagnosis in two children, **co-morbid axis I and axis III diagnosis in one child.

Similarly, standardised data collected on the infants and families at 0–2 weeks, 2–3 months, 4–6 months and 8–10 months of age predicted these outcomes[52]. Thus to reflect the need for the earliest possible interventions with young children and families, using an overall problem rate for ages 0-3 of around 15% is reasonably well supported by evidence.

Consideration of the excess MI comorbidity associated with Intellectual Disability and Autism was requested by the CandA committee. Relevant Australian papers were used to apply a rate between 41% (age 12 and below) and 31% (age 24 and above) for Intellectual Disability[53], and since the rate from the same group with the same measures indicated 73% in a group of children and young people with Autism [54] (75% of who also had Intellectual Disability) the difference was applied to the prevalence data for Autism, so that the group is described as *J07b Autism - Excess over K09* where

K09 is *Intellectual Disability.* The (very limited) data on *J07b Asperger's Syndrome + Pervasive Developmental Disorder (not otherwise specified)* did not support a further weighting for this group.

7.3.6 A possible refinement

A problem with using the overall rate of mental health problems from the SMHWB(CandA) is that it loses the diagnosis-specific features of the adult data. To provide a guide to this, we have considered the possibility of apportioning the overall rate using the best available diagnostic survey in this age range, namely the British Child and Adolescent Mental Health Survey (BCAMHS 1999)[55,56].

The BCAMHS used another "gold standard" checklist, the Strengths and Difficulties Questionnaire (SDQ)[57], which is of particular interest because the Australian variant (SDQ.AU) is agreed nationally as the outcome measure for CAMHS, and in NSW the parent-report SDQ.AU has been administered to more than 6,000 parents of children and adolescents aged 4-15 in the NSW Health Survey since 2003. The SDQ is

52 Skovgaard AM, Olsen EM, Christiansen E, Houmann T, Landorph S, Jørgensen T, and CCC 2000 Study Group. Predictors (0–10 months) of psychopathology at age 1½ years – a general population study in The Copenhagen Child Cohort CCC 2000. Journal of Child Psychology and Psychiatry, 2008; 49(5): 553–562

53 Einfeld SL, Piccinin AM, Mackinnon A, Hofer SM, Taffe J, Gray KM, Bontempo DE, Hoffman LR, Parmenter T, Tonge BJ. Psychopathology in young people with intellectual disability. *Journal of the American Medical Association, 2006*; 296:1981-1989.

54 Brereton AV, Tonge BJ, Einfeld SL. Psychopathology in children and adolescents with autism compared to young people with intellectual disability. *Journal of Autism and Developmental Disorders, 2006*;36:863–870.

55 Meltzer H, Gatward R, Goodman R, Ford T. *Mental Health of Children and Adolescents in Great Britain.* London: The Stationery Office, 2000.

56 Ford T, Goodman G, Meltzer H. The British Child and Adolescent Mental Health Survey 1999: The Prevalence of DSM-IV Disorders. *Journal of the American Academy of Child and Adolescent Psychiatry, 2003*; 42(10):1203–121

57 Goodman R. Psychometric properties of the Strengths and Difficulties Questionnaire. *Journal of the American Academy of Child and Adolescent Psychiatry, 2001*;40, 1337–1345.

comparable to the CBCL and has been used in many different languages and cultures[58]. Moreover, it was used in the LSAC, though unfortunately the UK version for ages 3-4 was used for the LSAC cohort of 4/5 year olds, rather than the standard SDQ.AU for ages 4-10

The BCAMHS 1999 was conducted by the UK Office of National Statistics, and it included a comprehensive diagnostic interview, the DAWBA[59], clinical review by a team of child/ adolescent psychiatrists, multiple informants including teachers, DSM-IV algorithms that implemented "impairment" criteria for diagnosis, and a register-based population sample of 10,438. Those 11 and older were also interviewed with the DAWBA. The prevalence of 12-month diagnosis overall was 9.5%, for "at least one DSM-IV disorder, involving a level of distress or social impairment likely to warrant treatment". When children and adolescents were followed up 18 months later with the parent-report SDQ checklist, 62% of those with diagnoses (by parent interview) still met criteria for "caseness"[60]: that is, about 6% overall had significant problems that persisted over 18 months. Within that, those with emotional disorders such as anxiety or depression had a better outcome (36% persistence) than those with conduct or hyperkinetic disorders (73% persistence).

When used in Australia the SDQ produces essentially the same results as in the UK, at least in the states of Victoria[61] and Queensland[62], and in the routine telephone surveying of parents of 4-15 year olds in NSW since 2003[63]. For example, when diagnostic rates reported for SDQ cutoff scores for parent reports in the UK data [64] 1999 are applied to the NSW data of 2003 through 2006 (n=6,433) [65] the estimated 12-month diagnostic prevalence is 8.8% as against 9.5% for the UK.

There are, however, some problems in applying the BCAMHS data. One is that the overall 12-month diagnostic prevalence increases with age across the range 5 -15 (see chart below), which is the trend found in the WACHS data that was used in MH-CCP Version 1.11, but the opposite of the trend found in the SMHWB(CandA) data that we have used in Version 2.008.

[58] Achenbach TM, Becker A, Döpfner M, Heiervang E, Roessner V, Steinhausen H-C, Rothenberger A. Multicultural assessment of child and adolescent psychopathology with ASEBA and SDQ instruments: research findings, applications, and future directions. *Journal of Child Psychology and Psychiatry*, 2008; 49(3):251–275.

[59] Goodman R, Ford T, Richards H et al. The Development and Well-being Assessment: description and initial validation of an integrated assessment of child and adolescent psychopathology. *Journal of Child Psychology and Psychiatry, 2000*;41:645–657.

[60] Goodman R, Ford T, Meltzer H. Mental health problems of children in the community: 18 month follow up. *British Medical Journal, 2002*; 324:1496–1497.

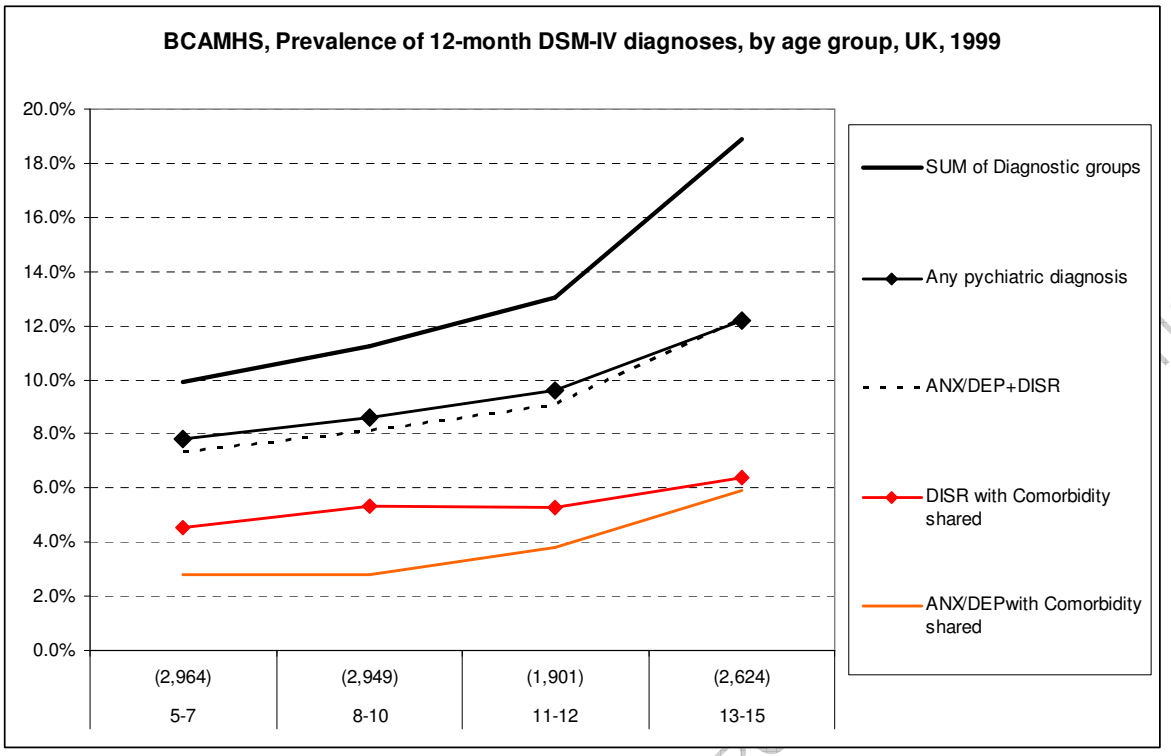
[61] Mellor D. Normative data for the Strengths and Difficulties Questionnaire in Australia. *Australian Psychologist*, November 2005; 40(3): 215 – 222

[62] Hawes DJ, Dadds MR. Australian data and psychometric properties of the Strengths and Difficulties Questionnaire. *Australian and New Zealand Journal of Psychiatry 2004*; 38:644–651.

[63] Centre for Epidemiology and Research, NSW Health Department. NSW Population Health Survey. Substantial risk of clinical behavioural problems by year children 4-15 years, NSW, 2003-2006. On line at www.health.nsw.gov.au

[64] Goodman R. Psychometric properties of the Strengths and Difficulties Questionnaire. *Journal of the American Academy of Child and Adolescent Psychiatry, 2001*;40, 1337–1345.

[65] Centre for Epidemiology and Research, NSW Health Department. NSW Population Health Survey. Substantial risk of clinical behavioural problems by year children 4-15 years, NSW, 2003-2006. On line at www.health.nsw.gov.au



The figure above has been produced from the detailed diagnostic tables in the main report on the BCAMHS[66], collapsing the individual diagnoses into the groups (ANX=Any Anxiety Disorder; DEP=Any Depressive Disorder; DISR = Any Disruptive Disorder) for which an overall prevalence was reported. The top line in the figure shows the prevalence of the sum of these three groups of disorders, plus three rare diagnoses of Pervasive Developmental disorders (0.29% overall), Eating disorders (0.12% overall) and Tic disorders (0.07% overall), and a group described as "Not otherwise specified Disorders" described as "… diagnoses (anxiety NOS, depression NOS, or disruptive disorder NOS) that failed to meet current DSM-IV criteria but were causing the child significant impairment or distress".

The second line in the figure shows the prevalence of "Any psychiatric diagnosis". The number of diagnoses (by group) per case is 1.3 for the two youngest age groups (5-10), 1.4 for those aged 11-12, 1.5 for those ages 13-15, and 1.4 overall, so that Comorbidity appears to increase with age also.

The dashed line immediately below the "Any psychiatric diagnosis" line shows the effect of adjusting for comorbidity amongst the three main disorder groups (which are already adjusted for internal Comorbidity by using the group prevalence data), and is the sum of just those three "Comorbidity shared) diagnostic groups. Clearly these three alone almost account for the whole.

The actual pattern of co-occurrence of diagnoses between the three main groups are:

[66] Ford T, Goodman G, Meltzer H. The British Child and Adolescent Mental Health Survey 1999: The Prevalence of DSM-IV Disorders. *Journal of the American Academy of Child and Adolescent Psychiatry, 2003*; 42(10):1203–121

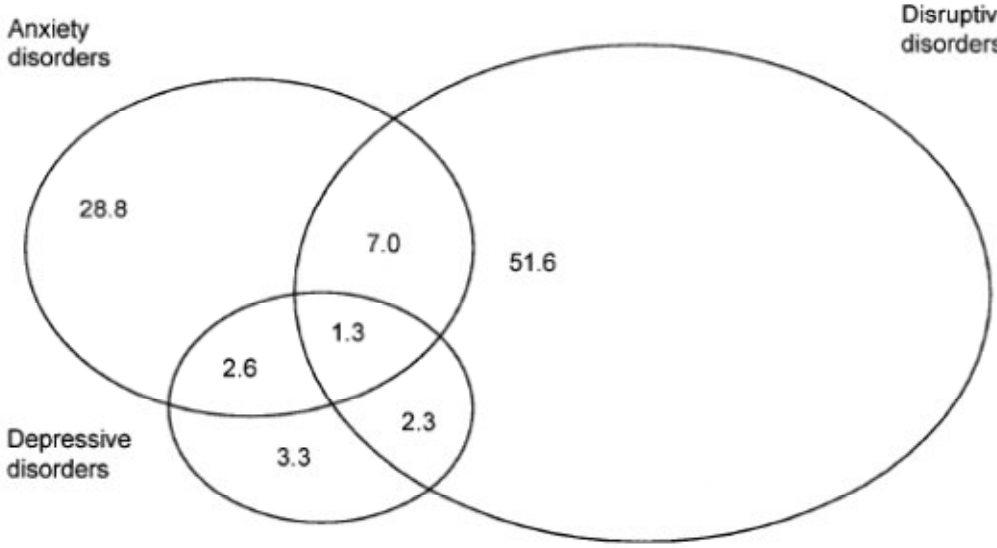


Fig. 1 Comorbidity (%) among the 983 children with a psychiatric disorder.

On this basis it is possible to calculate the overall (all-age) numbers with one diagnosis, with each pair of diagnoses, and all three. This accounts for 953 of the 983 diagnosed cases, leaving only 30 with diagnoses other than the three shown. Following the principle used in AusBoD 2007 of dividing *Disability Weights* across diagnoses, we have shared the cases in comorbid groups between the diagnostic groups involved. This was reduced to <u>two</u> by combining ANX and DEP, thus emulating the AusBoD 2007 group *J03 Anxiety / Depression.*

To dissect out the AusBoD group *J07a ADHD* we need to dissect the comorbidity <u>within</u> the group of Disruptive Disorders, using the information in the figure below, applied to the estimate for the group as a whole when Comorbidity with ANX and DEP had been shared. That is, instead of partitioning the 612 cases referred to in the figure, only 557 are to be partitioned.

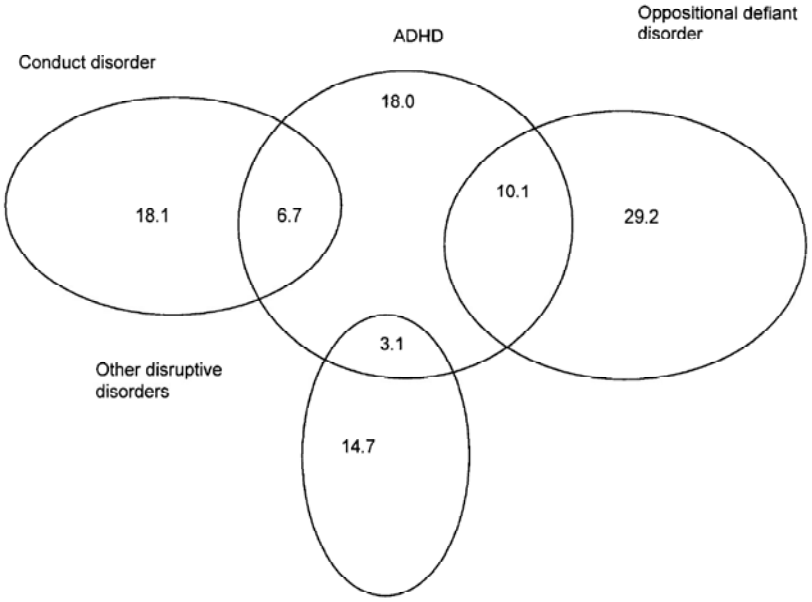
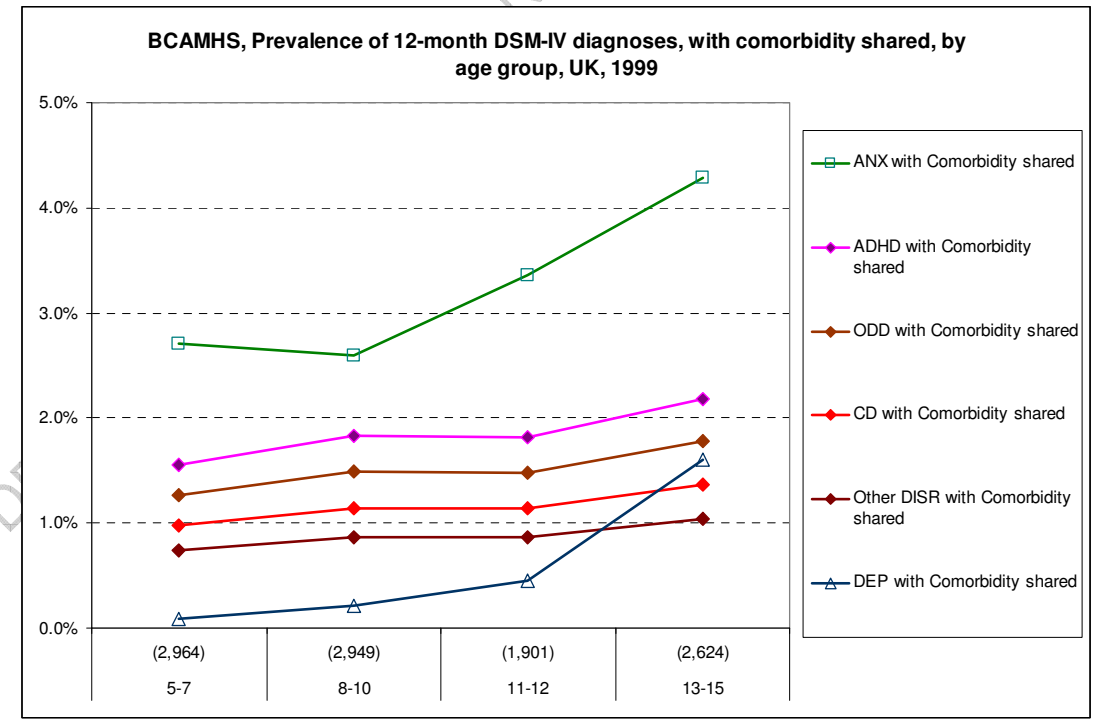


Fig. 2 Comorbidity (%) among the 612 children with externalizing disorders. ADHD = attention-deficit/hyperactivity disorder.

This provides a dissection, with comorbidity shared between the diagnoses shown in such a way that it uses all the data in the published report that contains Figure 1 and Figure 2 above, which is not age-specific, but nevertheless can be applied to each of the age groups on the assumption that the comorbidity patterns do not vary too much with age.

The chart below shows the end result, which serves as the basis for the comparison of BCAMHS, the AusBod07 analyses, and the end results in MH-CCP.

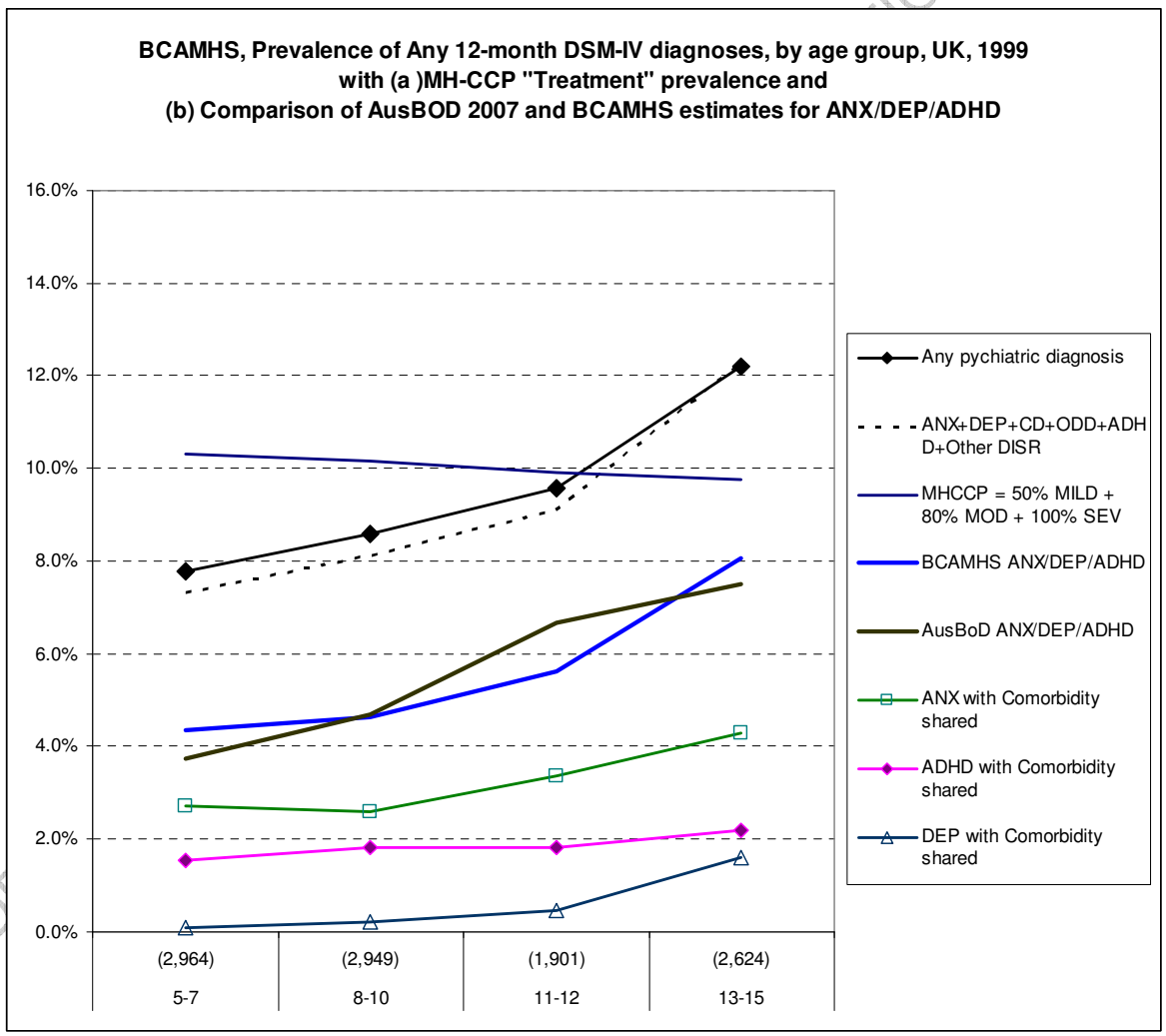


The six diagnostic groups shown here can be combined together to reproduce the "Any diagnosis" data in BCAMHS 1999 quite well, and each carries with it an equal share of the prevalence for any combination of two or three of the diagnoses involved.

That is, ANX and DEP together reproduce the ANX/DEP group of the previous chart, while ADHD, ODD, CD and Other Disruptive Disorders reproduce the DISR group of the previous chart.

With that out of the way, we can make several comparison of interest:

- How does the BCAMHS 1999 combination of ANX/DEP/ADHD compare with the AusBoD 2007 estimate of *J03 AnxDep + J07a ADHD* (remembering that AusBoD only had Depression from SMHWB(CandA), but had an unknown amount of Anxiety combined with the "ADHD" data from SMHWB(CandA) and discounted both considerably)?
- How does the "*Treatment Rate*" of 50% MILD, 80% MODERATE and 100% SEVERE, combined with inclusion of other diagnoses and Comorbidity in MH-CCP, align with the BCAMHS "Any Diagnosis" rate (remembering that it applied impairment criteria)?



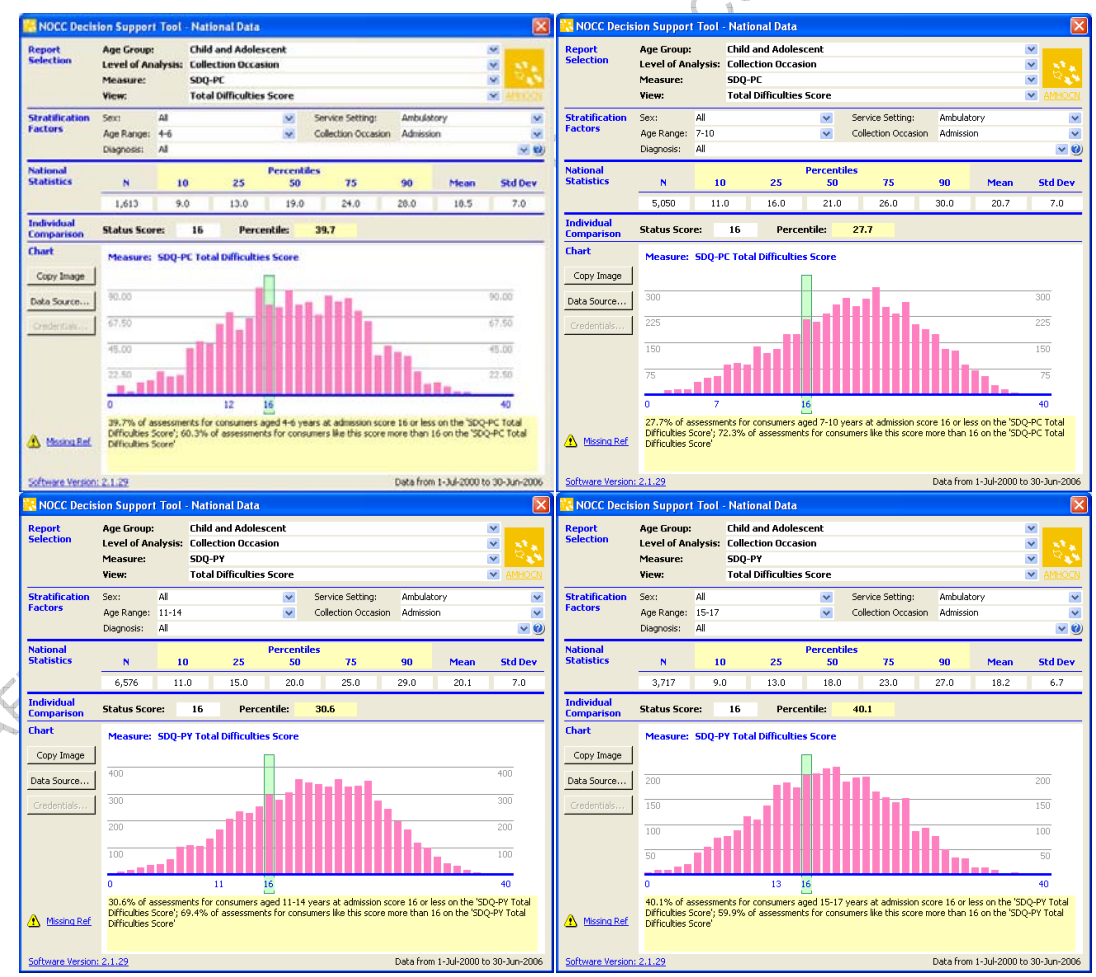
The chart shows that AusBoD 2007 has managed to arrive at a discounted prevalence that matches quite well with the BCAMHS 1999 data for the three diagnoses considered. This suggests that implementing the DSM-

IV impairment criteria (BCAMHS 1999) or requiring that a parent considered the child to be more problematic than his/her peers might both eliminate a large proportion of MILD diagnoses. Similarly, though AusBoD only had depression and "ADHD" data from SMHWB(CandA), the ADHD contained an unknown proportion of Anxiety, which is highly comorbid with both ADHD and Depression. The problem with AusBoD data, then is simply the exclusion of the other Disruptive Disorders (the gap to the dashed line that included them, or the solid black "Any Diagnosis" line.

Just as remarkably, the MH-CCP weighting applied to MILD, MODERATE and SEVERE aligns with the BCAMHS 1999 "Any Diagnosis" data about as well as possible given that it is compelled by the SMHWB(CandA) prevalence data to trend down with age, not up.

If the additional work is considered worthwhile, it seems would be feasible to use the diagnostic proportions from the BCAMHS throughout the age range 0-17.

It should also be noted that this analysis raised a number of queries about the SMHWB(CandA) data that would ideally be resolved by repeating the SMHWB(CandA) of 1998, just as the SMHWB(Adult) of 1997 was repeated in 2007, but this time following the SDQ/ DAWBA methodology of BCAMHS 1999 so that we have data more suited to the measures we use in Australia in specialist public mental health services. As an example, it is relevant that parent report SDQ.AU data from ambulatory care services on admission shows that 60% of 4-6 year olds (n=1,613), 72% of 7-10 year olds (n=5,050), 69% of 11-14 year olds (n=6,576) and 60% of 15-17 year old (n=3,717) score in the clinical (10%) range of the SDQ. The BCAMHS 1999 data provide diagnostic data aligned with this.



More detail on the Child / Adolescent Age Groups is given in other sections of this report. Note that unless there are specific *NSW Care Packages* for subgroups, the implication is that treatment at each severity level should reflect the general levels of physical ill-health and other comorbidity associated with (a) the primary MI diagnoses and with (b) mental ill-health occurring in the other groups included here.

7.3.7 Adult Summary

MH-CCP AGES 18-64 (Prevalence per 100,000)					
Dx=PRIMARY Diagnosis (MI)	Dx(%)	MI%	MILD%	MOD%	SEV%
J02 Schizophrenia	604	604	-	-	604
J04 Bipolar Disorder	650	650	-	-	650
J03 Anxiety/Depression	11,835	11,835	6,763	3,381	1,691
J05 Personality Disorder, isolated	2,842	2,842	1,838	919	85
J06 Anorexia Nervosa	77	77	-	27	50
J06 Bulimia Nervosa	74	74	-	26	48
J07a ADHD	105	105	60	30	15
SMHWB(C&A) - Balance	-	-	-	-	-
Subtotal (Dx of Primary MI)	16,187	16,187	8,661	4,383	3,142
Dx=PRIMARY Diagnosis (non-MI)	Dx(%)	MI%	MILD%	MOD%	SEV%
J07b Autism - *Excess over K09*	314	85	49	24	12
J07b Asperger's Syndrome + PDD (nos)	123	-	-	-	-
K01 Dementia - BPSD	67	41	20	11	10
K09 Intellectual Disability-MI	2,145	687	392	196	98
J01a Alcohol-MI	6,362	891	509	254	127
J01b Heroin-MI	354	145	83	41	21
J01c Benzodiazepines-MI	377	106	60	30	15
J01d Cannabis-MI	1,766	247	141	71	35
J01e Stimulants-MI	512	72	41	20	10
Subtotal (Dx with MI Concurrent)	12,019	2,273	1,296	649	329
TOTAL MI PER 100,000 for MH-CCP		**18,460**	**9,957**	**5,032**	**3,471**

A point to note about this table is that the weighting used generates a diagnostic distribution in the SEVERE group that is broadly in accordance with that of specialist mental health services. Since this is a very large group, some more detailed age distributions may be of interest.

MH-CCP AGES 18-24 (Prevalence per 100,000)					
Dx=PRIMARY Diagnosis (MI)	Dx(%)	MI%	MILD%	MOD%	SEV%
J02 Schizophrenia	269	269	-	-	269
J04 Bipolar Disorder	297	297	-	-	297
J03 Anxiety/Depression	9,937	9,937	5,679	2,839	1,420
J05 Personality Disorder, isolated	1,601	1,601	1,035	518	48
J06 Anorexia Nervosa	254	254	-	89	165
J06 Bulimia Nervosa	323	323	-	113	210
J07a ADHD	624	624	356	178	89
SMHWB(C&A) - Balance	-	-	-	-	-
Subtotal (Dx of Primary MI)	13,305	13,305	7,070	3,737	2,498
Dx=PRIMARY Diagnosis (non-MI)	Dx(%)	MI%	MILD%	MOD%	SEV%
J07b Autism - *Excess over K09*	329	90	51	26	13
J07b Asperger's Syndrome + PDD (nos)	124	-	-	-	-
K01 Dementia - BPSD	0	0	0	0	0
K09 Intellectual Disability-MI	2,175	816	466	233	117
J01a Alcohol-MI	5,921	829	474	237	118
J01b Heroin-MI	316	129	74	37	18
J01c Benzodiazepines-MI	116	32	19	9	5
J01d Cannabis-MI	2,937	411	235	117	59
J01e Stimulants-MI	734	103	59	29	15
Subtotal (Dx with MI Concurrent)	12,653	2,411	1,378	689	344
TOTAL MI PER 100,000 for MH-CCP		**15,716**	**8,448**	**4,426**	**2,842**

This Young Adult group, contrary to the common view, has a lower rate of illness than Adults in general. Note that eating disorders are concentrated in this group.

MH-CCP AGES 25-44 (Prevalence per 100,000)					
Dx=PRIMARY Diagnosis (MI)	Dx(%)	MI%	MILD%	MOD%	SEV%
J02 Schizophrenia	661	661	-	-	661
J04 Bipolar Disorder	841	841	-	-	841
J03 Anxiety/Depression	12,535	12,535	7,163	3,581	1,791
J05 Personality Disorder, isolated	3,084	3,084	1,994	997	93
J06 Anorexia Nervosa	76	76	-	27	50
J06 Bulimia Nervosa	54	54	-	19	35
J07a ADHD	23	23	13	7	3
SMHWB(C&A) - Balance	-	-	-	-	-
Subtotal (Dx of Primary MI)	17,274	17,274	9,170	4,631	3,473
Dx=PRIMARY Diagnosis (non-MI)	Dx(%)	MI%	MILD%	MOD%	SEV%
J07b Autism - *Excess over K09*	318	87	49	25	12
J07b Asperger's Syndrome + PDD (nos)	122	-	-	-	-
K01 Dementia - BPSD	4	3	1	1	1
K09 Intellectual Disability-MI	2,155	670	383	192	96
J01a Alcohol-MI	8,520	1,193	682	341	170
J01b Heroin-MI	501	205	117	59	29
J01c Benzodiazepines-MI	531	149	85	42	21
J01d Cannabis-MI	2,571	360	206	103	51
J01e Stimulants-MI	790	111	63	32	16
Subtotal (Dx with MI Concurrent)	15,512	2,777	1,587	793	397
TOTAL MI PER 100,000 for MH-CCP		**20,051**	**10,757**	**5,424**	**3,870**

This age group has the highest rates of illness.

MH-CCP AGES 45-64 (Prevalence per 100,000)					
Dx=PRIMARY Diagnosis (MI)	Dx(%)	MI%	MILD%	MOD%	SEV%
J02 Schizophrenia	666	666	-	-	666
J04 Bipolar Disorder	564	564	-	-	564
J03 Anxiety/Depression	11,755	11,755	6,717	3,359	1,679
J05 Personality Disorder, isolated	3,043	3,043	1,968	984	91
J06 Anorexia Nervosa	7	7	-	3	5
J06 Bulimia Nervosa	1	1	-	0	0
J07a ADHD	0	0	0	0	0
SMHWB(C&A) - Balance	-	-	-	-	-
Subtotal (Dx of Primary MI)	16,037	16,037	8,685	4,345	3,007
Dx=PRIMARY Diagnosis (non-MI)	Dx(%)	MI%	MILD%	MOD%	SEV%
J07b Autism - *Excess over K09*	303	83	47	24	12
J07b Asperger's Syndrome + PDD (nos)	122	-	-	-	-
K01 Dementia - BPSD	167	102	50	27	25
K09 Intellectual Disability-MI	2,121	655	375	187	94
J01a Alcohol-MI	4,005	561	320	160	80
J01b Heroin-MI	197	81	46	23	12
J01c Benzodiazepines-MI	298	84	48	24	12
J01d Cannabis-MI	365	51	29	15	7
J01e Stimulants-MI	99	14	8	4	2
Subtotal (Dx with MI Concurrent)	7,678	1,629	923	463	243
TOTAL MI PER 100,000 for MH-CCP		**17,667**	**9,608**	**4,809**	**3,250**

Note that this group has a somewhat different diagnostic spectrum than younger adults.

It was stated as a possible revision in MH-CCP Version 1.11 that the large Adult group might be subdivided by age in future, and these tables are included to help inform discussion on that topic.

7.3.8 Older People Summary

MH-CCP AGES 65+ (Prevalence per 100,000)					
Dx=PRIMARY Diagnosis (MI)	Dx(%)	MI%	MILD%	MOD%	SEV%
J02 Schizophrenia	432	432	-	-	432
J04 Bipolar Disorder	251	251	-	-	251
J03 Anxiety/Depression	6,939	6,939	3,965	1,983	991
J05 Personality Disorder, isolated	2,147	2,147	1,388	694	64
J06 Anorexia Nervosa	1	1	-	0	0
J06 Bulimia Nervosa	-	-	-	-	-
J07a ADHD	-	-	-	-	-
SMHWB(C&A) - Balance	-	-	-	-	-
Subtotal (Dx of Primary MI)	9,769	9,769	5,353	2,677	1,739
Dx=PRIMARY Diagnosis (non-MI)	Dx(%)	MI%	MILD%	MOD%	SEV%
J07b Autism - *Excess over K09*	233	63	36	18	9
J07b Asperger's Syndrome + PDD (nos)	114	-	-	-	-
K01 Dementia - BPSD	6,728	4,104	2,018	1,085	1,000
K09 Intellectual Disability-MI	1,847	572	327	163	82
J01a Alcohol-MI	1,408	197	113	56	28
J01b Heroin-MI	59	24	14	7	3
J01c Benzodiazepines-MI	76	21	12	6	3
J01d Cannabis-MI	50	7	4	2	1
J01e Stimulants-MI	8	1	1	0	0
Subtotal (Dx with MI Concurrent)	10,522	4,990	2,524	1,338	1,127
TOTAL MI PER 100,000 for MH-CCP		**14,759**	**7,878**	**4,015**	**2,866**

The main point to note about this group is the impact of behavioural and Psychological Symptoms of Dementia (BPSD) in contributing to the need for mental health services. The effect can be heightened by dividing the age group at 74-75.

MH-CCP AGES 65-74 (Prevalence per 100,000)					
Dx=PRIMARY Diagnosis (MI)	Dx(%)	MI%	MILD%	MOD%	SEV%
J02 Schizophrenia	519	519	-	-	519
J04 Bipolar Disorder	302	302	-	-	302
J03 Anxiety/Depression	8,139	8,139	4,651	2,325	1,163
J05 Personality Disorder, isolated	2,428	2,428	1,570	785	73
J06 Anorexia Nervosa	1	1	-	0	1
J06 Bulimia Nervosa	-	-	-	-	-
J07a ADHD	-	-	-	-	-
SMHWB(C&A) - Balance	-	-	-	-	-
Subtotal (Dx of Primary MI)	11,388	11,388	6,220	3,111	2,057
Dx=PRIMARY Diagnosis (non-MI)	Dx(%)	MI%	MILD%	MOD%	SEV%
J07b Autism - *Excess over K09*	271	74	42	21	11
J07b Asperger's Syndrome + PDD (nos)	120	-	-	-	-
K01 Dementia - BPSD	1,858	1,133	557	300	276
K09 Intellectual Disability-MI	2,014	623	356	178	89
J01a Alcohol-MI	1,842	258	147	74	37
J01b Heroin-MI	77	32	18	9	5
J01c Benzodiazepines-MI	106	30	17	8	4
J01d Cannabis-MI	80	11	6	3	2
J01e Stimulants-MI	13	2	1	1	0
Subtotal (Dx with MI Concurrent)	6,382	2,163	1,146	594	423
TOTAL MI PER 100,000 for MH-CCP		**13,551**	**7,366**	**3,704**	**2,481**

This age group has the lowest rate of illness of those presented.

MH-CCP AGES 75+ (Prevalence per 100,000)					
Dx=PRIMARY Diagnosis (MI)	Dx(%)	MI%	MILD%	MOD%	SEV%
J02 Schizophrenia	338	338	-	-	338
J04 Bipolar Disorder	196	196	-	-	196
J03 Anxiety/Depression	5,647	5,647	3,227	1,613	807
J05 Personality Disorder, isolated	1,845	1,845	1,193	596	55
J06 Anorexia Nervosa	0	0	-	0	0
J06 Bulimia Nervosa	-	-	-	-	-
J07a ADHD	-	-	-	-	-
SMHWB(C&A) - Balance	-	-	-	-	-
Subtotal (Dx of Primary MI)	8,026	8,026	4,419	2,210	1,396
Dx=PRIMARY Diagnosis (non-MI)	Dx(%)	MI%	MILD%	MOD%	SEV%
J07b Autism - *Excess over K09*	192	52	30	15	7
J07b Asperger's Syndrome + PDD (nos)	106	-	-	-	-
K01 Dementia - BPSD	11,972	7,303	3,591	1,931	1,780
K09 Intellectual Disability-MI	1,666	516	295	148	74
J01a Alcohol-MI	941	132	75	38	19
J01b Heroin-MI	39	16	9	5	2
J01c Benzodiazepines-MI	43	12	7	3	2
J01d Cannabis-MI	18	3	1	1	0
J01e Stimulants-MI	3	0	0	0	0
Subtotal (Dx with MI Concurrent)	14,981	8,034	4,009	2,140	1,885
TOTAL MI PER 100,000 for MH-CCP		**16,060**	**8,429**	**4,350**	**3,281**

In this "old old" group, the effect of BPSD is obvious, since it is the largest single source of need for mental health services.

7.3.9 The Child / Youth / Adult Summary

Since the Reference Group for the MH-CCP revision requested that some attention be given to a "Youth" age group, the relevant tables are shown below.

MH-CCP AGES 0-11 (Prevalence per 100,000)					
Dx=PRIMARY Diagnosis (MI)	Dx(%)	MI%	MILD%	MOD%	SEV%
J02 Schizophrenia	1	1	-	-	1
J04 Bipolar Disorder	-	-	-	-	-
J03 Anxiety/Depression	565	565	323	161	81
J05 Personality Disorder, isolated	-	-	-	-	-
J06 Anorexia Nervosa	4	4	-	1	2
J06 Bulimia Nervosa	5	5	-	2	3
J07a ADHD	2,253	2,253	1,287	644	322
SMHWB(C&A) - Balance	11,779	11,779	6,731	3,365	1,683
Subtotal (Dx of Primary MI)	14,606	14,606	8,341	4,173	2,091
Dx=PRIMARY Diagnosis (non-MI)	Dx(%)	MI%	MILD%	MOD%	SEV%
J07b Autism - *Excess over K09*	215	59	33	17	8
J07b Asperger's Syndrome + PDD (nos)	64	-	-	-	-
K01 Dementia - BPSD	0	0	0	0	0
K09 Intellectual Disability-MI	1,953	789	451	226	113
J01a Alcohol-MI	-	-	-	-	-
J01b Heroin-MI	1	0	0	0	0
J01c Benzodiazepines-MI	-	-	-	-	-
J01d Cannabis-MI	-	-	-	-	-
J01e Stimulants-MI	-	-	-	-	-
Subtotal (Dx with MI Concurrent)	2,233	848	485	242	121
TOTAL MI PER 100,000 for MH-CCP		**15,454**	**8,826**	**4,416**	**2,212**

MH-CCP AGES 12-24 (Prevalence per 100,000)					
Dx=PRIMARY Diagnosis (MI)	Dx(%)	MI%	MILD%	MOD%	SEV%
J02 Schizophrenia	165	165	-	-	165
J04 Bipolar Disorder	178	178	-	-	178
J03 Anxiety/Depression	7,788	7,788	4,450	2,225	1,113
J05 Personality Disorder, isolated	987	987	638	319	30
J06 Anorexia Nervosa	188	188	-	66	122
J06 Bulimia Nervosa	241	241	-	84	156
J07a ADHD	1,569	1,569	897	448	224
SMHWB(C&A) - Balance	2,582	2,582	1,476	738	369
Subtotal (Dx of Primary MI)	13,698	13,698	7,461	3,881	2,356
Dx=PRIMARY Diagnosis (non-MI)	Dx(%)	MI%	MILD%	MOD%	SEV%
J07b Autism - *Excess over K09*	329	89	51	26	13
J07b Asperger's Syndrome + PDD (nos)	122	-	-	-	-
K01 Dementia - BPSD	0	0	0	0	0
K09 Intellectual Disability-MI	2,178	838	479	240	120
J01a Alcohol-MI	3,690	517	295	148	74
J01b Heroin-MI	194	79	45	23	11
J01c Benzodiazepines-MI	69	19	11	6	3
J01d Cannabis-MI	1,811	254	145	72	36
J01e Stimulants-MI	456	64	36	18	9
Subtotal (Dx with MI Concurrent)	8,849	1,861	1,063	532	266
TOTAL MI PER 100,000 for MH-CCP		**15,559**	**8,524**	**4,412**	**2,622**

The main comment to be made about these diagrams is that overall prevalence is much the same, and while we lack diagnostic data for the Child group aged 0-11, there is a diverse range of illness to be addressed across the whole spectrum in the Youth group aged 12-24.

With "Youth" removed from the Adult group, the comparison between the remaining adult group and the original Adult group may be of interest.

MH-CCP AGES 25-64 (Prevalence per 100,000)					
Dx=PRIMARY Diagnosis (MI)	Dx(%)	MI%	MILD%	MOD%	SEV%
J02 Schizophrenia	664	664	-	-	664
J04 Bipolar Disorder	713	713	-	-	713
J03 Anxiety/Depression	12,176	12,176	6,958	3,479	1,739
J05 Personality Disorder, isolated	3,065	3,065	1,982	991	92
J06 Anorexia Nervosa	45	45	-	16	29
J06 Bulimia Nervosa	29	29	-	10	19
J07a ADHD	12	12	7	4	2
SMHWB(C&A) - Balance	-	-	-	-	-
Subtotal (Dx of Primary MI)	16,705	16,705	8,947	4,499	3,258
Dx=PRIMARY Diagnosis (non-MI)	Dx(%)	MI%	MILD%	MOD%	SEV%
J07b Autism - *Excess over K09*	311	85	48	24	12
J07b Asperger's Syndrome + PDD (nos)	122	-	-	-	-
K01 Dementia - BPSD	79	48	24	13	12
K09 Intellectual Disability-MI	2,139	664	379	190	95
J01a Alcohol-MI	6,441	902	515	258	129
J01b Heroin-MI	361	148	85	42	21
J01c Benzodiazepines-MI	424	119	68	34	17
J01d Cannabis-MI	1,555	218	124	62	31
J01e Stimulants-MI	472	66	38	19	9
Subtotal (Dx with MI Concurrent)	11,905	2,249	1,281	641	326
TOTAL MI PER 100,000 for MH-CCP		**18,953**	**10,228**	**5,141**	**3,584**

MH-CCP AGES 18-64 (Prevalence per 100,000)					
Dx=PRIMARY Diagnosis (MI)	Dx(%)	MI%	MILD%	MOD%	SEV%
J02 Schizophrenia	604	604	-	-	604
J04 Bipolar Disorder	650	650	-	-	650
J03 Anxiety/Depression	11,835	11,835	6,763	3,381	1,691
J05 Personality Disorder, isolated	2,842	2,842	1,838	919	85
J06 Anorexia Nervosa	77	77	-	27	50
J06 Bulimia Nervosa	74	74	-	26	48
J07a ADHD	105	105	60	30	15
SMHWB(C&A) - Balance	-	-	-	-	-
Subtotal (Dx of Primary MI)	16,187	16,187	8,661	4,383	3,142
Dx=PRIMARY Diagnosis (non-MI)	Dx(%)	MI%	MILD%	MOD%	SEV%
J07b Autism - *Excess over K09*	314	85	49	24	12
J07b Asperger's Syndrome + PDD (nos)	123	-	-	-	-
K01 Dementia - BPSD	67	41	20	11	10
K09 Intellectual Disability-MI	2,145	687	392	196	98
J01a Alcohol-MI	6,362	891	509	254	127
J01b Heroin-MI	354	145	83	41	21
J01c Benzodiazepines-MI	377	106	60	30	15
J01d Cannabis-MI	1,766	247	141	71	35
J01e Stimulants-MI	512	72	41	20	10
Subtotal (Dx with MI Concurrent)	12,019	2,273	1,296	649	329
TOTAL MI PER 100,000 for MH-CCP		**18,460**	**9,957**	**5,032**	**3,471**

There are very few obvious differences between these groups.

7.3.10 Conclusions

The final result, with total numbers for the 20056 standard NSW population, is shown below:

MH-CCP ALL AGES (Numbers, NSW, 2006)					
Dx=PRIMARY Diagnosis (MI)	Dx (N)	MI(N)	MILD(N)	MOD(N)	SEV(N)
J02 Schizophrenia	30,071	30,071	-	-	30,071
J04 Bipolar Disorder	30,364	30,364	-	-	30,364
J03 Anxiety/Depression	605,960	605,960	346,263	173,131	86,566
J05 Personality Disorder, isolated	142,991	142,991	92,467	46,234	4,290
J06 Anorexia Nervosa	3,937	3,937	-	1,378	2,559
J06 Bulimia Nervosa	4,017	4,017	-	1,406	2,611
J07a ADHD	43,192	43,192	24,681	12,341	6,170
SMHWB(C&A) - *Residual*	155,757	155,757	89,004	44,502	22,251
Subtotal (Dx of Primary MI)	1,016,289	1,016,289	552,416	278,992	184,881
Dx=PRIMARY Diagnosis (non-MI)	Dx (N)	MI(N)	MILD(N)	MOD(N)	SEV(N)
J07b Autism - *Excess over K09*	19,693	5,356	3,060	1,530	765
J07b Asperger's Syndrome + PDD (nos)	7,637	-	-	-	-
K01 Dementia - BPSD	64,812	39,535	19,444	10,454	9,637
K09 Intellectual Disability-MI	141,615	47,820	27,326	13,663	6,831
J01a Alcohol-MI	291,382	40,793	23,311	11,655	5,828
J01b Heroin-MI	15,989	6,555	3,746	1,873	936
J01c Benzodiazepines-MI	16,932	4,741	2,709	1,355	677
J01d Cannabis-MI	78,782	11,029	6,303	3,151	1,576
J01e Stimulants-MI	22,706	3,179	1,816	908	454
Subtotal (Dx with MI Concurrent)	659,548	159,010	87,715	44,590	26,705
TOTAL MI for MH-CCP		**1,175,299**	**640,131**	**323,582**	**211,587**

Hopefully the information summarised here will indicate that the considerable effort involved in rebuilding the epidemiological base of MH-CCP has proved worthwhile in delivering a more informative range of information to guide considerations of care planning.

It is also relevant to the development of a Drug and Alcohol model that is consistent with MH-CCP, and most of the epidemiology has already been presented here in the course of identifying the additional mental health needs for:

- *J01a Alcohol-MI*
- *J01b Heroin-MI*
- *J01c Benzodiazepines-MI*
- *J01d Cannabis-MI*
- *J01e Stimulants-MI*

It is also relevant that the tables above cover all the diagnoses that the Senate Select Committee Inquiry into Mental Health (2005) identified as being poorly addressed by current services.

As a final point, it should be noted that the group that developed the Australian Burden of Disease reports of 1999 and 2007 have also produced a BOD study for Aboriginal and Torres Strait Islander people (2008). This provides the possibility of developing a specific model with its own care Packages for Aboriginal people.

7.4 THE PROBLEM OF EPIDEMIOLOGY-BASED PREDICTION IN MENTAL HEALTH

Reference MH-CCP Ver 2008 2009-04-01

A quantitative clinical care model for one patient can be represented schematically in the following way:

Period cost = 1 patient x Cost of treatments received by that patient over the period

Treatment received = (proportion of) staff time, facilities, consumables

Resources used = Treatment received + overheads + availability factors

Cost = Sum of resources used x specific unit costs (in appropriate units)

A great deal of effort is invested by NSW Health each year in collecting aggregate data from service facilities, but at present it is not possible to assemble those data across all the services received by an individual. Instead, individual episodes of care are usually the units that are documented and costed. Even so, it is relatively straightforward in principle to ascertain and cost the services received by an individual over 12 months, because there is at least data on those people who actually receive care. All the relevant information is available in detail somewhere, and can be assembled.

An epidemiological model must expand this in various ways, and unfortunately the relevant information is less available.

The focus must be on the whole population, and the number of people who need a particular level and type of care through the period, whether they receive it or not. Remarkably little is known about the differences between people who do and do not seek care for mental health problems, let alone the consequences of doing one or the other.

The focus must be on the care that is appropriate for the illness, and, since appropriate care must be effective to some degree, on the reduction in subsequent need that results from providing the care. This may or may not be the care that is actually delivered, and on which information exists.

Epidemiology-based models have to draw on the scientific literature for evidence of effectiveness of interventions. In so doing, consideration must be given to the factors that make the effectiveness of care (in routine practice) lower than the efficacy observed in clinical trials. This is not a minor issue. For example, NIMH in the US has recently funded a $47 Million trial to establish effectiveness of new antipsychotic medications in routine use67. Effectiveness must also take into account whether program level interventions

[67] The Clinical Antipsychotic Trials of Intervention Effectiveness project (CATIE) is a new research project to evaluate the clinical effectiveness of atypical antipsychotics in the treatment of schizophrenia and Alzheimer's disease. (see the Web site http://www.catie.unc.edu/).

have faithfully followed the critical aspects of (usually) a model program for which good results have been reported, particularly in terms of the resources allocated to them68. It also includes, for example, the evidence that patients receiving antipsychotic medication take an average of 58 per cent of the recommended amount (range 24-90 per cent), those receiving antidepressants take 65 per cent (range 40-90 per cent), and those receiving a variety of medications for physical illness take 76 per cent (range 60-92 per cent)69.

Every individual's illness is unique, but epidemiology can only estimate the numbers in groups. That is not a difficulty in analysing service data to obtain a total volume of care that has actually been provided, but it is a major difficulty for a model which must rely on a notional "average" individual within an illness group. This is particularly the case when estimating the needs of the groups identified in the population who meet criteria for illness, but do not seek care. Even in service data it can be a problem, when clients are grouped and variations in care provision or outcomes must be explained.

The epidemiological data and clinical research data needed by an epidemiology-based model can be extremely costly to collect, and for that reason alone are unlikely to be obtainable very often, or at a high level of geographical or demographic detail. Nevertheless, they have a strong influence on the predicted level of resources because they define the estimated numbers of people needing each "care package", and what a "care package" should include to be effective. Little can be done about that, but at least there is usually a broad consistency in the results from Australia and overseas, and the diagnostic criteria are the same as those used in services. On that basis, it is possible to connect the epidemiological data, via the care packages, to predictions about resources and service outputs

Since planning mental health services is almost entirely a public sector activity, the usual approach to modelling service needs is to invoke the US notion of "Serious and Persistent Mental Illness" to discount the prevalence down to the estimated level of about 2.8 per cent of the population. A "more of the same" model can then be applied to plan specialist public sector services, assuming a similar client group to the one already in care. In models of that type it is simply assumed that others receive care elsewhere, or have "mild and self-limiting" conditions. That accounts for the gap, but it would not generally be regarded as a meaningful account for (say) cardiovascular disease, or other physical health conditions.

Since even the discounted level of "Serious and Persistent Mental Illness" is four times the treatment level in public sector specialist mental health services, it has been recognised in each National Mental Health Report that the Australian health care system as a whole sets implicit priorities for service provision that are reflected in the form of unmet need70. Within services, priorities are also being set, every day, by individual clinicians, in planning the care they provide to the individual clients who come to their attention, and managing the resources they have available. An epidemiology-based clinical care and prevention model must address those issues, not simply ignore them. Nor can it treat the average care that is actually provided as defining a norm against which all variation can be described as "provider variation" or "practice variation", as in casemix costing studies.

[68] McGrew JH, Bond GR, Dietzen LL et al, Measuring the fidelity of implementation of a mental health program model. *Journal of consulting and clinical psychology* 1994;62:670-678.

[69] Cramer JA, Rosenheck R. Compliance with medication regimens for mental and physical disorders. *Psychiatric Services* 1998;49:196-201.

[70] Andrews G, Henderson S (Eds) *Unmet need in psychiatry: problems, resources, responses.* (Scientific symposium of the World Psychiatric Association Section of Epidemiology and Public Health, Sydney, 1997). Cambridge: Cambridge University Press, 2000.

8 Defining Severity

The following information is largely sourced from text pertaining to the NMHSPF predecessor, the NSW Mental Health Clinical Care and Prevention model (MH-CCP). Although the NMHSPF model is significantly broader in scope to the NSW MH-CCP, the concept of 'Severity' is a fundamental premise that is common to both models and so is included below.

8.1 KEY POINTS SUMMARISED

The treatment and care an individual needs varies depending on the clinical significance, or severity, of the illness. Across Australia, severity of mental illness is generally measured in three levels: mild, moderate and severe. However, there can be considerable variations in what is understood by these terms. It is therefore important for the National Mental Health Service Planning Framework (NMHSPF project to have an agreed understanding, or definition of what is meant by these three levels of severity.

The US National Advisory Mental Health Council (NAMHC), in response to a request by the US Senate Committee on Appropriations, developed definitions for the levels based on "the cost of insurance coverage of medical treatment for severe mental illness commensurate with the coverage of other illnesses". These definitions are proposed for use in the NMHSPF Project and the rationale for each is discussed in more detail in the body of this paper.

The terms MILD MODERATE and SEVERE are not arbitrary labels, but have explicit definitions followed in most of the epidemiological literature in mental health since the Epidemiologic Catchment Area (ECA) studies[71,72,73,74] of the 1980's. These studies defined severity using diagnostic information and criteria, recent treatment, symptoms and functional status. The key principle involved was 'parity' with physical health conditions where the community would regard it as inappropriate if the person does not receive care for the condition.

Further, these definitions will inform decisions around the prevalence of mental illness per population. Prevalence is generally divided into a ratio of 4:2:1 (MILD : MODERATE : SEVERE) where MODERATE disorders are approximately twice as prevalent as SEVERE disorders and MILD disorders are approximately twice as prevalent as MODERATE disorders.

There are three methods used in the NMHSPF model to determine the boundaries of severity:

1. In conceptualising a continuum of distress and impairment, the severity of mental illness can also be expressed as proportions along a continuum. The Australian Burden of Disease data set used disability weights (DW) to determine the following cut offs for severity:
    - MILD as 1.0 standard deviations below the mean;
    - MODERATE as 2.0 standard deviations below the mean; and
    - SEVERE as 3.0 standard deviations below the mean.
2. Identifying diagnostic weightings using inpatient separation data using the rates for Schizophrenia as a baseline differentiates the severity across different diagnostic groups; and
3. Applying the general ratio of 4:2:1 (MILD : MOD : SEVERE) to prevalence helps stabilise and generalise statistics.

[71] Regier DA, Myers JK, Kramer M, Robins LN, Blazer DG, Hough RL, Eaton WW, Locke BZ: The NIMH Epidemiologic Catchment Area Program: historical context, major objectives, and study population characteristics. *Archives of General Psychiatry* 1984;41:934-941.

[72] Eaton WW, Kessler LG (Eds). Epidemiologic field methods in psychiatry: The NIMH Epidemiologic Catchment Area program. Orlando, Florida: Academic Press, 1985.

[73] Robins LN, Regier DA (Eds). Psychiatric disorders in America: The Epidemiologic Catchment Area Study. New York: Free Press, 1991.

[74] Regier DA, Narrow WE, Rae DS, Manderscheid RW, Locke BZ, Goodwin FK. The de facto US mental and addictive disorders service system: Epidemiologic Catchment Area prospective 1-year prevalence rates of disorders and services. Archives of General Psychiatry 1993; 50:85-94.

Of critical importance is to ensure the statistical validity of the modelling tool through the use of robust, empirical and transparent data and analytical processes. The methods described in this paper meet these requirements and form a fundamental basis of analyses that firmly validates the modelling underlying the NMHSPF Project.

The methods used by NMHSPF model as described here provide a somewhat complicated, but fundamental scientific and transparent basis of analyses that firmly validates the modelling underlying the NMHSPF Project.

The following sections outline the key data sources and definitions of SEVERE, MODERATE and MILD mental illness as determined by the NAMHC, and further discuss the use of the terms in relation to modelling.

8.2 BACKGROUND

"…most mental health service use is highly related to acute symptoms and disability, factors that can be measured independently and are found in the absence of a full diagnostic syndrome."[75]

As discussed above, the term SEVERE, is not an arbitrary label, but has an explicit definition followed in most of the epidemiological literature in mental health since the Epidemiologic Catchment Area (ECA) studies[76,77,78,79] of the 1980's. For that reason, the term is always displayed in capitals. The term was originally devised by the US National Advisory Mental Health Council (NAMHC) in response to a request by the US Senate Committee on Appropriations for a report on "the cost of insurance coverage of medical treatment for severe mental illness commensurate with the coverage of other illnesses". Note the reference to being commensurate with 'other illnesses'. In developing principles for defining 'severe' illnesses, the NAMHC gave the example that 2.5% of the American population had diabetes, but 93% of the entire cost of diabetes was generated by a 'severe' group equal to about one third of the total – only 0.83% of the population – as defined by hospitalisation.

8.3 DEFINING SEVERE, MODERATE AND MILD MENTAL HEALTH ISSUES

The outcome of analysis of the ECA and US National Co-morbidity Survey[80] (NCS) data, using an operational definition of "SEVERE", was that:

1. 22 per cent of the US population experience "any mental disorder" in a year;
2. 2.8 per cent (3.2 per cent in the younger NCS group) experienced "SEVERE mental disorder"; and that
3. 1.7 per cent experienced SEVERE disorder and used mental health services.

The definitions below are quoted in full from the source document[81], and can be applied in both epidemiological and service settings, given quite basic information on an individual.

[75] Regier DA, Narrow WE, Rae DS, Manderscheid RW, Locke BZ, Goodwin FK. The de facto US mental and addictive disorders service system; Epidemiological catchment area prospective 1-year prevalence rates of disorders and services. *Archives of General Psychiatry 1993*;50:85-94.

[76] Regier DA, Myers JK, Kramer M, Robins LN, Blazer DG, Hough RL, Eaton WW, Locke BZ: The NIMH Epidemiologic Catchment Area Program: historical context, major objectives, and study population characteristics. *Archives of General Psychiatry* 1984;41:934-941.

[77] Eaton WW, Kessler LG (Eds). Epidemiologic field methods in psychiatry: The NIMH Epidemiologic Catchment Area program. Orlando, Florida: Academic Press, 1985.

[78] Robins LN, Regier DA (Eds). Psychiatric disorders in America: The Epidemiologic Catchment Area Study. New York: Free Press, 1991.

[79] Regier DA, Narrow WE, Rae DS, Manderscheid RW, Locke BZ, Goodwin FK. The de facto US mental and addictive disorders service system: Epidemiologic Catchment Area prospective 1-year prevalence rates of disorders and services. Archives of General Psychiatry 1993; 50:85-94.

[80] Kessler RC, McGonagle KA, Zhao S, Nelson CB, Hughes M, Eshleman S, Wittchen H-U, Kendler KS. Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States: Results from the National Comorbidity Survey. Archives of General Psychiatry 1994;51:8-19.

[81] National Advisory Mental Health Council. Health Care Reform for Americans with severe mental illnesses: Report of the National Advisory Mental Health Council. *American Journal of Psychiatry*. 1993;150:1447-1465.

8.3.1 The definition of SEVERE

When applied to the ECA and NCS analysis, the definition below resulted in a highly co-morbid group equal to 2.8 per cent of the population (18 and over) with:

54% meeting criteria for schizophrenia (1.5% of population);
39% for major depression (1.1% of population);
36% bipolar disorder (1.0% of population);
21% obsessive-compulsive disorder (0.6% of population); and
14% panic disorder (0.4% of population).
In other words, the separate diagnoses add up to 4.6% of the population, but as they were concentrated in this group of 2.8 per cent – each person averages almost two diagnoses.

In the NMHSPF Project, the SEVERE group are all considered to have need for treatment and are consequently modelled as 100% service usage.

"Severity criteria were defined in the domains of recent treatment, symptoms, and social/ occupational/ school functioning. Diagnostic information and criteria for severity were applied to five [ECA] data sets in the following way. For individuals who were diagnosed as having schizophrenia, schizoaffective disorder, bipolar disorder type 1 [characterized by occurrence of a manic episode], or autism in the year before the study's data collection, no additional indicator of severity was required to designate them as severely mentally ill [because] the DSM-III-R criteria for schizophrenia, bipolar disorder, type 1, autistic disorder, and, by inference, schizoaffective disorder, require marked disturbance in functioning during an active episode of illness.
For individuals who had received a diagnosis of schizophrenia, bipolar disorder [including type 2 – characterised by occurrence of a hypomanic episode], schizoaffective disorder, or autistic disorder at some point during their lives but who did not meet the diagnostic criteria during the past year, further evidence was required to ensure their appropriate inclusion in the group with severe mental disorders. For this group, evidence of severity included at least one of the following within the past year: any inpatient psychiatric hospitalization or nursing home placement; any outpatient mental health treatment in a specialty mental health or general medical setting; psychotic symptoms (criterion A for DSM-III-R schizophrenia); use of antipsychotic medication; or a Global Assessment of Functioning (GAF) scale rating of 50 or less (i.e., functioning at or below the level of 'serious symptoms … or any serious impairment in social, occupational or school functioning' (DSM-III-R).
Individuals diagnosed as having major depression, bipolar disorder, type 2, panic disorder, or obsessive-compulsive disorder during the previous year (or at any point in their life for bipolar disorder, type 2) were considered severely mentally ill if there was evidence of severity in the past year. Evidence of severity for this group included inpatient psychiatric hospitalization, psychotic symptoms, use of antipsychotic medication, or a GAF scale rating of 50 or less."

8.3.2 The definition of MODERATE

The definition of MODERATE used is based on the ECA data indicating that 7% of people have mental disorders that persist at full diagnostic levels for a year or more[82]. Subtracting the 2.8% who qualify as "SEVERE", yields an estimate of 4.2% who meet diagnostic criteria for a year, but don't fall within the "SEVERE" category.

About 4 of 5 people in the MODERATE group perceive a need for any treatment and so are modelled at 80% service usage in the NMHSPF model.

8.3.3 The definition of MILD

The definition of MILD used is simply the overall 12-month prevalence estimate for mental illness, less the SEVERE and MODERATE groups. Thus these illnesses do not persist at diagnostic levels for a year, and do not meet the diagnosis / treatment / disruption of functioning criteria for SEVERE.

[82] Regier DA, Narrow WE, Rae DS, Manderscheid RW, Locke BZ, Goodwin FK. The de facto US mental and addictive disorders service system; Epidemiological catchment area prospective 1-year prevalence rates of disorders and services. *Archives of General Psychiatry 1993*;50:85-94.

In this MILD group, about half perceive no need for any treatment and so are modelled as 50% service usage in the NMHSPF model

8.4 CONCEPTUALISING SEVERITY WITH PREVALENCE – CHECK % SPLITS AND CONTINUUM FIGURE

The prevalence of mental illness is now generally described in terms of the three levels of severity with minor variations and rounding across Australasia. In broad terms, the prevalence of MODERATE disorders is approximately twice that of SEVERE, and the prevalence of MILD disorders is approximately twice that of MODERATE. This gives a generalised ratio of 4:2:1 (Mild : Moderate : Severe).

For reference, the following percentages have been used:

1. 9.4% / 4.7% / 3.1% (Total 17.2%)- **NSW and QLD**
2. 12% / 4% / 3% (Total 19%) - **Victoria**
3. 12% / 5% / 3% (Total 20% - **Tasmania and New Zealand**
4. 10% / 5% / 2% (Total 17%) – **ACT**

Using these prevalence ratios offers an alternative way of conceptualising the severity of mental illness within a definition that identifies about 15-20% of the population as 'ill' in a 12 month period.

However, the terms themselves have no absolute meaning without anchoring to a diagnostic group or criteria. For example, the prevalence of SEVERE disorders means 'as SEVERE as Schizophrenia or Bipolar disorder' and it is widely agreed that approximately 3% of the population meet this definition.

But the data used to define MODERATE and MILD disorders is less robust as they lack the repetitive diagnostic observations over a 12 month period. Instead, data sets use disability measures and assign weights per diagnosis or self-report interference with functional status as arbitrary measures of severity.

More simply, if it is accepted that severity of impairment and distress associated with illness varies along a continuum, then the continuum itself can be divided at appropriate and agreed proportions and labelled MILD, MODERATE and SEVERE. By various means, it is generally agreed that a suitable definition of 'Mental Illness' for epidemiological studies begins about one standard deviation away from the middle of the general population - that is, somewhere around the 80th to the 85th percentile (i.e., prevalence is 15-20%); and that it is not until around the 97th percentile (prevalence = 3%) that it is agreed to call it SEVERE.

In using data measures that are available, it is known that a MODERATE group can be defined by those who meet diagnostic criteria on two occasions 12 months apart without being SEVERE, which is about 4-5% of the population. Lastly, it is known that if we call the residual group MILD, about half of them will not agree that that they have any 'Mental Illness' at all, and will deny that they have any need for treatment, and will show little or no evidence of any impairment in functioning. On the other hand, despite strenuous efforts[83,84], a point has not yet been found within this range where there is an obvious "break" or discontinuity in risk that might suggest that there is a categorical distinction to be made between one group and another[85,86].

Where the leading authorities in a field disagree strongly, there is usually a good reason, and in the United States it is clear that the debate is primarily about eligibility for health insurance coverage[87].

Figure 11 - Prevalence of Severity Along a Continuum

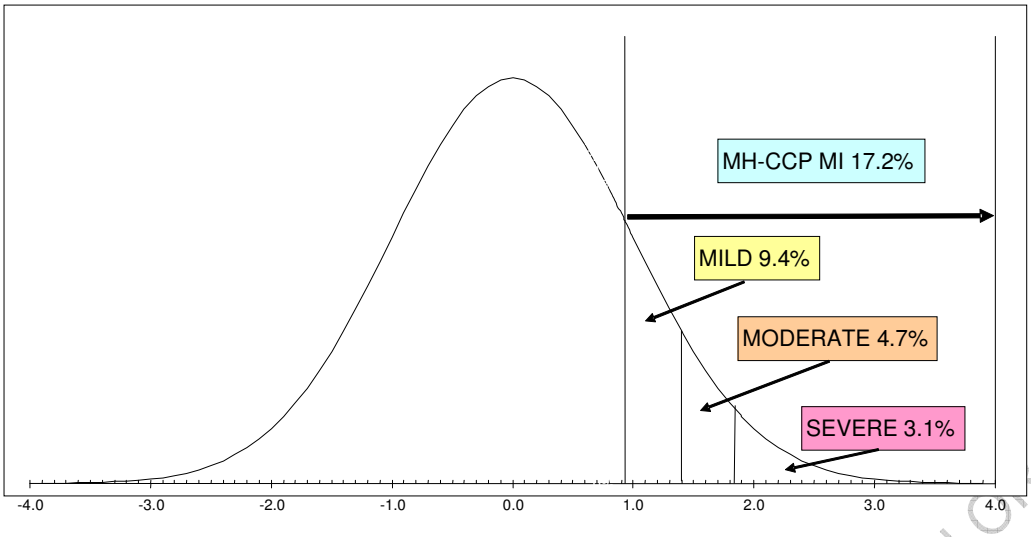
[83] Narrow WE, Rae DS, Robins LN, Regier DA. Revised prevalence estimates of mental disorders in the United States: using a clinical significance criterion to reconcile 2 surveys' estimates. *Archives of General Psychiatry 2002.* 59(2):115-23.

[84] Regier DA, Narrow WE, Rae DS. For DSM-V, it's the "disorder threshold," stupid. *Archives of General Psychiatry 2004.* 61(10):1051; author reply 1051-2.

[85] Kessler RC. Merikangas KR. Berglund P. Eaton WW. Koretz DS. Walters EE. Mild disorders should not be eliminated from the DSM-V. *Archives of General Psychiatry 2003;* 60(11):1117-22.

[86] Druss BG. Wang PS. Sampson NA. Olfson M. Pincus HA. Wells KB. Kessler RC. Understanding mental health treatment in persons without mental diagnoses: results from the National Comorbidity Survey Replication. *Archives of General Psychiatry 2007*, 64(10):1196-203.

[87] Mechanic D. Is the prevalence of mental disorders a good measure of the need for services? *Health Affairs*. Chevy Chase: Sep/Oct 2003.Vol.22, Iss. 5; pg. 8



8.5 APPLYING SEVERITY TO POPULATION GROUPS – NEEDS NEW WEIGHTING BY DX FOR NMHSPF

If the practical meaning of SEVERE is relative to the diagnoses of Schizophrenia or Bipolar Disorder, it is important that the model is able to identify the proportion of SEVERE disorders that applies to other diagnoses.

To obtain a more objective estimate of prevalence of SEVERE for other diagnostic groups, inpatient data can be used as it is known that approximately one third of the SEVERE population uses inpatient services in a 12 month period and that all of them are unequivocally in the SEVERE category as inpatient care is part of the definition for all diagnostic groups.

As schizophrenia is defined as SEVERE on the basis of diagnosis alone, the separation rates for this diagnostic group can be used as a baseline to measure the proportion of other diagnoses. Therefore, the mental health related separation rates for Australia averaged over 5 years is about 33% per prevalent case and per the definition, 100% of these cases qualify as SEVERE.

If another diagnostic group also has a separation rate of 33%, then it can be regarded as equivalent to Schizophrenia. However, if the separation rate is 3.3% for example, then it can be supposed that only 10% (3.3% / 33%) of the group will qualify as being SEVERE when compared to Schizophrenia. In other words, for any diagnosis *x,* the following ratio can be used to determine the proportion of SEVERE disorders in other diagnoses comparative to Schizophrenia:

$$\frac{\text{Separation rate per prevalent case for Diagnosis x}}{\text{Separation rate per prevalent case of Schizophrenia and related disorders}} = \text{Proportion of diagnosis } x \text{ in SEVERE category}$$

Table 12 - Diagnostic weighting by diagnosis using inpatient separations

MH-CCP ALL AGES (Weighting by Diagnosis)					
Dx=PRIMARY Diagnosis (MI)	Dx(%)	MI-wt	MILD-wt	MOD-wt	SEV-wt
J02 Schizophrenia	0.44%	1.00	-	-	1.00
J04 Bipolar Disorder	0.45%	1.00	-	-	1.00
J03 Anxiety/Depression	8.89%	1.00	0.57	0.29	0.14
J05 Personality Disorder, isolated	2.10%	1.00	0.65	0.32	0.03
J06 Anorexia Nervosa	0.06%	1.00	-	0.35	0.65
J06 Bulimia Nervosa	0.06%	1.00	-	0.35	0.65
J07a ADHD	0.63%	1.00	0.57	0.29	0.14
SMHWB(C&A) - *Balance*	2.29%	1.00	0.57	0.29	0.14
Subtotal (Dx of Primary MI)	14.91%	14.9%	8.1%	4.1%	2.7%
Dx=PRIMARY Diagnosis (non-MI)	Dx(%)	MI-wt	MILD-wt	MOD-wt	SEV-wt
J07b Autism - *Excess over K09*	0.3%	0.27	0.57	0.29	0.14
J07b Asperger's Syndrome + PDD (nos)	0.1%	-	-	-	-
K01 Dementia - BPSD	1.0%	0.61	0.49	0.26	0.24
K09 Intellectual Disability-MI	2.1%	0.34	0.57	0.29	0.14
J01a Alcohol-MI	4.3%	0.14	0.57	0.29	0.14
J01b Heroin-MI	0.2%	0.41	0.57	0.29	0.14
J01c Benzodiazepines-MI	0.2%	0.28	0.57	0.29	0.14
J01d Cannabis-MI	1.2%	0.14	0.57	0.29	0.14
J01e Stimulants-MI	0.3%	0.14	0.57	0.29	0.14
Subtotal (Dx with MI Concurrent)	9.68%	2.3%	1.3%	0.7%	0.4%
TOTAL MI% for MH-CCP		**17.2%**	**9.4%**	**4.7%**	**3.1%**

Based on the earlier discussion on ratio of severity to prevalence (ie 4:2:1 for MILD:MOD:SEVERE), the proportions attributed to each diagnostic group for SEVERE disorders can be scaled up to include MODERATE (at twice the proportion of SEVERE) and MILD (at twice the proportion of MODERATE) severities as appropriate to the diagnostic group. This process validates the largest diagnostic group of Anxiety/Depression as most of the diagnoses used in the original definition work of severity came from that group.

The outcome of this approach is generally supported by the similarity of the *Treated Prevalence and Separation Rate Profil*es.

8.6 KEY DISTINGUISHING FEATURES SEPARATING MILD FROM MODERATE POPULATIONS

Due to the complexity of the modelling task in the NMHSPF, it was important to try and establish common understanding around the levels of severity. The following principles were developed to encourage consistency in modelling across the project membership:

- MILD populations are treated entirely in the primary care stream and do not need either specialised ambulatory support, specialised psychosocial support or inpatient care. Symptoms are usually resolved within a 12 month period and disruption to performing in normal roles is minimal (eg 1-2 days out of role). Treatment demand is estimated at 50% of the total prevalence of MILD mental illness and accounts for 11% of total prevalence of mental illness.
- MODERATE populations require 'enhanced primary care' services, but no inpatient services. Their symptoms persist for longer than 12 months and days out of role is limited to several days only. Treatment demand is estimated at 80% of the total prevalence of MODERATE mental illness and accounts for 4.7% of total prevalence of mental illness.
- Approximately 67% of MILD and MODERATE mental illness is attributed to Anxiety and Depressive disorders (cannot be separated due to high co-morbidity of the two), with a further 17% attributed to 'Personality Disorder isolated' and 5% Primary Cognitive problems (eg. BPSD, Autism, Intellectual Disability) with psychological symptoms. (AUSBOD, 1997)
- Both MILD and MODERATE populations include a proportion of co-morbid AOD issues.
- SEVERE populations may include ambulatory only and/or inpatient care and many would benefit from community support services. It also includes all care related to diagnoses of Bipolar disorder and

Psychoses. Treatment demand is estimated at 100% of total prevalence of SEVERE mental illness and accounts for 2.8% of total prevalence of mental illness.

8.7 VALIDITY OF DATA ANALYSIS AND SOURCES

To ensure the statistical validity of the modelling tool it is important to ensure that both the data and processes used to analyse it are themselves robust, empirical and transparent.

The primary source of epidemiological data used by the NMHSPF model to identify prevalence for mental health conditions is the Australian Burden of Disease (AusBoD) data set where there is adequate detail regarding the scope of the data (e.g. whether the whole range of severity is covered or only the more severe end). Three methods of data analysis are used including disability weights, inpatient separation data and the application of a general ratio of prevalence.

AusBoD uses disability weights (DW) from 0.0 to 1.0 on a vertical axis. The horizontal axis represents scores on the' SF12' measure of functioning that was used in the Australian National Survey of Mental Health and Wellbeing (SMHWB-1997) [88]. Since this was available for every respondent in SMHWB-1997, AusBoD labelled the following cut offs for severity:

1. MILD as 1.0 standard deviations below the mean;
2. MODERATE as 2.0 standard deviations below the mean; and
3. SEVERE as 3.0 standard deviations below the mean.

The secondary method of defining the boundaries of severity in modelling is by identifying diagnostic weightings using inpatient separation data compared to Schizophrenia as described earlier. The third method to generalise and stabilise the statistics is to apply the general ratio of 4:2:1 (MILD : MOD : SEVERE) to prevalence as also discussed earlier.

Using the premise that help-seeking behaviours increase with impairment and distress, it is important to consider the proportion of the prevalent population that identify the need for service. Therefore, incorporated within these methods is the ratio of help seeking behaviours within each severity category that is used in **MH-CCP** to determine service usage (MILD = 50%, MODERATE = 80% and SEVERE = 100% of prevalent population). If there is no clear advice on how to change the perceptions of people in these groups, then it is quite reasonable to model demand at the current levels of perceived need. Alternatively, if there is a defensible process by which treatment-seeking might be increased, then demand at a higher level could be modelled.

Across much of the mental health system there is significant data available and it is likely that the NMSHPF Project will identify additional areas for better data development. The NSMHWB - 2007 for example, is limited in value for this process due to the lack of defining criteria related to level of impairment or function that informs service usage and severity of illness. The survey also lacks appropriate methodology to adequately identify low prevalent disorders such as schizophrenia. Most importantly however, the methods used by **MH-CCP** as described above, provide a somewhat complicated, but fundamental scientific and transparent basis of analyses that firmly validates the modelling underlying the NMHSPF Project.

8.8 DATA SOURCES

8.8.1 The ECA Surveys

The most comprehensive source of population epidemiology in mental health remains the US series of five community surveys sponsored by the National Institute of Mental Health, and collectively known as the Epidemiologic Catchment Area (ECA) program[89,90,91,92.] The ECA program was conducted in 1980-85,

[88] Australian Bureau of Statistics, National Survey of Mental Health and Wellbeing: Summary of Results, 2007. Canberra: Commonwealth of Australia, 2008. (ABS Cat No 4326.0).

[89] Regier DA, Myers JK, Kramer M, Robins LN, Blazer DG, Hough RL, Eaton WW, Locke BZ: The NIMH Epidemiologic Catchment Area Program: historical context, major objectives, and study population characteristics. *Archives of General Psychiatry* 1984;41:934-941.

interviewed more than 20,000 people and included institutionalised respondents and clinical reappraisals. It also incorporated a 1-year follow-up, which is critical for estimating the duration of the disorders identified in the first survey. A specific structured interview, the Diagnostic Interview Schedule[93] (DIS) was developed for the ECA studies, and has since been developed further and adopted by the World Health Organisation (WHO) as the Composite International Diagnostic Interview[94,95,96] (CIDI).

8.8.2 The NCS

Similar versions of the CIDI were used in both the first nationally representative US National Comorbidity Survey[97] (NCS: N=8,098, 15-54 years, Sep 1990- Feb 1992, 83% response rate, all persons in household); and in the Australian National Survey of Mental Health and Wellbeing[98] (NSMHW: N=10,600, 18 and above, May-Aug 1997, 78% response rate, one person per household). The sample population in both these studies was non-institutionalised, which was estimated to reduce prevalence by at most 0.3% in the NCS[99].

The NCS was a more sophisticated survey, including a supplementary sample survey of non-respondents, who were offered financial incentives to complete a shorter interview, and were found to have a higher rate of illness than in the main sample. Because the CIDI does not adequately address psychotic illness, the NCS involved clinical reinterviewing of all participants who reported evidence of psychotic symptoms, using a more specific instrument, the Structured Clinical Interview for DSM-III-R[100,101]. In parallel with the NCS, the same CIDI interview was applied in the Mental Health Supplement to the Ontario Health Survey[102,103,104,105,106] (OHS-MHS: N=9,953, 15 and above, Dec 1990- May 1991, 67.4% response rate, 1 person per household).

[90] Eaton WW, Kessler LG (Eds). Epidemiologic field methods in psychiatry: The NIMH Epidemiologic Catchment Area program. Orlando, Florida: Academic Press, 1985.

[91] Robins LN, Regier DA (Eds). Psychiatric disorders in America: The Epidemiologic Catchment Area Study. New York: Free Press, 1991.

[92] Regier DA, Narrow WE, Rae DS, Manderscheid RW, Locke BZ, Goodwin FK. The de facto US mental and addictive disorders service system: Epidemiologic Catchment Area prospective 1-year prevalence rates of disorders and services. Archives of General Psychiatry 1993; 50:85-94.

[93] Robins LN, Helzer JE, Croughlan JL, Ratcliff KS. National Institute of Mental Health Diagnostic Interview Schedule: its history, characteristics and validity. Archives of General Psychiatry 1981;38:381-389.

[94] World Health Organisation. Composite International Diagnostic Interview (CIDI) Version 1.0. Geneva: World Health Organisation, 1990.

[95] Robins LN, Wing J, Wittchen H-U, Helzer JE. The Composite International Diagnostic Interview: an epidemiologic instrument suitable for use with different diagnostic systems and in different cultures. Archives of General Psychiatry 1988;45:1069-1077

[96] Wittchen H-U, Robins LN, Cottler LB, Sartorius N, Burke JD, Regier DA, and participants in the WHO/ADAMHA Field Trials. Cross-cultural feasibility, reliability and sources of variance in the Composite International Diagnostic Interview (CIDI). British Journal of Psychiatry 1991;159:645-653.

[97] Kessler RC, McGonagle KA, Zhao S, Nelson CB, Hughes M, Eshleman S, Wittchen H-U, Kendler KS. Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States: Results from the National Comorbidity Survey. Archives of General Psychiatry 1994;51:8-19.

[98] Australian Bureau of Statistics. Mental Health and Wellbeing Profile of Adults. Canberra: Commonwealth of Australia, 1998. (ABS Cat No 4326.0).

[99] Kessler RC, Frank RG, Edlund M, Katz SJ, Lin E, Leaf P. Differences in the use of psychiatric outpatient services between the United States and Ontario. New England journal of medicine 1997;336:551-557.

[100] Spitzer RL, Williams JBW, Gibbon M, First MB. The structured clinical interview for DSM-III-R (SCID). I: history, rationale, and description. Archives of General Psychiatry 1992;49:624-629.

[101] Williams JBW, Gibbon M, First MB, Spitzer RL, Davies M. Borus J, Howes MJ, Kane J, Harrison GP Jr, Rounsaville B, Wittchen H-U. The structured clinical interview for DSM-III-R (SCID). II: multisite test-retest reliability. Archives of General Psychiatry 1992;49:630-636.

[102] Bland RC. Editorial: The Mental Health Supplement to the Ontario Health Survey. Canadian Journal of Psychiatry 1996;41:541-542.

[103] Boyle MH, Offord DR, Campbell D, Catlin G, Goering P, Lin E, Racine YA. Mental Health Supplement to the Ontario Health Survey: Methodology. Canadian Journal of Psychiatry 1996;41:549-558.

[104] Offord DR, Boyle MH, Campbell D, Goering P, Lin E, Wong M, Racine YA. One-year prevalence of psychiatric disorder in Ontarians 15 to 64 years of age. Canadian Journal of Psychiatry 1996;41:559-563.

[105] Goering P, Lin E, Campbell D, Boyle MH, Offord DR. Psychiatric disability in Ontario. Canadian Journal of Psychiatry 1996;41:564-571.

[106] Lin E, Goering P, Offord DR, Campbell D, Boyle MH. The use of mental health services in Ontario: Epidemiologic findings. *Canadian Journal of Psychiatry* 1996;41:72-577.

9 Promotion and Prevention

Mental health promotion and prevention interventions are key components of an evidence-based mental health framework. Promotion and prevention initiatives incorporate broad social interventions, as well as skills and knowledge enhancement for children, adolescents, adults and older adults.

More prevention opportunities exist in the 0-17 age group, particularly for younger ages, before the onset of many mental disorders. Prevalence for the first onset of most mental disorders increases during adolescence, peaking in the 18-24 year old age group, For adults, most opportunities focus on providing prevention initiatives for adverse life events such as bereavement and loss, loss of employment, retirement, traumatic events, life threatening or chronic physical illness.

The level of mental health staff involvement in prevention programs will vary, with the highest level of involvement in indicated programs and least for universal prevention programs. More general health promotion staff will be involved in delivering universal and some selective prevention programs, supported by mental health staff.

9.1 THE PROMOTION AND PREVENTION WORKING GROUP (PPWG)

The Promotion and Prevention Working Group (PPWG) was formed to consider the scope and details of Prevention for the Project.

The group was set these tasks

- Determine what level of evidence is required for an intervention to be regarded as effective or efficacious
- Determine which interventions we would consider to be efficacious /effective
- For each intervention determine the target group in which the intervention can be recommended
- Determine the best methods/conditions under which it should be implemented.
- Determine the number of hours/or sessions the program /names of programs.
- Determine which Staff Category / Staff Type would be best placed to provide the intervention

The group determined that individuals who are already in the ‘Mild’ ‘Moderate’ or ‘Severe’ populations (ie have one or more diagnoses) are to be excluded as they are already being addressed by the care packages.

The group noted that activities such as suicide prevention could benefit both whole populations and specific individuals with mental illness at risk of suicide.

Population based interventions for those at risk for any disorder was the core focus of the work of the PPWG. Members considered targeting particular population (sub-syndromal, pregnant women etc) to promote better effectiveness of functions.

Members discussed the scope of illness prevention relative to cognitive impairment and agreed that it was in scope as a targeted population for preventative activity.

Members discussed the diversity in the level of evidence and noted that there were some activities that may have little robust evidence but might be considered higher priorities for investment than other programs more traditionally supported. Members agreed to provide advice for implementation regarding priorities for investment and/or further research.

The group reviewed and agreed to use the classification of evidence used in research by Cathrine Mihalopoulos et al (2011)[107].for details, see **Level of Evidence Classification.** Six categories are identified in the research with specific criteria that refers to the strength of the evidence. To these six categories, the NMHSPF project added a seventh: **Consensus of expertise**.

Note: the strength of evidence does not necessarily relate to the efficacy of the intervention, but rather the strength of the evidence.

9.2 DEVELOPMENT OF THE PROMOTION AND PREVENTION STREAMS

Within the NMHSPF project, the Promotion and Prevention service elements were explored and described in great detail. A number of items of research work were commissioned to review the research and evaluate the level of evidence for each of the items.

See **section 10 Commissioned Research Work** for details.

The Promotion and Prevention Working Group members reviewed the evidence and then decided the items to be included or excluded in the taxonomy.
All service elements are described in the Service Elements and Descriptions document, with those currently excluded in the appendix 2 of the document.
Later iterations of the model may include these items, if the level of evidence at that time is sufficient.

The members agreed to model Promotion and Prevention as individual care packages in each age group, including only the Service Category level taxonomy items, each with a dollar figure. Later it was agreed to roll up these dollar amounts and represent it at the Service Stream level only ie Promotion, and Prevention.
It was noted that different jurisdiction will want to use different methods to deliver the promotion and prevention stream. Modelling at a high level dollar figure, with all the details in the service elements and descriptions document, will allow flexibility ion the delivery methods.

9.3 INDICATED PREVENTION POPULATIONS

Research based on the National Survey of Mental Health and Wellbeing (NSMHWB) was conducted to determine the population of people who access mental health care, but don't qualify for a mental health diagnosis.

It was agreed108 to model these groups as they represent individuals who may be accessing care to maintain their wellbeing after being acutely unwell and also those who may be accessing care because they are escalating towards their first diagnosis of mental illness, or have a known risk factor for mental illness and so are being monitored or accessing prevention services.

Additional Indicated Prevention (ie not diagnosed) populations are also identified in the model. For example, in the Child and Adolescent age groups, COPMI packages are provided for care of children of mentally ill parents. The children receive this care regardless of their own status of diagnosis. If they are diagnosed with a mental illness, then they would be also included in the COPMI care in addition to care for their own diagnosis under another care package.

A number of need groups were identified, as summarised in the table below:

[107] Mihalopoulos, C., Vos, T;, Pirkis, J and Carter, R. (2011) "The Economic Analysis of Prevention in Mental Health Programs", *Annual Review of Clinical Psychology 2011*. 7:169–201
[108] As agreed in the Modelling Group Meeting 21 May 2013.

Table 13 - Indicated Prevention Care Packages

Care Package	Description
SSD_CBCL	Sub Threshold Child Behaviour Checklist
SSD_COPMI_Extreme	Children of Parents with a Mental Illness at "Extreme Risk"
SSD_COPMI_High	Children of Parents with a Mental Illness at "High Risk"
SSD_LT_MA	Subsyndromal, Lifetime Mood/ Anxiety, not 12 month
SSD_OTH_IND	indicated prevention - Not Lifetime, Not 12month, Other Indicator)

Table 14 - Indicated Prevention modelling for the age groups

	Age Group				
Care Package	0-4	5-11	12-17	18-64	65+
SSD_CBCL		Y	Y		
SSD_COPMI_Extreme	Y	Y	Y		
SSD_COPMI_High	Y	Y	Y		
SSD_LT_MA				Y	Y
SSD_OTH_IND				Y	Y

9.3.1 Collaborative Partnerships

Collaborative partnerships are required for effective delivery of the proposed model. Some other service providers, such as general practitioners, paediatricians, generic community services and even adult mental health services will be involved across all age-groups for children and adolescents. Other partnerships, such as those with maternal and early childhood health services, child and family health services, youth health services, drug and alcohol services, education and youth justice services, may be more specific to particular age groups.

Collaborative partnerships between specialist mental health services and other service providers have been recognised as essential requirements for coordinated and comprehensive service provision.[109] However, this important component has not routinely been quantified in previous service plans.

9.3.2 Components

Prevention initiatives vary in comprehensiveness in terms of who is targeted in the program (including children, parents and/ or teachers), as well as the length of time over which the program is conducted.

Components of prevention programs include set up time, administration throughout the program, screening (for indicated and some selective programs), delivery and follow-up. NOTE: the proportion of mental health workers' time spent on these components may differ from that of mental health workers in other mental health programs (note: in general, for workers the following proportions are allocated: 67% client direct time and 33% other time).

The resources required in the set up phase of prevention programs may be more substantial than in other mental health programs due to the fact that prevention programs often occur in settings outside of mental health services. This requires resources for liaison/ consultation with staff from the setting involved,

[109] Kurtz Z. Treating children well: a guide to the evidence base in commissioning and managing services for the mental health of children and young people. London: The Mental Health Foundation, 1996.

organisation and training of relevant staff in the other settings to establish and deliver the prevention program. Over time it is proposed that less mental health resources would be required mainly including the provision of ongoing support for generalist health workers providing these programs.

10 Commissioned Research Work

During the project a number of works were commissioned:-

University of QLD (QLD Centre for Mental Health Research)

- To revise the work by Mayberry et al (2005) ie COPMI Report - *Estimating the number of children and parents in families affected by parental mental illness' with spreadsheet detailing the calculations used in the report.*
- Report - Estimating Demand for Respite Care
- Report - Estimating Demand for services for subsyndromal populations (also contains additional analyses for the adult population)
- 'Estimating the cost of psychiatric medication use attributable to psychiatric conditions'. Final report anticipated to be submitted to us on Friday, 6 September 2013 (as advised by Meredith Harris)

University of Melbourne (General Practice and Primary Health Care Academic Centre, Department of General Practice)

- Estimating the prevalence of current and future mental disorders among primary care patients with sub-threshold depressive symptoms (subsyndromal population)

University of Melbourne (Melb School of Population and Global Health)

- Research evidence regarding mental health promotion

Monash University Vic (Monash Alfred Psychiatry Research Centre

- Report - *Specialised Mental Health Community Support Services: Evidence Review*

Black Dog Institute (Randwick)

- Research component for suicide prevention work for the NMHSPF Project

School of Psychology – University of NSW

- Evidence Report – *Brief Analysis of the Effectiveness of Interventions for the Prevention of Aggression, Violence, Antisocial, Conduct Disorder, Externalising*

School of Applied Psychology and Griffith Health Institute Griffith University (Mt Gravatt Campus)

- Paper – *Overview of the evidence supporting interventions for the prevention of PTSD (For NMHSPF)*

School of Psychological Science – La Trobe University

- *Prevention of Body Image and Eating Disorders– Rapid Review*

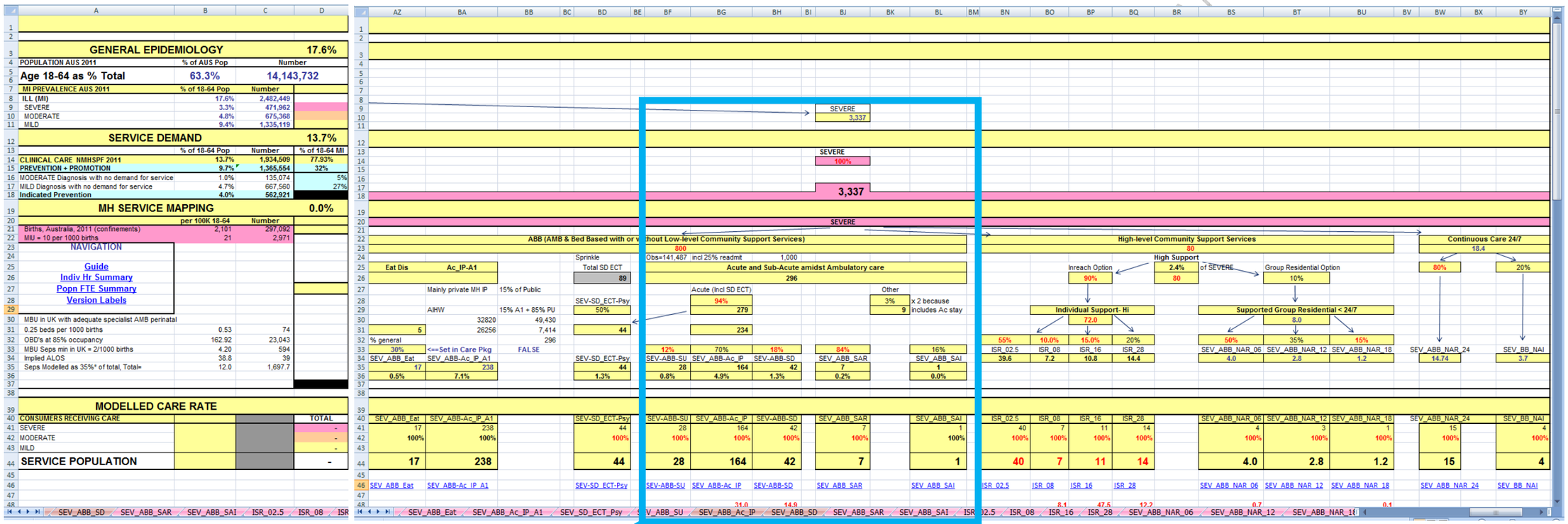
11 Modelling the Numbers of People Receiving Care

11.1 MODELLING NUMBERS OF PEOPLE – THE FLOWCHART

The modelling for each age group starts with the flowchart, which calculates the numbers of people requiring care in the various need groups.

The figure below shows a portion of the 18-64 flowchart, and the calculations are described on the following page.

Figure 12 – Portion of 18-64 yrs Age Group Flowchart



Figures shown above are modelled per 100,000 18-64 years.

This section is enlarged and the flowchart workings are described on the next page.

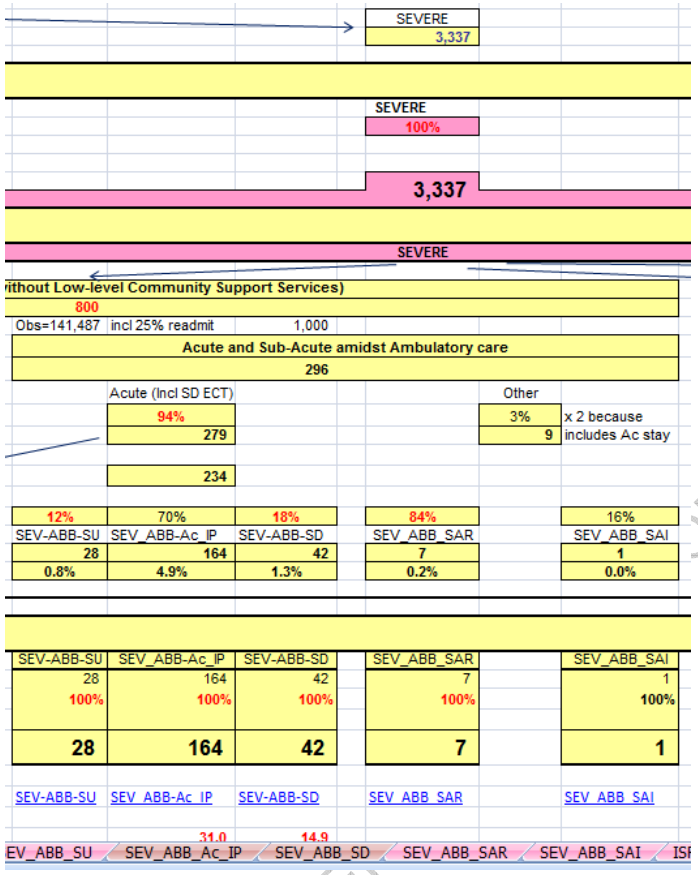
The figure below is an expanded portion of the figure on the previous page,

One care package is identified: Age 18-64, SEV_ABB-Ac_IP,

The care package details are shown on the next page.

This care package is used as the example in the sections Modelling Annual FTE Staff Resources and Modelling Annual Bed Resources.

Figure 13 – Portion of 18-64 yrs Age Group Flowchart, with explanations



The age specific populations are split, via the Service Mapping, into: people with no current mental illness, Indicated Prevention, MILD, MODERATE and SEVERE, levels of illness across a range of Need Groups.

The service populations are the estimated percentage of consumers reached in these categories, and has been set uniformly across the age groups to Service Demand Rates of 50% (MILD), 80% (MODERATE) and 100% (SEVERE). Different rates are used for the Indicated Prevention groups.

These groups are further split into defined need groups.

These are numbers of people who will receive care under each care package and standalone item (sprinkle).This is known as the **Care Package Treatment Rate (CP-TR**)

Care Packages were developed for each need group. This is the need group used in examples on the following pages.

An example Care Packages is shown on the next page.

11.2 CARE PACKAGE DETAILS

Age **18-64**, **SEV_ABB-Ac_IP** (Severe, Ambulatory and Bed-Based, with including hospital stay in specialist mental health Acute unit)

Figure 14 - example care package

Care Package Title: SEV_ABB-Ac_IP (Severe, Ambulatory and Bed-Based, including hospital stay in specialist mental health Acute unit)

Description: Severe, Ambulatory and Bed-Based, including hospital stay in specialist mental health Acute unit — Flowchart

18-64

164.0 per 100K age 18-64 (Acute IP demand less 12% diverted to step-up and 18% diverted thru step-down (Queensland IP survey data from Dan Siskind) — 4.9% of SEV

23,189 Total persons, AUS June 2011

Total number of people in age group receiving care under this care package

Description of Epidemiology

Estimate 51009 which is the Ambulatory and Bed Based total (120982) discounted by Private (31%), Subacute Step up/down (30%) and estimates for Mother Baby services (1054 from MH-CCP), Early psychosis (4177 from MH-CPP) and estimates for Subacute rehab and intensive services (2194) from planning targets from QLD- MHP 2007. Assumes 15% diversion to Acute intensive care unit with alos of 7 days. Ambulatory care package discounted for inpatient stay.

Epidemiology – how the numbers are derived for this group of people

Description of Group

Individuals experiencing severe symptoms of mental illness, often with behavioural disturbance which has not responded to treatment in a less restrictive setting. Primary diagnoses usually include schizophrenia, psychosis or severe mood illness. Co-morbid or concurrent secondary illnesses such as substance abuse are common. People with complicated, severe adjustment illnesses and personality illnesses may also be admitted. Intensive Care Units (ICU) provide safe, secure support to people who require containment, stabilisation and engagement in a therapeutic relationship. In general terms, people admitted to an ICU experience a high level of behavioural disturbance and mental illness complexity such that management in a general mental health acute unit is not possible.

Description of the group of people

Taxonomy Ref No.	Activity	% Pop'n applicable	No. of Occasions of Service	check	Activity Duration	Activity measure	Staff Cat*	Label	Comment	Staff ratio
zz	< Enter taxonomy code at left. Cells will populate automatically. Copy this row over all new rows that you create !!	100%		x		min	Only choose indented staff categories if			1
AR2	Intensive Community Treatment Team- Adult - 18 - 64 years	100%	24	Am	60	min	Staffing Profile template		60 mins discounted here for the AY1 and AY2 Pharmacotherapy prescription and reviews	1
AB	Acute Care Services	20%	8	Am	90	min	Staffing Profile template			1
AM3	General Physical Health Monitoring & Ongoing Management	100%	4	In	30	min	GP - Medical			1
IR	Individual Support and Rehabilitation	75%	50	Co	90	min	Staffing Profile template		Reduced by 75% of IP stay only	1
IP1	Individual Peer Work	25%	50	In	90	min	Consumer Peer Worker		Reduced by 75% of IP stay only	1
GR	Group Support and Rehabilitation	50%	11	Co	60	min	Staffing Profile template		see staffing profile - group - 2 hours once per week; 2 providers; 12 participants	1/6
GP2	Group Based Peer Work - Severe	50%	25	Co	60	min	Staffing Profile template		group - 2 hours once per week; 2 providers; 12 participants	1/3
GP4	Group Based Carer Peer Work - Severe	10%	10	Co	60	min	Staffing Profile template			1/3
FG	Group Carer Support Services	10%	10	Co	60	min	Staffing Profile template		group - 2 hours once per week for 10 weeks; 2 providers; 12 participants	1/6
AL	Care Coordination and Liaison	50%	11	In	60	min	Tertiary Qualified			1
AT6	SPT Extended Intervention- Family	20%	3	In	45	min	Tertiary Qualified		**applies across AMB A2, B, C	1
BA	Acute - Adult (18-64 years) (Hospital)	85%	1	Be	14	days	Staffing Profile templat		Was 100% - remodelled to 14 day ALOS with 15% intensive	1
BI	Acute - Intensive Care Unit (Hospital)	15%	1	Be	14	days	Staffing Profile template		Was15% 7 days% - remodelled top 14 day ALOS with 15% intensive	1
AY1	Pharmacotherapy Prescription	100%	1	In	15	min	Psychiatrist - Medical		this time was discounted from the intensive community team time	1
AY2	Pharmacotherapy Review	100%	3	In	15	min	GP - Medical		this time was discounted from the intensive community team time	1
						min				1

Examples of staff modelled via different level and methods

Ambulatory Team

Staff to participant ratio is specified for care provided to groups of people

Workforce Category

Bed Based Team

Regarding the people receiving care under this care package, 85% will have a stay in an acute bed, and 15% will have a stay in an Intensive care bed

Staff Type

12 Modelling Staff

12.1 MODELLING STAFF - SUMMARY

The modelling for staff firstly was categorised by workforce and staff type. For full details see **section 6.7 Workforce Categories and Staff Types.**

The key table from that section is repeated below

Table 15 - Workforce Categories and Staff Types

Workforce Categories	Staff Types
Peer Worker	Consumer Peer Worker
	Carer Peer Worker
Vocationally Qualified	MH Worker
	Enrolled Nurse
	Other Vocationally Qualified
Tertiary Qualified	Nurse Practitioner
	Nurse
	Social Worker
	Psychologist
	Occupational Therapist
	Other (eg Pharmacist)
Medical	GP
	Psychiatrist
	Specialist Other (eg geriatricians and paediatricians)
	Registrar
	Junior Medical Officer

Team Staffing profiles were then built to reflect the mix of staff in teams and as individuals.

For full details see **section 6.8 Staffing Profiles.** The key tables from that section are repeated below for ease of reference.

Table 16 - Ambulatory Teams

Ambulatory Teams
Individual Practitioners – Severe (Commonwealth Funded GP, Allied health, Nurse, Psychiatrist)
Acute Care Services
Consultation Liaison - General (Hospital)
Consultation Liaison - Emergency Department (Hospital)
Intensive Community Treatment Team - Older Adult 65+ years
Intensive Community Treatment Team - CandA 0 - 17 years
Intensive Community Treatment Team- Adult - 18 - 64 years
Day Program Team - CandA 0 - 17 years
Day Program Team - Adult - 18 - 64 years

Table 17 - Bed Based Teams

Bed Based Teams
Acute - Perinatal and Infant Mental Health (Hospital)
Acute - Child and Youth (0-17 years) (Hospital)
Acute - Adult (18-64 years) (Hospital)
Acute - Older Adult (65+ years) (Hospital)
Acute - Older Adult (65+ years BPSD) (Hospital)
Acute - Adult Eating Disorders (Hospital)
Acute - Intensive Care Unit (Hospital)
Acute - Psychiatric Emergency Care Unit (Hospital)
Same Day Admission for Administration of ECT (Hospital)
Step Up/ Step Down - Youth (Residential)
Step Up/Step Down - Adult_(Residential)
Rehabilitation – Adult and Older Adult (Residential)
Sub-Acute Older Adult (65+ years)(Hospital)
Sub-Acute Intensive Care Service (Hospital)
Non-Acute - Intensive Care Service (Hospital)
Non-Acute -Intensive Care Service - Older Adult(65+) (Hospital Based)
Non-Acute - Adult and Older Adult (24 hour support) (Residential)
Non-Acute - Older Adult (Hospital/Nursing Home Based)
Non-Acute - Specialised Services (Hospital/Nursing Home Based)

Table 18 - Community Support Teams

Community Support Teams
Residential Crisis and Respite Services
Flexible Respite
Day Respite
Family Support Services
Group Carer Support Services
Individual Carer Support Services
Individual Support and Rehabilitation
Group Support and Rehabilitation
Group Based Peer Work - Moderate
Group Based Carer Peer Work - Moderate
Group Based Peer Work - Severe
Group Based Carer Peer Work - Severe

Table 19 - Individual Workforce Services.

Individual Workforce Services
Individual Practitioners – Mild and Moderate
Individual Practitioners – Severe

These team or individual staff profiles were then specified within the care packages.

12.2 CALCULATING THE ANNUAL FTE STAFF REQUIREMENT

The overall approach to modelling the workforce in each care package item was a top down approach:

- use “Staffing Profile Template”, where the service element has a team, or
- specify workforce category (Peer, Vocationally Qualified, Tertiary Qualified or Medical), or
- specify staff type (only when a specific discipline or level of expertise was required)

This means that care provided by a specific Staff Type, eg Nurse, can be specified at in a number of ways : Workforce Category = Tertiary Qualified, staff type = Nurse, and also in one of the many teams that includes Nurse, eg Acute - Child and Youth (0-17 years) (Hospital).

To calculate annual staff FTE hours required, there are two methods, according to activity measure:-

a) activity measure = Days (ie for bed based teams), includes bed readmission rate in the calculations

b) activity measure = Hours or /minutes

12.2.1 Calculating Care Hours Required for Activities Measure in Days

In the Care package, the line item shows Activity measure = **days** and staff Cat = “Staffing Profile Template” .These specify bed based service elements, and staff are represented in teams.

The bed Readmission Rate is included in the calculations.

The first step is to calculate the Bed Days, and then convert to hours required.

Figure 15- Calculating Care Hours Required for Activities Measured in Days

Care Hours Required = Care Package Treatment Rate * % Population applicable * Occasions of service * Average Length of Stay (days) * (1+ Readmission Rate) * 24 hrs per day

The formula shown in the figure above, are detailed in the table below.

Table 20- Calculating Care Hours Required for Activities Measured in Days

Step	Step - Summary	Step – Detailed	Example
A	Identify age group and care package	Identify an age group and care package that includes a bed stay. Individual items within this care package will be used in later calculations.	Age Group: 18-64 Care package: SEV_ABB-Ac_IP : (Severe, Ambulatory and Bed-Based, including hospital stay in specialist mental health Acute unit)
B	Identify Care Package Treatment Rate (CP-TR)	Identify the estimated number of persons seeking treatment under the care package, per 100,000 of age specific population.	B =164 persons per 100,000
C	Identify bed type	Identify the type of bed in the care package	BA: Acute - Adult (18-64 years) (Hospital)
D	Identify % Population applicable (% Pop'n applicable)	% Population applicable is shown in the care package line item/s for this bed, and specifies the percentage of the estimated number of persons seeking treatment under the care package, who will receive this item of care	D = 85%
E	Identify Occasions Of Service	Identify the care package line item/s for this bed, For bed stays, Occasions Of Service specifies the number of times this bed stay occurs. For bed stays this has been modelled as = 1	1
F	Identify Average Length of Stay (ALOS) from the care package	This is shown in the care package line item/s for this bed, under Activity Duration, with Activity Measure = Days	F =14 days

Step	Step - Summary	Step – Detailed	Example
G	Within Bed based staffing profiles, identify the spreadsheet (tab) for the bed type	Tab = AcuteAdult For more information on these staffing profile spreadsheets, see **6.8 Staffing Profiles.**	Tab = AcuteAdult 
H	Identify the Bed Based Service Parameters table	These detail the bed specific parameters within the staffing profiles. For details on this table, see **section 13.1.1 Bed Based Service Parameters and calculations**	**Bed Based Service Parameters** Beds: **24** Availability: **100%** Average Available Beds: 24 ABD/Bed/Year: 365 Occupancy: **85%** OBD/Bed Year: 310.3 ALOS (days): **14** Admissions/Bed/Year: 22.16 Annual Readmit Rate: **10%** Patients/Bed/Year: 20.15
I	Identify Annual Readmit Rate	Annual Readmit Rate is in Bed Based Service Parameters table Note when used it is expressed as (1+ Readmit Rate%) indicating 100% of the admission plus the readmission percentage.	I = 10%
J	Calculate Bed Days	Multiply Care Package Treatment Rate (CP-TR) * % Population applicable * Occasions Of Service * Average Length of Stay (ALOS) * (1+ Readmit Rate%)	J = B *D* E * F = 164 * 85% * 1 * 14 * (1+10%) = 2146.76 days per 100,000 for Age Group: 18-64 and Care package: SEV_ABB-Ac_IP : (Severe, Ambulatory and Bed-Based, including hospital stay in specialist mental health Acute unit)

Step	Step - Summary	Step – Detailed	Example
K	Calculate Care Hours Required	Multiply Bed Days * 24 (hrs per day)	K=J * 24 = 2146.76 * 24 =51,522.24 hours of teamBA: Acute - Adult (18-64 years) (Hospital) team time per 100,000 for Age Group: 18-64 and Care package: SEV_ABB-Ac_IP : (Severe, Ambulatory and Bed-Based, including hospital stay in specialist mental health Acute unit)
L	Accumulate hours into totals	See **section 12.2.3 Calculating Staff FTE Numbers Required.** for converting accumulated hours into Staff FTE numbers required	Staffing Profile Template (Team) total hours are accumulated

Note As these hours are accumulated they are stored in a multi-dimensional database, so the reports can be produced via pivot table, and can be filtered and reported in numerous ways, for example by age groups, care packages, severity, service element, etc, and custom reports can be created.

12.2.2 Calculating Care Hours Required for Activities Measured in Hours or Minutes

In the Care package, the line item shows Activity measure = **Hours** or **Minutes.**

Staff may be represented by staff type, Workforce Category or Staffing profile Template (Team).

Care specified in minutes is converted to hours before during calculation.

Figure 16- Calculating Care Hours Required for Activities Measured in Hours or Minutes

Care Hours Required = Care Package Treatment Rate * % Population applicable * Occasions of service * Activity Duration (Hrs or mins)

The formula at figure above, is detailed in the table below.

Table 21- Calculating Care Hours Required for Activities Measured in hours or minutes

Step	Step - Summary	Step – Detailed	Example
A	Identify age group and care package	Identify an age group and care package with Activity Measure in minutes or hours. Individual items within this care package will be used in later calculations.	Age Group: 18-64 Care package: SEV_ABB-Ac_IP : (Severe, Ambulatory and Bed-Based, including hospital stay in specialist mental health Acute unit)
B	Identify Care Package Treatment Rate (CP-TR)	Identify the estimated number of persons seeking treatment under the care package, per 100,000 of age specific population.	B =164 persons per 100,000
C	Identify Service Element	Identify the service element in the care package line with Activity Measure in minutes or hours	AB Acute Care Services
D	Identify % Population applicable (% Pop'n applicable)	Identify % Population applicable shown for this care package line item. It specifies the percentage of the estimated number of persons seeking treatment under the care package, who will receive this care	D = 20%
E	Identify Occasions Of Service	Identify the Occasions Of Service shown for this care package line item	D=8
F	Identify Activity Duration	Identify the Activity Duration shown for this care package line item	F =90
G	Identify Activity Measure	Identify the Activity Measure shown for this care package line item	G=minutes

Step	Step - Summary	Step – Detailed	Example
H	Calculate Activity Duration in Hours	Activity Duration Hours = Activity Duration (minutes) / 60	H= minutes/60 = 90 / 60 = 1.5 hours
I	Calculate Care Hours Required	Multiply Care Package Treatment Rate (CP-TR) * % Population applicable * Occasions Of Service * Activity Duration in Hours *	I = B *D* E * H = 164 * 20% * 8 * 1.5 * 1 =393.6 hours NOTE this is per 100,000 of age group **18-64** years for care package **SEV_ABB-Ac_IP** and Service element :**Acute Care Services** delivering 8 occasions of 90 minutes of care
J	Identify Staff Cat	This details the staff level specified • team (”Staffing Profile Template”) • workforce Category (Peer, Vocationally Qualified, Tertiary Qualified or Medical), • Staff Type eg Nurse	J = ”Staffing Profile Template” This means a team is specified, which relates to the service element, eg Acute Care Services Team
K	Accumulate hours into totals	If the Staff Cat = ”Staffing Profile Template” ,then	**Staffing Profile Template (Team) total hours** are accumulated
		If the Staff Cat = a Workforce Category, then	**Workforce Category total hours** are accumulated
		If the Staff Cat = a Staff Type, then	**Staff type Total hours** are accumulated
		See section **12.2.3 Calculating Staff FTE Numbers Required**. for converting accumulated hours into Staff FTE numbers required	

Note As these hours are accumulated they are stored in a multi-dimensional database, so the reports can be produced via pivot table, and can be filtered and reported in numerous ways, for example by age groups, care packages, severity, service element, etc, and custom reports can be created.

12.2.3 Calculating Staff FTE Numbers Required

Staff FTE Numbers required can only be calculated after the hours have been accumulated for :-

- Staffing Profile Template (Team) total hours
- Workforce Category total hours, and
- Staff type Total hours

Note As these hours are accumulated they are stored in a multi-dimensional database, so the reports can be produced via pivot table, and can be filtered and reported in numerous ways, for example by age groups, care packages, severity, service element, etc, and custom reports can be created.

Calculating Staff FTE Numbers Required for Total Hours- Team

When the service element within the care package specifies a team profile, the hours required are accumulated at the Team level. The Total hours required of the team must first be split into hours required of the individual staff types that comprise the team, and then Staff FTE numbers required can be calculated.

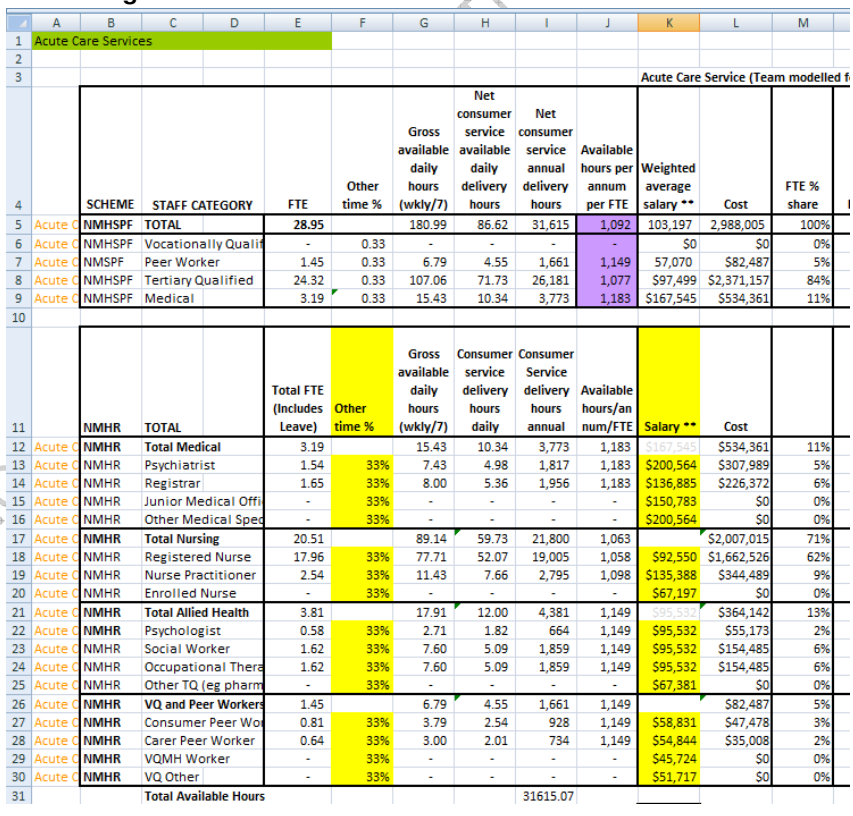
Figure 17 -Calculating Staff FTE Numbers Required for total Hours - Team

$$\text{Staff FTE Numbers Required} = \frac{\text{staff type share of team} * \text{Team Hrs required}}{\text{Available hours per Annum for the staff type in the team}}$$

The formula at figure above, is detailed in the table below.

Table 22- Calculating Staff FTE Numbers Required for Total Hours - Team

Step	Step - Summary	Step – Detailed	Example
A	Identify Staffing Profile Template (Team) total hours	Staffing Profile Template (Team) total hours calculation is shown in previous tables.	A= 55,653.6 (hours of team time for age group 18-64 yrs, Acute Care Services Australia wide, for example)
B	Identify team type	• Ambulatory, or • Bed based, or • Community Support, or • Individual Practitioner	Taking the example from the previous table, Acute Care Services, this is an Ambulatory team
C	Within the team type staffing profile spreadsheet, identify the spreadsheet (tab) for the team	Ambulatory Teams Staffing Profiles spreadsheet, team= Acute Care Services so the Tab = AcuteCareServices For more information on these staffing profile spreadsheets, see **section 6.8 Staffing Profiles.**	
D	Identify staff type	Select a Staff Type, eg Registered Nurse	Registered Nurse
E	Identify staff type share of team for the staff type (FTE% Share or Hours/day/person)	This column specifies the Staff Type share of the team time. For bed based services it is called Hours/day/person, for all other services, it is called FTE% Share	E = FTE% Share = 62%



	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Acute Care Services												
2													
3											Acute Care Service (Team modelled f		
4		SCHEME	STAFF CATEGORY	FTE	Other time %	Gross available daily hours (wkly/7)	Net consumer service available daily delivery hours	Net consumer service annual delivery hours	Available hours per annum per FTE	Weighted average salary **	Cost	FTE % share	
5	Acute C	NMHSPF	TOTAL	28.95		180.99	86.62	31,615	1,092	103,197	2,988,005	100%	
6	Acute C	NMHSPF	Vocationally Quali	-	0.33	-	-	-	-	$0	$0	0%	
7	Acute C	NMSPF	Peer Worker	1.45	0.33	6.79	4.55	1,661	1,149	57,070	$82,487	5%	
8	Acute C	NMHSPF	Tertiary Qualified	24.32	0.33	107.06	71.73	26,181	1,077	$97,499	$2,371,157	84%	
9	Acute C	NMHSPF	Medical	3.19	0.33	15.43	10.34	3,773	1,183	$167,545	$534,361	11%	
10													
11		NMHR	TOTAL	Total FTE (Includes Leave)	Other time %	Gross available daily hours (wkly/7)	Consumer service delivery hours daily	Consumer Service delivery hours annual	Available hours/annum/FTE	Salary **	Cost		
12	Acute C	NMHR	Total Medical	3.19		15.43	10.34	3,773	1,183	$167,545	$534,361	11%	
13	Acute C	NMHR	Psychiatrist	1.54	33%	7.43	4.98	1,817	1,183	$200,564	$307,989	5%	
14	Acute C	NMHR	Registrar	1.65	33%	8.00	5.36	1,956	1,183	$136,885	$226,372	6%	
15	Acute C	NMHR	Junior Medical Offi	-	33%	-	-	-	-	$150,783	$0	0%	
16	Acute C	NMHR	Other Medical Spec	-	33%	-	-	-	-	$200,564	$0	0%	
17	Acute C	NMHR	Total Nursing	20.51		89.14	59.73	21,800	1,063		$2,007,015	71%	
18	Acute C	NMHR	Registered Nurse	17.96	33%	77.71	52.07	19,005	1,058	$92,550	$1,662,526	62%	
19	Acute C	NMHR	Nurse Practitioner	2.54	33%	11.43	7.66	2,795	1,098	$135,388	$344,489	9%	
20	Acute C	NMHR	Enrolled Nurse	-	33%	-	-	-	-	$67,197	$0	0%	
21	Acute C	NMHR	Total Allied Health	3.81		17.91	12.00	4,381	1,149	$95,532	$364,142	13%	
22	Acute C	NMHR	Psychologist	0.58	33%	2.71	1.82	664	1,149	$95,532	$55,173	2%	
23	Acute C	NMHR	Social Worker	1.62	33%	7.60	5.09	1,859	1,149	$95,532	$154,485	6%	
24	Acute C	NMHR	Occupational Thera	1.62	33%	7.60	5.09	1,859	1,149	$95,532	$154,485	6%	
25	Acute C	NMHR	Other TQ (eg pharm	-	33%	-	-	-	-	$67,381	$0	0%	
26	Acute C	NMHR	VQ and Peer Workers	1.45		6.79	4.55	1,661	1,149		$82,487	5%	
27	Acute C	NMHR	Consumer Peer Wo	0.81	33%	3.79	2.54	928	1,149	$58,831	$47,478	3%	
28	Acute C	NMHR	Carer Peer Worker	0.64	33%	3.00	2.01	734	1,149	$54,844	$35,008	2%	
29	Acute C	NMHR	VQMH Worker	-	33%	-	-	-	-	$45,724	$0	0%	
30	Acute C	NMHR	VQ Other	-	33%	-	-	-	-	$51,717	$0	0%	
31			Total Available Hours					31615.07					

Step	Step - Summary	Step – Detailed	Example
F	Identify Available hours per Annum/FTE for the staff type	Available hours per Annum/FTE is a measure of Consumer Service Delivery Time available per year for this staff type in this team. Values vary across staff types and for the same staff type across different teams. For details see **section 6.9.2 Consumer Service Delivery Time and Other Time**	F = Available hours per Annum = 1,058
G	Calculate Staff Type hours	Staff Type hours = staff type share of team * Staffing Profile Template (Team) total hours When staff type share of team is= Hours/day/person	G = E * A = FTE% Share * TEAM Hrs = 62% * 2650 = 1643 hours for Registered Nurse
H	Calculate Staff FTE Numbers Required	Staff FTE Numbers Required = Individual Staff Type Hours / Available hours per Annum/FTE	H = G / E = 1643 / 1,058 = 1.55 of FTE Registered Nurse

Note As these Staff FTE Numbers Required are calculated, they are also accumulated into the Workforce Category FTE numbers required.

For example: FTE Consumer Peer Worker Numbers Required are accumulated into the Workforce Category Peer Worker FTE numbers required.

Calculating Staff FTE Numbers Required for Total Hours - Staff Type

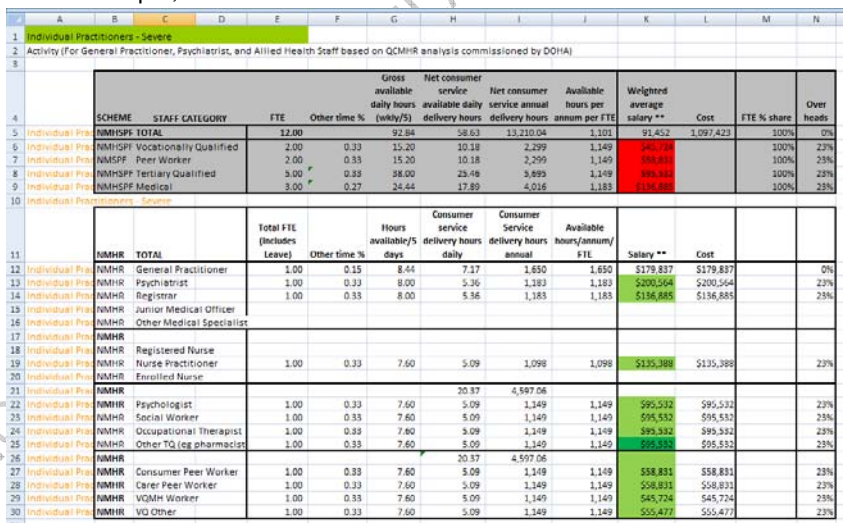
When the service element within the care package specifies a Staff Type, the hours required are accumulated at the Staff Type level. The Staff Type FTE Numbers Required can be calculated from the Staff Type total hours required.

Figure 18 -Calculating Staff FTE Numbers Required for Total Hours - Staff Type

$$\text{Staff FTE Numbers Required} = \frac{\text{Staff Type Total Hours required}}{\text{Available hours per Annum/FTE}}$$

The formula at figure above, is detailed in the table below.

Table 23- Calculating Staff FTE Numbers Required for Total Hours- Staff Type

Step	Step - Summary	Step – Detailed	Example
A	Identify Staff Type	Example = Consumer Peer Worker	Consumer Peer Worker
B	Identify Staff Type Total Hours required	Staff Type Total Hours required calculation is shown in previous tables.	A= 2650 (as an example)
C	Identify Care Package severity	When Total Hours are calculated, they are stored in a multi-dimensional database, along with details such as Care Package and severity. Example care package = Care package: SEV_ABB-Ac_IP : (Severe, Ambulatory and Bed-Based, including hospital stay in specialist mental health Acute unit)	Severe
D	Within the Individual Practitioner Staffing Profile spreadsheet, select the tab for the care package severity	Ie IndivPractitionersMildMod Or IndivPractitionersSevere In this example, tab = IndivPractitionersSevere 	
E	Identify Available hours per Annum/FTE for the staff type	Available hours per Annum/FTE is a measure of Consumer Service Delivery Time available per year for this staff type, as an individual practitioner and not part of any team. For details see **section 6.9.2 Consumer Service Delivery Time and Other Time**	E = Available hours per Annum/FTE = 1,149 for Consumer Peer Worker, as individual practitioner
F	Calculate Staff FTE Numbers Required	Staff Type Total Hours required / Available hours per Annum/FTE	F = B / E = 2,650 / 1,149 = 2.31 of FTE Consumer Peer Worker

Note As these Staff FTE Numbers Required are calculated, they are also accumulated into the Workforce Category FTE numbers required.

For example: Totals for FTE Consumer Peer Worker Numbers Required are accumulated into the totals for Workforce Category Peer Worker FTE numbers required.

Calculating FTE Numbers Required for Total Hours- Workforce Category

When the service element within the care package specifies a Workforce Category, the hours required are accumulated only at the Workforce Category level and cannot be split to Team or Staff Type.

The Workforce Category FTE Numbers Required can be calculated from the Workforce Category total hours required.

Figure 19 -Calculating FTE Numbers Required for Total Hours - Workforce Category

$$\text{Workforce Category FTE Numbers Required} = \frac{\text{Workforce Category Total Hours required}}{\text{Available hours per Annum/FTE}}$$

The formula at figure above, is detailed in the table below.

Table 24- Calculating FTE Numbers Required for Total Hours – Workforce Category

Step	Step - Summary	Step – Detailed	Example
A	Identify Workforce Category	Example = Vocationally Qualified	Medical
B	Identify Workforce Category Total Hours required	Workforce Category Total Hours required calculations are shown in previous tables.	A= 2650 (as an example)
C	Identify Care Package severity	When Total Hours are calculated, they are stored in a multi-dimensional database, along with details such as Care Package and severity. Example care package = Care package: SEV_ABB-Ac_IP : (Severe, Ambulatory and Bed-Based, including hospital stay in specialist mental health Acute unit)	Severe
D	Within the Individual Practitioner Staffing Profile spreadsheet, select the tab for the care package severity	Ie IndivPractitionersMildMod Or IndivPractitionersSevere In this example, tab = IndivPractitionersSevere	
E	Identify Available hours per Annum/FTE for the Workforce Category	Available hours per Annum/FTE is a measure of Consumer Service Delivery Time available per year for this staff type, as an individual practitioner and not part of any	E = Available hours per Annum/FTE = 1,183 for Medical

Step	Step - Summary	Step – Detailed	Example
		team. For details see **section 6.9.2 Consumer Service Delivery Time and Other Time**	
F	Calculate Workforce Category FTE Numbers Required	Workforce Category FTE numbers required = Workforce Category Total Hours required / Available hours per Annum/FTE	F = B / E = 2,650 / 1,183 = 2.24 of Workforce Category Medical FTE

12.3 MODELLING THE STAFF PRICES

The NMHSPF Modelling Group agreed to model notional national staff prices used in the NMHSPF Estimator Tool based on average national (AIHW) pricing data, where it is available.

12.3.1 Notional national price for Modelled Staff (Team, Bed Based and IP Severe)

Table 22 below contains the notional national average staff prices for i. team and bed based staff; and ii Individual Practitioners working with Severe Mental Illness. [Note: Psychiatrist, Other Medical Specialist and Medical Officer prices include significant costs of Visiting Medical Officers].

Table 25 - Notional national price for Modelled Staff (Team, Bed Based and IP Severe)

Staff	i. Team and Bed Based and ii. Individual Practitioner (IP) Severe MI ($)	Source
Staff Category		
Peer Worker	*Variable on service team mix*	*Staff type prices weighted by service team mix*
Vocationally Qualified	*Variable on service team mix*	*Staff type prices weighted by service team mix*
Tertiary Qualified	*Variable on service team mix*	*Staff type prices weighted by service team mix*
Medical	*Variable on service team mix*	*Staff type prices weighted by service team mix*
Staff Type		
Consumer Peer Worker	**$55,000**	*AIHW nat average (adj. to base and rnd'd) – App. 1*
Carer Peer Worker	**$55,000**	*AIHW nat average (adj. to base and rnd'd) – App. 1*
VQMH Worker	**$40,000**	*AIHW nat average (adj. to base and rnd'd) – App. 1*
Other Vocationally Qualified	**$45,000**	*SCHADS Awards SCSE Level 5 pay point 1 – App. 1*
Enrolled Nurse	**$55,000**	*AIHW nat average (adj. to base and rnd'd) – App. 1*
Nurse Practitioner	**$105,000**	*AIHW nat average + 45% (adj. to base and rnd'd) – App. 1*
Registered Nurse	**$70,000**	*AIHW nat average (adj. to base and rnd'd) – App. 1*
Social Worker	**$75,000**	*AIHW nat average (adj. to base and rnd'd) – App. 1*
Psychologist	**$80,000**	*AIHW nat average (adj. to base and rnd'd) – App. 1*
Occupational Therapist	**$75,000**	*AIHW nat average (adj. to base and rnd'd) – App. 1*
Other TQ	**$70,000**	*AIHW nat average (adj. to base and rnd'd) – App. 1*
General Practitioner	**$240,000**	*Calculated using Medicare rates and QCMHR estimates of direct person related hours – App 2*
Psychiatrist	**$245,000**	*AIHW nat average (adj. to base and rnd'd) – App. 1*
Other Medical Specialist	**$245,000**	***†Includes VMO costs***
Registrar	**$105,000**	*AIHW nat average (adj. to base and rnd'd) – App. 1*

Medical Officer	**$160,000**	*AIHW nat average (adj. to base and rnd'd) – App. 1* ***†Includes VMO costs***

Notes
1. Oncosts and penalty rates are not included in the staff (excl. GPs) prices shown in Table 22 A % for oncosts and penalty rates and a further % for overheads will be applied when estimating costs.

Table 23 below contains the notional national average staff prices for Individual Practitioners working with Mild and Moderate mental Illness.

12.3.2 Notional national price for Modelled Staff (IP Mild and Mod)

Table 26 - Notional National Price for modelled Staff (IP Mild and Mod)

Staff	iii. Individual Practitioner (IP) Mild and Mod MI	Source
Staff Category		
Peer Worker	**$55,000**	*AIHW nat average (adj. to base and rnd'd) – App. 1*
Vocationally Qualified	**$40,000**	*AIHW nat average (adj. to base and rnd'd) – App. 1*
Tertiary Qualified	**$130,000**	*Calculated using Medicare rates and QCMHR estimates of direct person related hours – App. 4*
Medical	**$240,000**	*Calculated using Medicare rates and QCMHR estimates of direct person related hours – App. 2*
Staff Type		
Occupational Therapist	**$130,000**	*Calculated using Medicare rates and QCMHR estimates of direct person related hours – App. 5*
General Practitioner	**$240,000**	*Calculated using Medicare rates and QCMHR estimates of direct person related hours – App. 2*
Psychiatrist	**$255,000**	*Calculated using MABEL Survey data and QCMHR estimates of direct person related hours – App. 3*

Notes
1. Oncosts and penalty rates are not included in the Peer Worker and Vocationally Qualified staff category prices shown in Table 23. A % for oncosts and penalty rates and a further % for overheads will be applied when estimating costs.
2. Due to data limitations and the method of calculation, oncosts, penalty rates etc are already included in the staff prices shown in Table 23 for Individual Practitioners (Tertiary Qualified, Medical) working with mild and moderate mental illness. An additional % will not be applied for penalty rates and overheads.

It should also be noted that:

1. These notional prices enable the NMHSPF Estimator Tool to estimate the cost of modelled resources. They are not intended as a wage setting activity, or to be used by jurisdictions for budgeting. Jurisdictions will be able to modify these prices in the Estimator Tool;

2. The proposed notional national average (base) staff price for team and bed based staff, Individual Practitioners working with severe mental illness and Individual Practitioners (Peer Worker and Vocationally Qualified Worker) working with mild and moderate mental illness were derived by i. identifying a national average price – used salaries data from MHE National Minimum Data Set 2010-11; ii. removing estimated oncosts (not including superannuation) and penalty rates (using NMHSPF weighted averages) from the national average price; and iii. rounding the results to the nearest $5K. The Other Vocationally Qualified staff price is based on the Social, Community, Home Care And Disability Services (SCHADS) Industry Award 2010 - Social and community services employee level 5 pay point 1. Nurse Practitioners are calculated at 45% more than the national average for nurses (based on Award rates). General Practitioner prices are calculated using Medicare payment rates and QCMHR estimates of direct person related hours. Prices for Individual Practitioners (Medical and Tertiary Qualified) working with mild and moderate mental illness have been calculated using Medicare rates/MABEL Survey data and QCMHR estimates of direct person related hours; and
3. The current draft Estimator Tool (Version 2.4.0) uses Queensland Award[110] rates as the base salary for most of the team based staff types working with persons with severe MI. Rates for 3 staff types - Tertiary Qualified Other, Vocationally Qualified Other and MH Worker are drawn from the Social, Community, Home Care and Disability Services Industry Award 2010 (SCHADS).

[110] Queensland and NSW Award rates appear to be similar for most staff

12.3.3 Notional National Average Price for Team and Bed Based Staff and Individual Practitioner Staff Working with Severe MI

Table 27 - Notional National Price for Team and Bed Based and IP (Severe)

#	NMHSPF Staff Category	#	NMHSPF Staff Type	2010–11 Average Salary (Australia) $	Est. Markup due to Oncosts and Penalty Rates %	2010–11 Average Salary (Australia) less Oncosts and Penalty Rates	Proposed 2010-11 Base Price (rnd'd) $
A	B	C	D	E	F	G = E - (E * F)	H = Round (G)
1.	Peer Worker	1.	Consumer Peer Worker	61,393	9%	56,459	55,000
	Peer Worker	2.	Carer Peer Worker	65,144	9%	59,908	55,000
2.	Vocationally Qualified	3.	MH Worker	49,983	23%	40,707	40,000
	Vocationally Qualified	4.	Other (Vocationally Qualified)	SCHADS Awards rates used			45,000
	Vocationally Qualified	5.	Enrolled Nurse	70,480	28%	55,015	55,000
3.	Tertiary Qualified	6.	Nurse Practitioner	Nurse Salary + 45% (Awards)			105,000
	Tertiary Qualified	7.	Nurse	91,167	28%	71,163	70,000
	Tertiary Qualified	8.	Social Worker	82,178	8%	76,066	75,000
	Tertiary Qualified	9.	Psychologist	87,222	8%	80,735	80,000
	Tertiary Qualified	10.	Occupational Therapist	82,166	8%	76,056	75,000
	Tertiary Qualified	11.	Other (Tertiary Qualified)	77,029	8%	71,300	70,000
4.	Medical	12.	General Practitioner	Medicare payment rates and QCMHR estimates of direct person related hours.			240,000
	Medical	13.	Psychiatrist	273,372	12%	243,131	245,000
	Medical	14.	Specialist Other	273,372	12%	243,131	245,000
	Medical	15.	Registrar	118,638	12%	105,514	105,000
	Medical	16.	Medical Officer	179,155	12%	159,336	160,000

Notes

1. Average (Australia) salary data (col. E) is based on reported jurisdictional data, compiled by the AIHW. Prices for staff types - Other Vocationally Qualified, Nurse Practitioner and General Practitioner are not identified in the AIHW data (see note 6. for more detail on these staff types).

2. AIHW average salaries data (col. E) are current prices as at 2010–11.

3. AIHW average salaries are calculated for each staff type as follows:
   national total salaries / national total FTE.

4. An estimate of the oncosts and penalty (markup) rates included in the average salary (Australia) data has been derived (col. F) using weighted FTE and markup data from the NMHSPF. The markup has been removed (col. G) from the average salary (Australia) amounts, and then rounded (col. H) to the nearest $5,000, for use as a notional national average base price (excl. the GP price which is a final price).

5. The 2010/11 average salary for Psychiatrists and Other Medical Officers includes the prorated cost of Visiting Medical Officers payments - this is why their prices are significantly more than jurisdiction's base salary rates.

6. i. The Other Vocationally Qualified staff price is based on the Social, Community, Home Care And Disability Services (SCHADS) Industry Award 2010 - Social and community services employee level 5 pay point 1 $878.69 per week.
   ii. Nurse Practitioners are calculated at 45% more than the national average for nurses (based on Award rates).
   iii. General Practitioner prices are calculated using Medicare payment rates and QCMHR estimates of direct person related hours.

12.3.4 Calculation of General Practitioner Price

Table 28 - Calculation of Individual Practitioner Price

Step	Item Description	QCMHR Analysis of Person Related Hours & Medicare cost data	Item Type	Explanation
A	Person Related Hours worked per week	35.90	hrs	*GP works 35.9 billable hours per week as per QCMHR analysis (Page 169 - Table A6.7)*
B	No. of Medicare sessions per hour	4.00	qty	*Each Medicare item 23 should last less than 20 minutes - it is assumed 4 medicare sessions per hour*
C	Cost of Medicare item 23	$36.30	$	*Cost of Medicare item 23, which is most frequently used item (approx 75% of the time).*
D	Weekly earnings	$5,212.68	$	*GP earnings per week (A x B x C)*
E	Weeks worked per Year	46.00	wks	*GP works 46 weeks per year as per QCMHR analysis (Page 169 - Table A6.7)*
F	**Annual earnings**	**$239,783**	**$**	***One FTE GP earnings per annum (D x E)***

Note

1. The model only captures the cost of a GP that is related to the estimated income earned from the Commonwealth. Additional government funding, gap payments from patients or payments from Private Health Insurance have not been included in the pricing of GPs. There is no separate additional cost for overheads etc.

12.3.5 Calculation of Private Psychiatrist Price

Table 29 - Calculation of Private Psychiatrist Price

Step	Item Description	Calculation of Psychiatrist Salary using MABEL Survey data and QCMHR estimate of person related work time data	Item Type	Explanation
A	Annual earnings	$242,747.50	$	*Annual gross earnings - Psychiatrist. From MABEL Survey - 180 observations*
B	Hourly earnings	$122.40	$	*Hourly earnings - Psychiatrist. From MABEL Survey - 180 observations*
C	Percentage of provider time spent on person	85.00%	%	*Psychiatrist work 85% direct person related as per QCMHR analysis (Page 169 - Table A6.7)*
D	Hourly earnings per billable / person related hour	$144.00	$	*Estimate of Psychiatrist Earnings per Billable Hour based on MABEL Survey and QCMHR Analysis data (B / C)*
E	Hours worked per week	45.40	hrs	*Estimate of Psychiatrist Hours per Working Week - as per QCMHR analysis (Page 169 - Table A6.7)*
F	Working weeks per year	46.00	wks	*Psychiatrist works 46 weeks per year as per QCMHR analysis (Page 169 - Table A6.7)*
G	Person Related Hours worked per week	38.59	hrs	*Estimate of Psychiatrist Person Related Hours per Working Week - as per QCMHR analysis (Page 169 - Table A6.7) (C x E)*
H	**Annual earnings**	**$255,620**	**$**	***One FTE Psychiatrist earnings per annum (D x F x G)***

Note

1. The model only captures the cost of a Psychiatrist related to the estimated income earned/funded by the Commonwealth. Any additional government funding, gap payments from patients or payments from Private Health Insurance have not been included in the pricing of Psychiatrists. There is no separate additional costing for overheads etc.

12.3.6 Calculation of Private Tertiary Qualified Staff Price

Table 30 - Calculation of Private TQ Staff Price

Step	Item Description	QCMHR Analysis of Person Related Hours & Medicare cost data	Item Type	Explanation
A	Hours worked per week	38.80	hrs	*Allied Health Staff work 38.8 hours per week as per QCMHR analysis (Page 169 - Table A6.7)*
B	Cost of Medicare item 80110	$84.80	$	*Cost of Medicare item 80110 = > 50 mins by Registered Psychologist Bulk billed*
C	Percentage of provider time spent on person	85%	%	*Billable time % as per QCMHR analysis (Page 169 - Table A6.7)*
D	Weekly earnings	$2,796.70	$	*Allied Health earnings per week (A x B X C)*
E	Working weeks per year	46.00	wks	*Allied Health FTE works 46 weeks per year as per QCMHR analysis (Page 169 - Table A6.7)*
F	**Annual earnings**	**$128,648**	**$**	***One FTE Allied Health earnings per annum (D x E)***

12.3.7 Calculation of Private Occupational Therapist Price

Table 31 - Calculation of Private Occupational Therapist Price

Step	Item Description	QCMHR Analysis of Person Related Hours & Medicare cost data	Item Type	Explanation
A	Hours worked per week	38.80	hrs	*Allied Health Staff work 38.8 hours per week as per QCMHR analysis (Page 169 - Table A6.7)*
B	Cost of Medicare item 80125	$52.95	$	*Cost of Medicare item 80125 20 mins > = 50 mins by Registered Occupational Therapist Bulk billed*
C	No. of Medicare sessions per hour	1.6	qty	*Each Medicare item 80125 should last more than 20 minutes and less than 50 minutes - it is assumed 1.6 medicare sessions per hour*
D	Percentage of provider time spent on person	85%	%	*Billable time % as per QCMHR analysis (Page 169 - Table A6.7)*
E	Weekly earnings	$2,794.07	$	*Allied Health earnings per week (A x B X C X D)*
F	Working weeks per year	46.00	wks	*Allied Health FTE works 46 weeks per year as per QCMHR analysis (Page 169 - Table A6.7)*
G	**Annual earnings**	**$128,527**	**$**	***One FTE Allied Health earnings per annum (E X F)***

13 Modelling Bed Resources

13.1 MODELLING THE ANNUAL BED RESOURCES

Within the NMHSPF model, a number of different bed resources have been modelled. Distinct bed types were modelled where bed staffing profiles were unique. Where the staffing profiles were essentially the same, the bed was modelled as one type of bed, for example Rehabilitation – Adult and Older Adult (Residential).

The bed resources in the NMHSPF are shown in the table below:

Table 32 - Specialised Bed-Based MH Care Services within the model

Service Stream		Specialised Bed-Based MH Care Services
Service Category	**B**	**Acute Inpatient Services (Hospital Based)**
Service Element	BP	Acute - Perinatal and Infant Mental Health (Hospital)
Service Element	BY	Acute - Child and Youth (0-17 years) (Hospital)
Service Element	BA	Acute - Adult (18-64 years) (Hospital)
Service Element	BB	Acute - Older Adult (65+ years BPSD) (Hospital)
Service Element	BO	Acute - Older Adult (65+ years) (Hospital)
Service Element	BD	Acute - Adult Eating Disorders (Hospital)
Service Element	BI	Acute - Intensive Care Unit (Hospital)
Service Element	BE	Acute - Psychiatric Emergency Care Unit (Hospital)
Service Element	BT	Same Day Admission for Administration of ECT (Hospital)
Service Category	**C**	**Sub-Acute Services (Residential and Hospital or Nursing Home Based)**
Service Element	CY	Step Up/ Step Down - Youth (Residential)
Service Element	CA	Step Up/Step Down - Adult_(Residential)
Service Element	CQ	Rehabilitation – Adult and Older Adult (Residential)
Service Element	CO	Sub-Acute Older Adult (65+ years)(Hospital)
Service Element	CI	Sub-Acute Intensive Care Service (Hospital)
Service Category	**D**	**Non-Acute Extended Treatment Services (Residential and Hospital or Nursing Home Based)**
Service Element	DI	Non-Acute - Intensive Care Service (Hospital)
Service Element	DC	Non-Acute -Intensive Care Service - Older Adult(65+) (Hospital Based)
Service Element	DT	Non-Acute - Adult and Older Adult_(24 hour support) (Residential)
Service Element	DO	Non-Acute - Older Adult (Hospital/Nursing Home Based)
Service Element	DS	Non-Acute - Specialised Services (Hospital/Nursing Home Based)
Service Stream		**Non-Mental Health care services**
Service Category	**BN**	**Bed-Based Non-Mental Health Care Services**
Service Element	BH	Acute Medical/Surgical Bed (Hospital, non-MH)
Service Element	BC	Acute Paediatric Bed (Hospital, non-MH)
Service Element	DA	Non-Acute - Adult (<24 hour support) (Residential, non-MH)

There are no bed based teams for the Non-mental health care services beds, as only consultation Liaison is provided to these beds and they are modelled for counting purposes only.

For information on the staff modelled within the bed based teams, see **section 22.3 Bed Based Teams.**

13.1.1 Bed Based Service Parameters and calculations

The bed based staffing profiles spreadsheets include Bed Based Service Parameters. Individual items within this table will be used to calculate the number of beds required. For example:

Table 33- Bed Based Service Parameters for Acute - Adult (18-64 years) (Hospital)

	Bed Based Service Parameters		
A	Beds	**24**	
B	Availability	**100%**	
C	Average Available Beds	24	
D	ABD/Bed/Year	365	Available bed days per year
E	Occupancy	**85%**	
F	OBD/Bed Year	310.3	Occupied Bed Days
G	ALOS (days)	**14**	Average length of stay
H	Admissions/Bed/Year	22.16	
I	Annual Readmit Rate	**10%**	
J	Patients/Bed/Year	20.15	

The table below describes the Bed Based Service Parameters and calculations

Table 34 - Bed Based Service Parameters and calculations

Step	Step - Summary	Step – Detailed	Example
A	Beds	The number of beds in this unit / facility. This value is not used in these bed resource calculations.	24
B	Availability	Bed Availability, usually 100%. One exceptions is : Same Day Admission for Administration of ECT (Hospital) = 70%	100%
C	Average Available Beds	Average Available Beds is calculated as Beds * Availability. This value is not used in bed resource calculations.	C=B*A = 24 * 100% = 24
D	ABD/Bed/Year	Available Bed Days per year is the number of days the bed is available to patients in a year. It is calculated as 365 * Availability %	D = 365 * B = 365* 100% = 365
E	Occupancy	Occupancy rate	85%

Step	Step - Summary	Step – Detailed	Example
F	OBD/Bed/ Year	Occupied bed days per year is calculated as ABD/Bed/Year * Occupancy	F = D * E = 365 * 85% = 310.3
G	ALOS (days)	The average length of stay (ALOS) in days in a hospital per discharged in-patient, i.e. average duration of a single episode of hospitalization. In the Bed Based Service Parameters table, this is an average only as the **actual ALOS is specified within the care package, and may differ.**	14 (information only)
H	Admissions/Bed/ Year	This provides an average estimate of the number of admissions to occupy a bed in a year. It is calculated by dividing the Average OBD/Bed Year divided by the Average length Of Stay (ALOS)	H=F / G =310.3/14 =22.16
I	Annual Readmit Rate	Annual Readmit Rate estimates the number of separations (admissions) in a year divided by the unduplicated count of individuals who separated (were admitted) in a year. Note when used it is expressed as (1+ Readmit Rate%) indicating 100% of the admission plus the readmission percentage.	10%
J	Patients/Bed/Year	This provides an average estimate of the number of people to occupy a bed in a year. The calculation is Admissions/Bed/Year divided by (1 + Annual Readmit Rate).	J= H / (1+ Readmit Rate%) = 22.16 / (1+.10) =20.15

13.2 CALCULATING THE ANNUAL BED REQUIREMENT

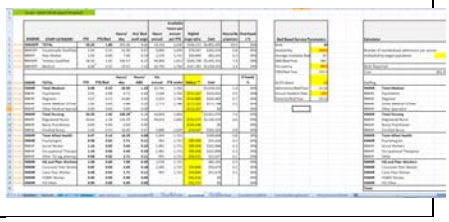
The Bed Based Service Parameters and the care package specifications are used to calculate the number of beds required.

Figure 20 - Bed Estimate formula

$$\text{Number Of Beds} = \frac{\text{Care Package Treatment Rate} * \text{\% Population applicable}}{\text{Persons per bed per year}}$$

The Bed number estimate formula at figure above, is detailed in the table below.
It refers to a number of items in the previous table, therefore the step codes continue from the previous table.

Table 35 - Estimating Annual Bed Resource Requirement per 100,000 of age specific population

Step	Step - Summary	Step – Detailed	Example
K	Identify age group and care package	Identify an age group and care package that includes a bed stay. Individual items within this care package will be used in later calculations.	Age Group: **18-64** Care package: **SEV_ABB-Ac_IP : (Severe, Ambulatory and Bed-Based, including hospital stay in specialist mental health Acute unit)**
L	Identify bed type	Identify the type of bed in the care package	**BA: Acute - Adult (18-64 years) (Hospital)**
M	Within **Bed based staffing profiles, identify the spreadsheet (tab)** for the bed type	Tab = AcuteAdult	Tab = **AcuteAdult** 
N	Identify the **Bed Based Service Parameters table**	These detail the bed specific parameters within the staffing profiles. See the previous table, steps A-J describing the Bed Based Service Parameters table. Individual items within this table are used to calculate the number of beds required	**Bed Based Service Parameters** A Beds 24 B Availability 100% C Average Available Beds 24 D ABD/Bed/Year 365 E Occupancy 85% F OBD/Bed Year 310.3 G ALOS (days) 14 H Admissions/Bed/Year 22.16 I Annual Readmit Rate 10% J Patients/Bed/Year 20.15

Step	Step - Summary	Step – Detailed	Example
O	Identify **Occasions Of Service**	Identify the care package line item/s for this bed, For bed stays, Occasions Of Service specifies the number of times this bed stay occurs. For bed stays this has been modelled as = 1	1
P	Identify **% Population applicable (% Pop'n applicable)**	% Population applicable is shown in the care package line item/s for this bed, and specifies the percentage of the estimated number of persons seeking treatment under the care package, who will receive this item of care	P = **85%**
Q	Identify **Average Length of Stay (ALOS) from the care package**	This is shown in the care package line item/s for this bed, under Activity Duration**,** with Activity Measure = Days NOTE the Bed Based Service Parameters table does show ALOS but this is an average of all care packages**. It is essential for bed calculations that the actual ALOS as specified within the care package is used.**	Q =**14 days**
R	Identify **Care Package Treatment Rate (CP-TR**)	Identify the estimated number of persons seeking treatment under the care package, per 100,000 of age specific population.	R =164 persons per 100,000
S	Identify **OBD/Bed/ Year**	Occupied Bed Days per year (OBD/year) This value is in the Bed Based Service Parameters table **(F)**	**S = F = 310.25**

Step	Step - Summary	Step – Detailed	Example
T	Calculate **Admissions/ Bed/ Year** for the bed in the age group care package	This is the estimated number of admissions per bed per year, for this bed in the age group care package. **It is calculated as** **= Occupied Bed Days per year (OBD/year)** divided by **(Average Length of Stay** from the care package ***** **Occasions of Service).** Although Admissions/ Bed/ Year is in the Bed Based Service Parameters table, that figure is an average of all care packages. It should be calculated here specific to the bed in the care package.	**T=S /(Q * O)** **= 310.25 / (14 * 1)** **=22.16**
U	Identify **Annual Readmit Rate**	Annual Readmit Rate is in Bed Based Service Parameters table **(I)** Note when used it is expressed as (1+ Readmit Rate%) indicating 100% of the admission plus the readmission percentage.	U = 10%
V	Calculate **Persons / Bed/ Year** for the bed in age group care package	the estimated number of persons per bed per year **= Admissions/ Bed/ Year** for the bed in care package ***** **(1 + Annual Readmit Rate)** Persons/ Bed/ Year is in the Bed Based Service Parameters table, that figure is an average of all care packages. It should be calculated here specific to the bed in the care package.	**V=T /(1+ U)** **=22.16 / (1+0.10)** **=20.15**
V	Calculate the **number of Beds needed** for the bed in age group care package	**number of Beds needed = (Care Package Treatment Rate * % Population applicable)** divided by **Persons/ Bed/ Year** for the bed in the age group care package	**O=(R * P)/ V** **=(164*.85) /20.15** **=6.92 beds per 100,000** for Age Group: **18-64** and Care package: **SEV_ABB-Ac_IP** : **(Severe, Ambulatory and Bed-Based, including hospital stay in specialist mental health Acute unit)**

Note: This process is repeated for all the care packages to determine the total number of beds required for the age group, and then for all age groups.

14 Modelling Prescription Medicine

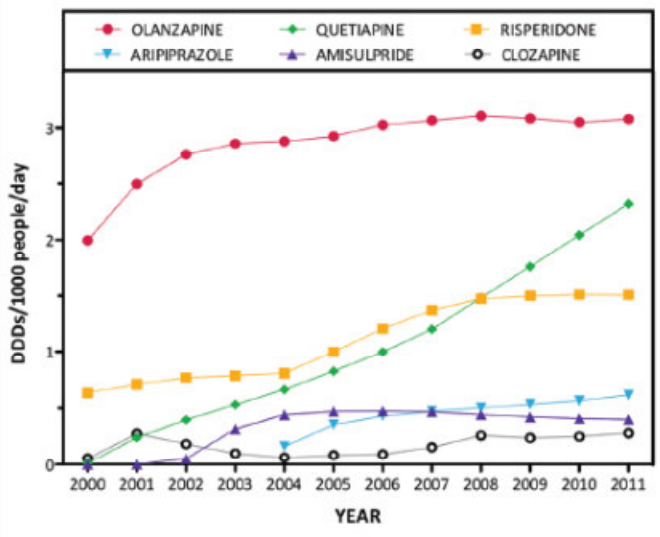
14.1 MODELLING ANNUAL PRESCRIPTION MEDICINE REQUIREMENT

Regarding Clozapine[111]:

MH-CCP 2010 estimated the estimated number of people in clozapine treatment from a UK study[112] of the implementation of the NICE guidelines. The paper indicated that about 1/3 of people with Schizophrenia will be in the eligible group who have not benefitted from other medications. AusBod prevalence of SCZ is 603 per 100,000 people aged 18-64 (0.6%) so the eligible group was estimated at 201/100K. The UK figures indicated that 63% would accept, but only 47% would remain for three years. This leads to estimates of 126/100K to be treated in year 1, and 96/100K in years 2 and 3, so we modelled a 3-year average of 105/ 100K people aged 18-64. This is about 4.2% of the estimated number in the SEV_AMB group.

It was stated at an earlier EWG meeting that clozapine use in Australia and the UK would be different. A recent paper on prescribing rates in Australia[113] indicates that the rate for clozapine is about 0.3 defined daily doses (DDD) per 1000 people per day, or 30 DDD per 100,000 people per day. If this is based on total population and we assume prescribing is mainly to adults aged 18-64, then we would raise this estimate to about 50 per 100,000. Note that this is about half the modelled rate of 105 per 100,000.

Figure 5. Atypical antipsychotics: dispensing data for the six leading atypical antipsychotics from 2000 to 2011 (note: ziprasidone and paliperidone were omitted due to low use).



Pharmacotherapy (Quantified by dose and $/dose)

- Prescription
    - Group A – No additional monitoring/imaging

[111] Notes from Adult Care Package Group meeting 21 January 2013
[112] Woodall AA, Menkes DB, Trevelyan TR, Lanceley CP. A study of clozapine and long-term hospitalisation rates. *Psychiatric Bulletin/ The Psychiatrist* 2004; 28:285-288.
[113] Stephenson CP, Karanges E, McGregor IS. Trends in the utilization of psychotropic medication in Australia from 2000 to 2011. *ANZ J Psychiatry* 2013; 47:74-87.

- Group B – Medium Monitoring
- Group C – High Monitoring

- Review

  Prescription and Review. Review includes the script and mental health review specifically done by the doctor or pharmacist.

  Three pharmacy groups to sit within prescription activity:

  Group A = no pathology or imaging required. Includes SSRI/Benzodiazepine,

  Group B = Medium level monitoring Eg. Lithium, Sodium Valproate, Stimulants.

  Group C = High level Monitoring Eg. Clozapine, Olanzapine

  With stimulant drugs, have a specialist prescribing event where the provider needs to seek approval for prescription, also needs higher monitoring usage and more effort in getting off the drug.

Pharmaceutical Costs. Data indicates gross usage with little understanding of how and who the medications are being prescribed. Define daily dose is that which is recommended by the World Health Organisation for each condition.

A very high proportion of antidepressants are prescribed by the GP (approx. 85%) with a similar practice for antipsychotics.

We cannot measure prescriptions for mental illness specific populations by counting the prescriber as most are from the GP and their client base is broad. Prescribing patterns are also far from what is accepted as optimal clinical treatment. Current practice also might include people in the Indicated Prevention group.

Expert Working Group Members identified that estimating a proportion of people in each care package that would benefit from prescription medication would be the ideal approach, but that it would require careful estimation and need for clinical advice that would highlight appropriate use of medication. Concern however on time available to properly develop estimations for every care package.

Given that GPs prescribe 85% of medications, members agreed to use BEACH data relating to psychiatric medications being prescribed and relate that data to the proportion of people with mental illness. This approach does not necessarily adequately represent people with schizophrenia and so will need some additional consideration of the inaccuracies of the data.

The members agreed to use a top down approach using the BEACH data in this iteration but to recommend the care package approach for future iterations. QCMHR progressed this work.

15 Project Deliverables

Stage 1 Deliverables

Deliverable	Due Date
A **draft work program** for the duration of the Project Lifecycle, including but not limited to a budget, milestones and their due dates, which is to be revised and finalised after engagement of key personnel.	30/09/2011
A **First Report** submitted to the Executive Group that at a minimum: • provides initial planning estimates derived from the national application of NSW and Queensland service planning models; • provides a high-level gap analysis between existing services and those estimated by the NSW and Queensland models populated with national data; • outlines details of care packages in existing NSW and Queensland planning models.	31/12/2011
A **detailed consultation strategy and schedule** to progress the confirmation of stepped clinical and community care packages, and resolution strategies for resolving differences in clinical opinion. These may or may not be stepped care.	31/12/2011

Stage 2 Deliverables

Deliverable	Due Date
A **Second Report** to the Executive Group that at a minimum: • summarises consultation on care packages to date, including any necessary moderation undertaken or pending by the three Expert Working Groups; • provides initial consideration of service elements in addition to the model i.e. takes service planning targets into a service design perspective and considers broader planning environment such as legislation; • provides a draft national service planning model, noting that not all consultation may yet have been undertaken; • builds on the initial estimates by incorporating a gap analysis of current national mental health service provision (against the draft service planning model where clinical guidelines have been agreed) to meet a proposed service provision target; • a section of the report that uses currently available data to identify the gaps between existing service levels and the predictions of the draft model.	30/06/2012
A **Third Report** submitted to the Executive Group that at a minimum: • summarises the complete consultation on care packages and any moderation required; and • a draft national service planning framework, explaining any changes to the initial planning estimates developed in Stage 1 that have arisen following the consultation process.	31/12/2012
A **Final Report**, modelled with epidemiological data that at a minimum: • a recommended National Mental Health Service Planning Framework endorsed by the Executive Group that applies to the agreed care model and includes appendixes for special populations; • a discussion of the service elements including where possible consideration of legislative requirements and minimum levels of providers/critical mass to establish a service; • an updated gap analysis from Stage 1 to provide a detailed comparison against latest available data to determine actual gaps in services and required additional investments; and • where possible recommended options for the Commonwealth and jurisdictions, identifying areas of greatest need. Opportunities for greatest cost/benefit where additional investment is necessary will be identified, where possible, although this will be a task for the Activity Based Funding /Costing Group.	30/06/2013

16 Glossary, Acronyms and Definitions

Term	Description / Definition
ABS	**Australian Bureau of Statistics**
ACFI	**Aged Care Funding Instrument** the means of allocating Australian Government subsidy to residential aged care providers. Some ACFI data was used to inform the epidemiology within the older persons care packages. Eg it is mentioned in SEV_AMBA3
Adult Inpatient care	These services provide voluntary and involuntary short-term inpatient management and treatment during an acute phase of mental illness (these are unevenly distributed across Victoria).
Aged persons mental health teams	These are multidisciplinary teams that provide community-based assessment, treatment, rehabilitation and case management for older people.
AHMAC	**Australian Health Ministers' Advisory Council**
AIHW	**A**ustralian **I**nstitute of **H**ealth and **W**elfare. The AIHW is a major national agency set up by the Australian Government under the Australian Institute of Health and Welfare Act to provide reliable, regular and relevant information and statistics on Australia's health and welfare. They are an independent statutory authority established in 1987, governed by a management Board, and accountable to the Australian Parliament through the Health and Ageing portfolio. The AIHW produces authoritative and interesting reports, and other information products, on key health and welfare issues in Australia. One of its primary roles is to collect, analyse and report information drawn from health services, community services and housing assistance services.
ALOS	**Average Length Of Stay**. A measure of average time spent in hospital during treatment of all patients in a given period
AMHS	**Area Mental Health Services**. Located within the Mental Health Branch, Department of Human Services in the Victorian State Government
APMH	**Aged persons mental health residential care.** APMH nursing homes and hostels specialise in caring for older persons with mental illnesses. They are jointly funded by the State and Commonwealth
APS	**Australian Psychological Society**
ARAFMI	**ARAFMI** began as the Association of Relatives and Friends of the Mentally Ill., now known as Mental Health Carers **Arafmi** (WA) Incorporated. http://www.arafmi.asn.au/
ATOD	Alcohol, Tobacco and Other Drug
ATSI	**Aboriginal and Torres Strait Islander**
AUSBoD	**Australian Burden of Disease** was the first study to measure the national burden of disease in a developed country using the disability-adjusted life year (DALY), a new summary measure of population health developed for the Global Burden of Disease (GBD) study.
BEACH	**Bettering the Evaluation And Care of Health** One of the data sources referred to and used to provide background data for the

Term	Description / Definition
	discussion of care packages for the Project. **BEACH** provides an invaluable source of timely data to describe general practice activity and inform improvements in primary health care service provision. The **BEACH** program continuously collects information about the clinical activities in general practice in Australia including: characteristics of the GPs; patients seen; reasons people seek medical care; problems managed, and for each problem managed (direct link); medications prescribed, advised, provided, clinical treatments and procedures provided; referrals to specialists and allied health services; test orders including pathology and imaging. The **BEACH** database uses a cross-sectional, paper based data collection system developed and validated over 30 years at the University of Sydney. Data generated is used by researchers, government, industry and non-government organisations.[114] Among other considerations, the NMHSPF model uses BEACH data relating to psychiatric medications being prescribed, as part of the process of estimating Pharmaceutical Costs.
BOMHS	**Better Outcomes for Mental Health Services program**. An initiative of the Commonwealth Government to improve mental health training for GPs.
BPSD	**Behavioural and psychological symptoms associated with dementia**
CALD	**Cultural and Linguistic Diversity**
CAMHS	**Child and Adolescent Mental Health Services** Primarily a community based assessment, treatment and liaison service for children and adolescents between the ages 0-18 years who have serious emotional disturbance.
Care Package	The care package specifies the average care for a person with a specific need for a year. There are many care packages in the model. There is a care package in each age group for each of prevention, promotion, various indicated prevention and diagnosed need groups. These care packages form a care spectrum which reflect the people in the 100,000 age group who are well or with diagnosable illness that range from mild to most intense. It is important to note that the care package may show care in different areas over a number of weeks, and the weeks may not total to 52, however this is the average required care for the person with a specific need for a year.
Carer	"*There is no single definition of a carer. For the instance of this report, the term mental health 'carer' was used to define someone who provides practical and emotional support to someone with a mental health issue including relatives, friends or neighbours. A carer may or may not live with the person they support; nor do they have to be identified by the individual with a mental illness to be their 'carer*'"(Clements (1996) in Cassar Bartolo, K and Sanders, F. (2008) *Carer Involvement Project Gathering Lived Experience Phase 1,* ARAFMI, Victoria.)
CAST program	**CAMHS and Schools Together program**. A pilot program run between CAMHS, schools and families in the Grampians CAMHS region of Victoria.
CAT teams	**Crisis Assessment and Treatment teams**

[114] Source: http://www.fmrc.org.au/beach.htm

Term	Description / Definition
	These services operate 24 hours a day and provide urgent community-based assessment and short-term treatment interventions to people in psychiatric crisis. Some CAT teams also service hospital emergency departments.
CAU	**Care as usual**, term used in research ie control group.
CBCL	**Child Behaviour Checklist** (**CBCL**) is a checklist parents complete to detect emotional and behavioural problems in children and adolescents.
CBT	**Cognitive Behavioural Therapy**
CCC	**Clinical Continuing Care**. These teams undertake assessment and treatment of children and adolescents experiencing significant psychological distress and/or mental illness.
CCT	**Continuing care teams** These are the largest component of adult community based services and are clinic based. These services provide non-urgent assessments, treatment, case management, support and continuing care services to people with a mental illness in the community.
CCU	**Continuing care units.** CCUs provide medium to long-term accommodation, clinical care and rehabilitation services for people with a serious mental illness and psychosocial disability. Average length of stay is approximately 12-18 months.
CHC	**Community Health Centre**
CL	**Consultation and Liaison service** This service provides assessment, treatment and prevention of psychiatric morbidity among physically ill patients who are patients of an acute general hospital. (Not available in all general hospitals.)
Clozapine	Clozapine (Clozaril, Clopine, Closyn) is one of the antipsychotic medications. It belongs to the atypical group of antipsychotics which means it is unlikely to cause shaking, muscle stiffness or abnormal movements that are sometimes associated with more traditional antipsychotic medications. Clozapine is used to treat the symptoms of schizophrenia such as hallucinations, delusional ideas and disorganised thoughts. It is a medication that is only used in patients who have not responded well to other antipsychotic medications or have had problems taking other antipsychotics because of severe side effects. For many people, clozapine can be a very effective treatment and can make a huge difference to their quality of life. People who are prescribed clozapine must have weekly blood tests when they first start treatment. This is to ensure that they don't develop a rare but severe side-effect that causes problems with the white blood cells that are needed to fight infection. After taking the medication regularly for about 18 weeks these blood tests will generally be done on a four (4) weekly basis. Reference www.slhd.nsw.gov.au/MHealth/cms/files/Consumer.../Clozapine.pdf
CMHC	**Community Mental Health Centre**
CMO	**Community Managed Organisations** Community managed mental health organisations are not-for-profit, community-managed organisations that provide community support services for people affected by mental health problems and mental illness. These organisations

Term	Description / Definition
	provide "valuable community based support options that are flexible, cost effective and essential to prevention and recovery".
COAG	**Council of Australian Governments**. A body comprising the Commonwealth and respective State and Territory Governments.
Co-morbidity in the NMHSPF Model	'Co-morbidity' may refer to multiple, co-existing physical, mental health and problematic drug and alcohol use issues, which may meet formal diagnostic criteria for a defined disorder such as in the diagnostic and statistical manual of mental disorders (38)[115]. However, mental health/problematic drug and alcohol use/other symptoms do not need to meet this formal criteria in order for co-morbidity to be present, and for these conditions to impact significantly on client functioning and thereby be worthy of treatment (189).[116].[117] In the SEVERE complex care packages, more time is specified for pychosocial and physical assessments.
Complex (versus standard) Care Packages	When developing the care packages the Expert Reference Group recognised that for a given care packages some people would require more hours of care than others. The distinction between standard and complex is shown in the specification within the SEVERE care packages. In most cases for a given care package, the complex care package will have a longer assessment, more case management and more psychosocial interventions where required. Complex as used in this modelling project reflects that fact that people may be designated as complex because of physical health needs (e.g. liver disease), drug and alcohol problems (e.g. co morbid diagnosis) or social circumstances (e.g. housing or welfare needs). Complex needs = multiple needs with complex management plans.
Conduct disorder programs	Conduct Disorder programs offer multilevel early intervention and prevention services designed to reduce the prevalence and impact of conduct disorder. They are in the pilot phase in Victoria and not available in all catchment areas.
Consumer Service Delivery Time	DEFINITION: any time spent on an activity directly relating to an individual (eg. face to face care, writing notes, individual care planning and liaison)
CP	**Child Protection**. A part of the Office for Children in the Victorian Government
CRS	**Commonwealth Rehabilitation Service**
CTO	**Community Treatment Order** CTOs enable people to receive treatment for their mental illness in the community as an involuntary patient. A CTO is used as an alternative to admission to a psychiatric inpatient service, or where the psychiatric service is no longer the least restrictive environment in which a person can receive care. The person to whom the CTO applies must satisfy the criteria for involuntary treatment. (Lee: 1993: P.26)

[115] *38. Kay-Lambkin, F.J., et al. 'The 'Co-morbidity Roundabout': a Framework to Guide Assessment and Intervention Strategies and Engineer Change Among People With Co-morbid Problems'. Drug and Alcohol Review 2004; 23(4): p407-424.*

[116] *189. Kavanagh, D.J., et al., 'Management of Co- Morbidity', in Co-Morbid Mental Disorders and Substance Use Disorders: Epidemiology, Prevention and Treatment, M. Teesson, Editor. 2003, Commonwealth of Australia: Canberra. p78-107.*

[117] *(Source:* Drug and Alcohol Psychosocial Interventions Professional Practice Guidelines *http://www.health.nsw.gov.au/policies/gl/2008/pdf/GL2008_009.pdf)*

Term	Description / Definition
CYMHS	**Child and Youth Mental Health Service**
DADHC	Department of Ageing, Disability and Home Care (ADHC) is part of the NSW government Department of Family and Community Services. The aim of the Department is to provide better and more integrated services for vulnerable client groups in NSW. In the NMHSPF, these services are referred to as child safety, child protection, disability services.
DALY	**Disability-adjusted life years**
Day programs	Adolescent day programs offer an integrated therapeutic and educational program for young people with behavioural difficulties; emotional problems such as severe depression and/or anxiety; emerging personality difficulties or a severe mental illness. Issues such as relationship and/or social difficulties and non-attendance at school are addressed through intensive group therapy. Adult and older adult day programs may also exist. These programs are not available in all catchment areas.
DBT	**Dialectical behaviour therapy**
Demand for Treatment	Demand for Treatment is the number of people who meet diagnostic criteria and would benefit from treatment and seek treatment. Need is always higher than demand because not all people who need treatment are desirous of obtaining it. Findings from the National Survey of Mental Health and Wellbeing (Australian Bureau of Statistics 2007) demonstrate this point. The survey respondents ranged in age from 16-85 years of whom 85.7% identified by the survey as having met criteria for a mental illness did not perceive that they had a mental illness or perceive a need for any type of help. Of note is the fact that 94% of this group did not even want information.
DET	**Department of Education and Training.** Part of the Government of Victoria
DEWR	**Department of Employment and Workplace Relations.** Part of the Commonwealth Government
DHS	**Department of Human Services, part of the Government of Victoria**
DOES	**Disability Open Employment Services.** A service run by the Commonwealth Government to increase the employment of people with disabilities within the wider community
DoHA:	**Department of Health and Ageing.** Part of the Commonwealth Government
DSM-IV	**D**iagnostic and **S**tatistical **M**anual of Mental Disorders, Fourth Edition. Psychiatric Diagnoses Manual, published by the American Psychiatric Association and covers all mental health disorders for both children and adults. www.DSM5.org.
DSP	**Disability Support Pension.**

Term	Description / Definition
	A payment made by the Commonwealth Government
DUP	**Duration of untreated psychosis**
DVA	**Department of Veterans' Affairs.** Part of the Commonwealth Government
DVC	**Department of Victorian Communities.** A branch of the Government of Victoria
Early Intervention	DEFINITION These are interventions targeting people displaying the early signs and symptoms of a mental health problem or mental disorder and people developing or experiencing a first episode of mental disorder (Commonwealth of Australia 2000:4).
ECAT	**Emergency CAT team** Psychiatric liaison staff and mental health short-stay units in Emergency Departments
ED	**Emergency Department**
EDNOS	**Eating Disorder not Otherwise Specified** In recent years, clinicians and researchers have realized that a significant number of individuals with eating disorders did not fit into the DSM-IV categories of anorexia nervosa and bulimia nervosa. By default, many received a diagnosis of "eating disorder not otherwise specified." Studies have suggested that a significant portion of individuals in that "not otherwise specified" category may actually have binge eating disorder. http://www.dsm5.org/Documents/Eating%20Disorders%20Fact%20Sheet.pdf
EIP	**Early Intervention Psychosis**, in the NMHSPF, this is modelled as Early Psychosis Services, as there is also early intervention for other disorders.
Emergency Department Inclusions Within the NMHSPF Model	One of the 'should' assumptions is that everyone that presents in the emergency department who meets primary diagnoses of mental illness should receive consultation liaison. In addition, everyone who presents to emergency and then gets subsequently admitted to a hospital and meets primary or secondary diagnosis of mental illness should have received consultation liaison in ED.
Episodes of Care	This term is not used in the NMHSPF Model because it models people, not episodes. The model shows the number of people per 100,000 of a certain age, e.g. 18-64 years, who receive each care package over the course of a year. We have used episode data from the NMDS- AODTS in order to make expert judgements about the distribution of people across care packages.
EPPIC	**Early Psychosis Prevention and Intervention Centre**
EST	**Eligibility Screening Tool** This tool is used in assessing the impact of mental illness alone, by the Personal Helpers and Mentors (PHaMs) service.
FaHCSIA	**Department of Families, Housing, Community Services and Indigenous Affairs**
Family	Includes family members, partners, friends or anyone whose primary relationship with the person concerned is a personal, supportive, caring one. (Craze, L.

Term	Description / Definition
	(2012) *National Recovery-Oriented Mental Health Practice Framework - 2nd Consultation Draft,* on behalf of the Safety and Quality Partnership Subcommittee of the Australian Health Ministers' Advisory Council, Mental Health Standing Committee.)
Forensicare	Victorian Institute of Forensic Mental Health: Forensicare is the trading name for the Victorian Institute of Forensic Mental Health. Forensicare provides inpatient and community services to mentally ill offenders in Victoria. Forensicare offers inpatient services (at Thomas Embling), an acute assessment unit (Melbourne Assessment Prison) and Community Forensic Mental Health Services.
GAF	**Global Assessment of Functioning**, scale 0-100 used by mental health clinicians and physicians to objectively rate the level of functioning of the person. The scale is presented and described in the DSM-IV-TR www.psychiatry.org/practice/dsm/dsm-iv-tr
Gazetted	**Gazetted** or declared : hospitals/units and beds that are able to care for involuntary patients.
GP	**General Practitioner**
HARP	**Hospital Admission Risk Program.** A Victorian government group of programs designed to manage increasing emergency demand pressures within the public hospital sector
HASI	**Housing and Support Initiative.** An initiative of the Government of New South Wales combining Health Services, the Department of Housing and Non-Government Organisations to provide residential outreach services for people with a mental illness. The Australian states have different services that support individuals at home. In the NMHSPF, this is modelled as Individual Support and Rehabilitation (ISR)
HBOS	**Home Based Outreach Services.** These provide support to consumers living in their own homes. Training in social and living skills is provided at home, with a focus on the activities and interactions of everyday life.
Headspace	Australia's National Youth Mental Health Foundation. http://www.headspace.org.au/
HoNOS	HoNOS is a set of 12 scales, each one measuring a type of problem commonly presented by patients/clients in mental health care settings. These scales measure the health and social functioning of people with severe mental illness
HOPS	**Homeless Outreach Psychiatric Service** HOPS work in partnership with homelessness services and use assertive outreach. HOPS provide assessment and secondary consultation to homelessness services and other mental health workers. (A Victorian Government service, not available in all catchment areas.)
ICD	The **International Classification of Diseases** is the standard diagnostic tool for epidemiology, health management and clinical purposes. This includes the analysis of the general health situation of population groups. It is used to monitor the incidence and prevalence of diseases and other health problems.

Term	Description / Definition
ICU	**Intensive Care Units** These provide safe, secure support to consumers who require containment, stabilisation and engagement in a therapeutic relationship. In general terms consumers admitted to an ICU suffer a high level of behavioural disturbance and mental illness complexity such that management in a general mental health acute unit is not possible.
IHBS EWG	**Inpatient/ Hospital Based Service Expert Working Group**
IIP	**Individual Implementation Plan**
IMYOS	**Intensive mobile youth outreach services.** IMYOS provide intensive outreach mental health case management and support to adolescents who display substantial and prolonged psychological disturbance, and have complex needs that may include challenging, at risk and suicidal behaviours. These services work with young people who have been difficult to engage using less intensive treatment approaches.
Indicated prevention interventions	DEFINITION interventions targeting to high risk individuals who are identified as having minimal but detectable signs and symptoms foreshadowing mental disorder or biological markers indicating predisposition for mental disorder, but who do not meet DSM IV diagnostic levels at that time. Examples include parent–child interaction training programs for children with behavioural problems and their parents.
Inpatient unit	Mental health treatment unit that includes overnight care.
IPT	**Interpersonal Psychotherapy Treatment**
JJ	**Juvenile Justice**, youth justice This acronym is used in the care package descriptions.
Job Network	Commonwealth funded employment and support program
KKPP	**Kool Kids Positive Parents**. A program run between Eastern Health CAMHS, families and local schools to improve early intervention for children with challenging and difficult behaviours
KPI	**Key Performance Indicators**
LGA	**Local Government Area**
LOS	**Length of Stay**
MBCT	**Mindfulness-based cognitive therapy**
MBS	**Medical Benefits Schedule** (Commonly known as Medicare). Paid by the Commonwealth Government
MCH	**Maternal and Children's Health program**. Program run by the Office for Children in the Victorian Government
Mental health promotion	DEFINITION Action to maximise mental health and well-being among populations and individuals.
Mental Health Services	The mental health system is understood as comprising services and programs in which the primary or a key function is to provide promotion, prevention and early

Term	Description / Definition
	intervention, medical treatments, psychological therapies including psychotherapy and counselling, rehabilitation, psychosocial and recovery support, peer-support, community development and other support for people affected by mental health issues, emotional distress, mental illness or psychiatric disability, and/or their families and support networks. Mental health services might also be provided by organisations that focus their efforts on a broader range of health, community and family services. (Craze, L. (2012) *National Recovery-Oriented Mental Health Practice Framework - 2nd Consultation Draft,* on behalf of the Safety and Quality Partnership Subcommittee of the Australian Health Ministers' Advisory Council, Mental Health Standing Committee.) In the context of the NMHSPF, mental health services are not provider specific and may be delivered by public, private and community managed organisations.
Mental Illness	DEFINITION: The NMHSPF project uses the conventional definition in psychiatric epidemiology that captures (roughly) the top 15-20% of the population distribution of the collections of symptoms and signs and functional disturbances that receive diagnostic labels. Equivalently, especially in children and adolescents, it refers to the top 15-20% of the score range on "gold standard" symptom checklists that are used in both surveys and clinical practice. This is a very low threshold for diagnosis or classification, since for example two weeks of a moderate number of symptoms will pass the threshold for a diagnosis of depression. For epidemiological purposes, a low threshold for diagnosis is appropriate, since illnesses need to be studied through their whole range of severity, for all sorts of good reasons. The problem is that this criterion assigns diagnoses to a large number of adults – roughly half the prevalent "cases" – who do not regard themselves as ill, do not want any form of care, do not seek out care, and (not surprisingly) do not receive treatment for their "mental illness". Similarly, this low threshold classifies a large number of children and adolescents as having mental health problems – again, roughly half the "cases" – whose parents do not regard their offspring as having more problems than their peers, or as being in need of treatment.
MHB	**Mental Health Branch**
MHDAO	**Mental Health and Drug and Alcohol Office,** part of NSW Ministry of Health**.**
MHDAPC	**Mental Health and Drug and Alcohol Principal Committee**
MHIC	**Mental Health Intervention Classification**
MHS	**Mental Health Services**
MHSOU	**Mental Health short stay observation units**
MODERATE, (MILD and SEVERE) Categories in the NMHSPF Model	The division of MILD, MODERATE and SEVERE are based on disability weightings (extent of functional impairment), which will provide parity with the National Drug and Alcohol-Clinical Care and Prevention (DA-CCP) and NSW mental health planning model (MH-CCP) , and other international approaches. At the mild end of clinical care spectrum this may include treatment e.g. assessment and counselling in a community setting. At the severe end of the clinical care spectrum it may represent attendances at emergency departments, a bed or a place in a treatment facility/program. Note that MILD, MODERATE and SEVERE refer to the level of distress and impairment. For more information, see **section 0**

Term	Description / Definition
	Defining Severity in this technical manual
MOU	**Memorandum of Understanding**
MSOAP	**Medical Specialist Outreach Assistance Program**
NAMHC	**US National Advisory Mental Health Council**
NDIA	National Disability Insurance Agency (NDIA) previously known as DisabilityCare Australia and National Disability Insurance Scheme,
NEDF	**The National Eating Disorders Framework 2012** This National Framework provides a detailed description of the continuum of care and each principle. Implemented together, these standards have the potential to guide the development of an effective national approach to the prevention and management of eating disorders. The standards align with the National Mental Health Standards (2001). http://www.nedc.com.au
Need for Treatment	Need is defined as the proportion of the population who meet diagnostic criteria for mental illness disorders and are specified within the NMHSPF model as receiving treatment.
NGO	**Non-governmental Organisation** See also **CMO (Community Managed Organisations)**
NICE	**National Institute for Clinical Excellence** http://www.nice.org.uk/aboutnice/about_nice.jsp
NMHCCF	**National Mental Health Consumer and Carer Forum**
NMHSPF	**National Mental Health Service Planning Framework**
NPV	**Net Present Value**
NRA	**National Reform Agenda**
NSMHWB	The **Australian National Survey of Mental Health and Wellbeing**, NSMHWB was a national epidemiological survey of mental disorders that used similar methodology to the NCS. It aimed to answer three main questions: How many people meet DSM-IV and ICD-10 diagnostic criteria for the major mental disorders? How disabled are they by their mental disorders? And How many have seen a health professional for their mental disorder? The NMHSPF model incorporates the NSMHWB data as an additional population under Mild within the model.
OATSIH	**Office for Aboriginal and Torres Strait Islander Health**
Occasions Of Service	Any examination, consultation, treatment or other service provided by a health service provider in a non-admitted setting to a client/patient on each occasion such service is provided. A distinct visit to a hospital or outpatient clinic where treatment is received. Reference The Next Step: Funding Reform - *NSW* Health
OECD	**Organisation for Economic Cooperation and Development**
OPAIU	**Older Persons Acute Inpatient Unit**

Term	Description / Definition
OPMH	**Older Persons Mental Health**
ORYGEN	Early psychosis prevention and early intervention body which provides mental health assessment and treatment to young people aged 15 to 24 years who live in the western and north western areas of Melbourne
Other time	DEFINITION: all other non-individually focused time such as staff meetings, evaluation, performance monitoring and travel). Other time is the FTE time not devoted to Consumer Service Delivery time.
PAPU	**Psychiatric assessment and planning unit**
PARC	**Prevention And Recovery Care** One of the Sub-acute services (others are Rehabilitation services and Intensive Care Services) PARC is a step up/step-down supported residential service for people experiencing a significant mental health problem who do not need or no longer require hospital admission, or who are at risk of relapse. In the continuum of care, they sit between adult acute psychiatric inpatient units and a client's usual place of residence. PARC aims to assist in averting acute inpatient admissions and to facilitate earlier discharge from inpatient units.
PBS	**Pharmaceutical Benefits Scheme**
PCCNH EWG	**Primary Care / Community / Non Hospital Expert Working Group**
PCP	**Primary Care Partnership**. Victorian Government initiative to establish links between primary care providers
PDRSS	**Psychiatric Disability Rehabilitation and Support Services** The non-government PDRSS sector provides non clinical specialist mental health services. They work within a recovery and empowerment model to maximise people's opportunities to live successfully in the community. PDRSS are aimed at people with serious mental illness and associated significant psychiatric disability. Services cater primarily for people aged between 16 and 64 years. The precise eligibility criteria will depend on the type of service or program offered. Preferred consumers receiving case management services from the public mental health service are automatically eligible for support from the PDRSS.
PDSRR EWG	**Psychiatric Disability Support, Rehabilitation and Recovery Expert Working Group**
PECC	**Psychiatric Emergency Care Centre: specialist units to provide acute or crisis care.**
PECU	**Psychiatric Emergency Care Units**
Peer Support	"Social and emotional support, frequently coupled with practical support, provided by people who have experienced mental health problems to others sharing a similar mental health condition. Peer support aims to bring about a desired social or personal change and may be provided on a financial or unpaid basis." PDSRR EWG Draft Glossary of Terms 04 Sept 2012 – V 1.00 13 *Mental Health Workforce Advisory Committee (MHWAC) (2011) National Mental Health Workforce Strategy, Victorian Government Department of Health,*

Term	Description / Definition
	Victoria. "Peer support is a system of giving and receiving help founded on the key principles of respect, shared responsibility, and a mutual agreement of what is helpful...It is about understanding another's situation empathetically through the shared experience of emotional and psychological pain" (Mead, 2003 in Cassar Bartolo, K and Sanders, F. (2008*) Carer Involvement Project Gathering Lived Experience Phase 1,* ARAFEMI, Victoria.)
Peer Support Worker	"A Peer Worker is someone with a lived experience of mental illness, who is living well and is able to support others experiencing mental illness in facilitating their own recovery". (*www.peerwork.org.au)* "A peer support worker is a person-centred worker whose actions are underpinned by recovery and strength-based philosophies. The life experience of the worker creates common ground from which a trust relationship with the person is formed. Empowerment, empathy, hope and choice along with mutuality are the main drivers in purposeful peer support work. There is a great deal of strength gained in knowing someone who has walked where you are walking and who now has a life of their choosing. In this way it is different from support work or clinical work or community work - it comes from a profoundly different philosophical base."*(www.tepou.co.nz)*
PEP	**Parental Education Program**
Percentage reached	DEFINITION: The percentage of the *Target population* who will access services in each Need Group. The model assumes that the percentage reached will vary according to the severity of illness. This is set at 50% for the MILD group, 80% for the MODERATE Group and 100% for all SEVERE Groups.
PHaMs	**Personal Helpers and Mentors Program** – A community mental health support service funded by the Australian Government to provide individual support to individuals with severe mental illness.
Physical Health Needs of An Individual	The care packages do not include the physical care needs of people (only their mental health needs) The care package describes 12 months' mental health care for an individual. A care package may, however, specify referral to another clinician regarding physical health needs.
PIMH	**Perinatal and Infant Mental Health**
PIR	**Partners in Recovery** Initiative An initiative of the Department of Health and Ageing, (Part of the Commonwealth Government) PIR aims to better support people with severe and persistent mental illness with complex needs and their carers and families, by getting multiple sectors, services and supports they may come into contact with (and could benefit from) to work in a more collaborative, coordinated, and integrated way.
PMH and EI Team	**Primary Mental Health And Early Intervention Team**. These teams provide consultation, liaison, education and training services to GPs for both low and high prevalence disorders. They provide some short-term direct care treatment and assessment for these high prevalence disorders.
PND	**Post Natal Depression**
PPEI	**Promotion, Prevention and Early Intervention** Key difference between screening (PPEI) and case finding (Primary Care) is whether the person is presenting with distress or whether the screening is

Term	Description / Definition
	applied to all of a group with or without personal distress.
Prevention	DEFINITION Interventions that occur before the initial onset of the disorder to prevent the development of disorder (Commonwealth of Australia 2000:4).
PST	**Problem solving therapy**
PTSD	**Post-Traumatic Stress Disorder**
QCMHR	**Queensland Centre for Mental Health Research** conducts mental health research programs in Policy and Evaluation, Social Inclusion and Translational research, Early Psychosis and Intervention; Genetics, Developmental Neurobiology, and Epidemiology.
RACGP	**Royal Australian College of General Practitioners**
RANZCP	**Royal Australian and New Zealand College of Psychiatrists**
RAPID	Victorian mental health treatment database
Readmission Rate	Readmission rates are modelled within the NMHSPF Model and are seen in the staffing profiles. Any adjustments for the readmission rate are modelled with the care packages, for example in EPS Yr1 for 12-17 and 18-64 age groups.
Recovery	"Recovery is a concept that has emerged from people who have first-hand experience of mental health problems. There is no universal definition of recovery, as it is a personal process that has different meanings for different people. While many health professionals consider "recovery" to mean "cure", the concept of recovery goes beyond this and considers all aspects of functioning. Recovery is a process of personal growth and transformation beyond suffering and exclusion – it is an empowering process emphasizing people's strengths and capabilities for living full and satisfying lives. Recovery may be described by people with mental health problems as enjoying the pleasures life has to offer, pursuing personal dreams and goals, developing rewarding relationships, learning to cope with mental health problems despite symptoms or setbacks, reducing relapses, becoming free of symptoms, staying out of hospital, or getting a job." *WHO (2010) Community-Based Rehabilitation: CBR Guidelines – Supplementary Booklet, WHO, Malta.* Personal recovery is defined as being able to live well and to build and live the life one chooses in the presence or absence of mental ill health. A recovery-oriented approach aspires to support people with mental illness to live well and to live the life they choose. It is an overarching vision that does not equate with a particular model of care, phase of care or service setting but that can be used to guide practice across the full range of clinical and non- clinical services." *Adapted from the Victorian Department of Health Framework for Recovery Oriented Practice 2011* cited in Craze, L. (2012) *National Recovery-Oriented Mental Health Practice Framework - 2nd Consultation Draft,* on behalf of the Safety and Quality Partnership Subcommittee of the Australian Health Ministers' Advisory Council, Mental Health Standing Committee.) Recovery-oriented mental health practice refers to the application of sets of capabilities that support
Recovery (Treatment Outcomes)	The model does not make any estimates about the outcomes of treatment or recovery rates. The purpose of the model is to provide a consistent and transparent basis for all jurisdictions to estimate the gaps between current services and what is required (or what should be in place to provide an adequate mental health service).
Rehabilitation	**Note:** In the context of the NMHSPF project, "rehabilitation" is a specific intervention described below while "recovery" is an approach to mental health

Term	Description / Definition
	care that is driven by the consumer. See definition for Recovery. "Rehabilitation is a set of measures which enables people with disabilities to achieve and maintain optimal functioning in their environments; it is relevant both for those who acquire disabilities during their lifetime and for those who have disabilities from birth. Rehabilitation services range from the basic to the specialized and are provided in many different locations e.g. hospitals, homes and community environments. Rehabilitation is often initiated by the health sector but requires collaboration between all sectors." *WHO (2010) Community-Based Rehabilitation: CBR Guidelines, WHO, Malta.* "Psychiatric rehabilitation promotes recovery, full community integration, and improved quality of life for persons who have been diagnosed with any mental health condition that significantly impairs their ability to lead meaningful lives. Psychiatric rehabilitation services are collaborative, person directed and individualised" Anthony, W.A., and Farkas, M. D., *(2012)*
Residential rehabilitation	Residential rehabilitation services provide intensive psychosocial rehabilitation and support to people in group accommodation to prepare them for independent living.
Resource Distribution Formula (RDF)	**Resource Distribution Formula** The NMHSPF is not an RDF. The NMHSPF is a service planning tool that estimates the resources that mental health services should have. A resource distribution formula takes into account socio-economic and other factors (age, gender, ethnicity etc) ie the factors that need to be taken into consideration during implementation of the model..
Respite	The function of respite it to provide the carer with time away from the caring role, often using care workers to temporarily act in the role of carer. Various forms of respite are essential in assisting carers continue their caring role, by giving them a break from responsibilities and a chance to take some time for themselves. The are several types ranging from emergency respite if carers are unable to care because they themselves are unwell or they need to assist another family member, to planned respite from a few hours to several days in length. Respite can also involve assistance with housework or other tasks. (Mental Health Council of Australia (2010) *Mental Health Carers Report 2010*, MHCA Canberra.) Responsive respite "should also have the capacity to directly respond to carer needs. This can be achieved through the provision of resources to the carer in order for them to continue in their caring role. The guiding principles underpinning this approach are flexibility and responsiveness. Cassar Bartolo, K and Sanders, F. (2008) *Carer Involvement Project Gathering Lived Experience Phase 1,* ARAFEMI, Victoria. Respite needs to be flexible, timely, responsive and innovative. It should meet the needs of carers, but also those of the people they are caring for. The strategy has to focus on building capacity in both the person with the mental illness and the carer. Respite needs an integrated approach, where something positive happens for the person with mental illness at the same time as something positive happens for the carer. Services need to be mental health specific with trained mental health staff who have the skill and knowledge to support carers. Adequate community services, particularly early intervention services, prevent undue deterioration and peace of mind for the carer. A cornerstone of effective respite is an integrated and coordinated approach for carers. They need to know who to contact, how and when. In any new model of respite, the person with mental illness and their close relative or carer should be

Term	Description / Definition
	viewed together as the unit of intervention. What helps one will help the other. This could result in an easier relationship between carer and relative, better management of the illness and a way for the relative to work towards self-reliance and independence. PDSRR EWG Draft Glossary of Terms 04 Sept 2012 – V 1.00 17 Adapted from Psychiatric Disability Services of Victoria (VICSERV) (2008) *Partners in Respite – Building Capacity in Community Mental Health Family Support and Carer Respite*, VICSERV, Victoria.
ROI	**Return On Investment**
Rural and Remote Communities	The model does not take into account factors such as rurality, or remoteness, which may affect the relative need and demand for services, the relative price of delivering the same quality of service, or both. Instead we are modelling the "Australian average", where one standard notional "group" of 100,000 of age specific population is exactly the same as the next standard notional "group" of 100,000 of age specific population. There is a whole other field of modelling for the relativities in demand and/or price for all sorts of services, including health services, such as the work of the Commonwealth Grants Commission in distributing GST revenue, or the Resources Distribution Formulae used in some jurisdictions for allocations of health funding. Similarly, there are pricing mechanisms (or models) for health service activity, which are used in Activity Based Funding or to determine the Medical Benefits Schedule. Each of these has its own rationale and its own development processes and methods. However, none of them address the issue addressed in the NMHSPF Model, namely the actual level of services that is judged to be clinically adequate. The NMHSPF Model is not a prescriptive mechanism for setting targets, nor does it aim to replace distribution formulae of this type. The model may be adapted by users in many ways to deal with the particular needs of particular groups within that standard Australian population
SAI	**Sub-Acute Intensive**, used in care packages.
SANE Australia	SANE Australia is a national charity helping all Australians affected by mental illness lead a better life – through campaigning, education and research. https://www.sane.org/
SAR	**Sub-Acute Residential**, used in care packages.
SCKOPING	**The Sunshine Coast Koping Network** SCKoping includes government and community agencies working collaboratively to develop, support and implement strategies that respond to the needs of these children and young people who are living in a family affected by mental illness.
SCOTT	**Service Coordination and Tool Template**. Group of common documentation developed for use across primary care services by Primary Care Partnerships (Victorian Government initiative to establish links between primary care providers)
SECU	**Secure extended care units**. These services provide medium to long-term inpatient treatment and rehabilitation for consumers who have unremitting and severe symptoms of mental illness, together with associated significant disturbance, that inhibit their capacity to live in the community. They are typically located on hospital sites with acute mental health units or other extended care bed based services. They

Term	Description / Definition
	represent the highest level of care on the continuum of mental health services and provide extended clinical treatment, supervision and support (SECU are not in all catchment areas).
Selective prevention interventions	DEFINITION: Interventions targeting a sub-group of the population or individuals whose risk of developing mental disorders is significantly higher than average. The risk may be imminent or lifetime in nature. Further risk groups can be identified on the basis of biological, psychological or social risk factors known to be associated with the disorder. Examples include home visiting and infant day care for low birth weight children or pre-school based programs for children from disadvantaged neighbourhoods.
Separation	Separations refers to an episode of care for an admitted patient, which can be a total hospital stay (from admission to discharge, transfer or death) or a portion of a hospital stay beginning or ending in a change of type of care (for example, from acute to rehabilitation). Separation also means the process by which an admitted patient completes an episode of care by being discharged, dying, transferring to another hospital or changing type of care.
Service Activity	In the NMHSPF taxonomy structure, Service Activities are the fifth (lowest) level of disaggregation of service based on common features. Service Activity is below Service Group, Stream, Category and Element). for example, the Service Element Non-Acute Extended Treatment Services (Residential and Hospital or Nursing Home Based) is divided into five Service Activities: • Non-Acute Intensive Care Service - Adult (Hospital) • Non-Acute Intensive Care Service - Older Adult (Hospital) • Non-Acute – Adult and Older Adult (24 Hour Support) (Residential) • Non-Acute – Older Adult (Hospital/Nursing Home Based) • Non-Acute – Specialised Services (Hospital/Nursing Home Based) **NB** Service elements and service activities describe the actual care and its delivery: the why, what, where, when, how, how often, by whom and for whom.
Service Category	In the NMHSPF taxonomy structure, Service Categories are the third level of disaggregation of service based on common features. Service Category is below Service Group and Stream. For example, the Service Stream - Specialised Bed-Based Mental Health Care Services is divided into three Service Categories: • Acute Inpatient Services (Hospital Based) • Sub-Acute Services (Residential and Hospital or Nursing Home Based) • Non-Acute Extended Treatment Services (Residential and Hospital or Nursing Home Based) Some care is modelled at the Category level, for example the Promotion and Prevention care packages are estimated at this level, however the service elements are described in full so jurisdictions can deliver the promotion and prevention services.
Service Element	In the NMHSPF taxonomy structure, Service Elements are the fourth level of disaggregation of service based on common features. Service Element is below Service Group, Stream and Category) for example, the Service Category - Non-Acute Extended Treatment Services

Term	Description / Definition
	(Residential and Hospital or Nursing Home Based) is divided into five Service Elements: • Non-Acute Intensive Care Service (Hospital) • Non-Acute Intensive Care Service Older Adult 65+(Hospital) • Non-Acute - Adult or Older Adult (24 hour support) (Residential) • Non-Acute – Older Adult (Hospital/Nursing Home Based) • Non-Acute – Specialised Services (Hospital/Nursing Home Based)
Service Group	In the NMHSPF taxonomy structure, Service Groups are the first (highest) level of disaggregation of service based on common features The taxonomy is divided between two Service Groups: • Population Based Services, • Services Tailored to Individual Needs
Service population	DEFINITION: *Target population* x *Percentage reached*. It is the base for all resource and output calculations.
Service Stream	In the NMHSPF taxonomy structure, Service Streams are the second level of disaggregation of service based on common features. Service Stream is below Service Group. For example, the Service Group - Services Tailored to Individual Needs is divided into five Service Streams: • Medication • Primary and Specialised Clinical Ambulatory Mental Health Care Service • Specialised Mental Health Community Support Services • Specialised Bed-Based Mental Health Care Services • Non-mental Health Care Services
Should Model	The NMHSPF model specifies the amount of treatment that 'should' be provided, consistent with best available evidence of treatment effectiveness. The types and quantities of care specified in the care packages are defined as "adequate" to provide good care, and based on evidence. This means that anything less would be unsatisfactory or inadequate. We could design the Rolls Royce treatment service but the reality is that in some instances the evidence is that small and simple and short interventions work just as well as long and complex interventions depending on the person and depending on the diagnosis and severity. In some cases the evidence is lacking so we cannot confidently say in randomised controlled trials this treatment beats this treatment. We can for some treatments where we have good evidence. So again it's a combination of research evidence and expert judgement. We're not expecting everyone that has a problem should receive treatment but we're not assuming the lowest common denominator of unmet treatment demand. Also we are assuming that we need an array of different treatment types ranging from inpatient to treatment within communities. The purpose of the model is to provide a consistent and transparent basis for all jurisdictions to estimate the gaps between current services and what is required (or what should be in place to provide an adequate mental health service).
SMHS	**Southern Health Mental Health Services**
SMHSOP	**Specialist Mental Health Services for Older People**
SMHWB	**Survey of Mental Health and Well-Being (Australia**), a comprehensive survey

Term	Description / Definition
	of Australian adults' mental health
SPMI	**Severe and persistent mental illness**
Standard Populations of 100,000	The model uses populations of 100,000 for convenience because some substance use conditions are very rare, and some services are required only rarely. It is simply easier (and less error-prone) to work with whole numbers rather than the fractions that would result if we used percentages (that is, a base population of 100,000). The model uses the standard Australian census population (of 2011) as a reference point because these numbers are fixed. The Population Projections for the states and LHN or LGA have varied sources.. Each jurisdiction will typically have its own way of producing local population projections for other years, but will base them on the census data for census years. For more information, see **Error! Not a valid result for table.**
Structured Psychological Therapies	Interventions which include a structured interaction between a mental health consumer and a qualified mental health professional using a recognised, psychological method - e.g., CBT, family therapy or psycho-education counselling. Psychological interventions are designed to alleviate psychological distress or emotional disturbance, change maladaptive behaviour and foster mental health. These interventions embrace the following three approaches: Psychosocial therapy; Education: Counselling.
SUD	**Substance use disorders**
Supported Education	"Supported Education refers to the provision of support and advice to people with a disability who are undertaking education or training". *(McLaren, K (2004) Work in Practice – Best practice employment support services for people with mental illness, NZ)*. The following factors are suggested as those which make education support services effective: Increasing educational involvement and qualifications has the potential to improve employability, work options and earnings; Students take part in study out of personal preference rather than being coerced to do so; Choosing courses and qualifications to embark on is done as part of the career planning process; Students take part in courses that lead to academic or vocational qualifications that are recognised by themselves and employers; Supported education is based on alliances between five key stakeholders; consumers and family members, mental health systems, academic institutions, and vocational rehabilitation agencies; Staff involved in supported education have knowledge of supported education as a type of rehabilitation; Supported education staff provide services relating to education issues, while mental health treatment is provided by clinical staff; Staff (clinical, employment and education) have positive attitudes towards the ability of people with experience of mental illness to study and take part in

Term	Description / Definition
	competitive work; Assessment of students' mental health, education and rehabilitation needs takes place; Barriers to education are identified and addressed, including policy, resource and administrative barriers, as well as the challenges of people coping with mental illness; Support is provided by staff and/or peers, on campus or off campus; Support includes helping people cope with stress, providing information on courses, finances and assistance, giving practical help e.g. Helping fill out forms, and helping people gain social acceptance in educational settings. Cited in Mowbray C.T. and Collins, M.E. (2002) The Effectiveness of Supported Education: Current Research Findings, in CT Mowbray, KS Brown, K Furlong-Norman and AS Soydan (EDs), *Supported Education and Psychiatric Rehabilitation: Models and Methods*, (pp 181-194), Linthicum, MD: International Association of Psychosocial Rehabilitation Services. Cited in *(McLaren, K (2004) Work in Practice – Best practice employment support services for people with mental illness, NZ)*.
Supported Employment	"Supported employment involves: Services being available to everyone who has experience of mental illness with no exclusions; A career planning process to identify the kind of work the person is most interested in; Active involvement of staff in approaching potential employers; Support of staff in applying for and retaining a job; A focus on employment in the open market with competitive rates of pay; Open ended support in the job (or in finding a new job) with no cut-off point. The first step to finding work is staying with an employment support service long enough to apply for suitable jobs. This can be facilitated by the effective provision of information to the individual, integrating clinical and employment services and moving the individual quickly into the job search process (rather than requiring work experience or training first). The second step is to stay in a specific job or in work generally with the first 3 – 6 months highlighted as the most important for support for those having difficulty staying in work. This can be facilitated by making adjustments at work to support the individual in doing their best. For example, arranging part time hours, flexible work hours, leave when unwell, or visits from employment support staff. Coaching in the skills to cope with the job and on how to manage work and illness in general may also be useful. *(*McLaren, K (2004) *Work in Practice – Best practice employment support services for people with mental illness,* NZ). Principles for Supported Employment are: Competitive employment is the goal; Job search starts on entry to the program; Eligibility is based on consumer choice; Integration for mental health care with vocational services; Support is not time limited; and Consumer preferences are important. A key feature of supported employment programs is the level of integration between the mental health services and vocational service….Integration may take the form of the 'co-location model' providing daily opportunities for formal and informal communication, but high levels of integration may also be achieved through alternative approaches such as enhanced instersectoral links. (VETE Report)

Term	Description / Definition
SUSD	**Step Up Step Down,** These community based residential services are provided for consumers who have recently experienced, or are at risk of experiencing, an acute episode of mental illness and who require treatment and care to reduce symptoms and/or distress that cannot be provided in the person's home but does not require the treatment intensity provided by acute inpatient units.
Target population	DEFINITION The estimated number of people per 100,000 in each Need Group.
TAU	Treatment as usual, term used in research ie the control group.
Taxonomy	The NMHSPF project taxonomy structure is a classification system that provides a way to conceptualise and ensure all services are covered within the framework. For the taxonomy List, see **Taxonomy.**
Triple P	Positive Parenting Program
Universal prevention interventions	DEFINITION interventions targeting the general population or a whole population group that has not been identified on the basis of individual risk. Examples include prenatal care for all new mothers and their babies and immunisation for all children of specific ages.
VETE	**Vocational Education, Training and Employment**
VicHealth	**The Victorian Health Promotion Foundation.** The peak body for health promotion in Victoria
WEIS	**Weighted Inlier Equivalent Separations.** A patient's WEIS value depends upon the amount of time they stay in hospital compared to other patients with similar conditions (inlier equivalence) and the relative cost of treating their condition compared to the cost of other illnesses (cost weight or relativity).
YEP	**Youth Early Psychosis**
YLDs	**Years lived with disability**

17 Taxonomy

The taxonomy is included here for reference purposes.
For full details and descriptions of each element, see the document Service Element and Activity Descriptions.

Table 36 - Taxonomy List

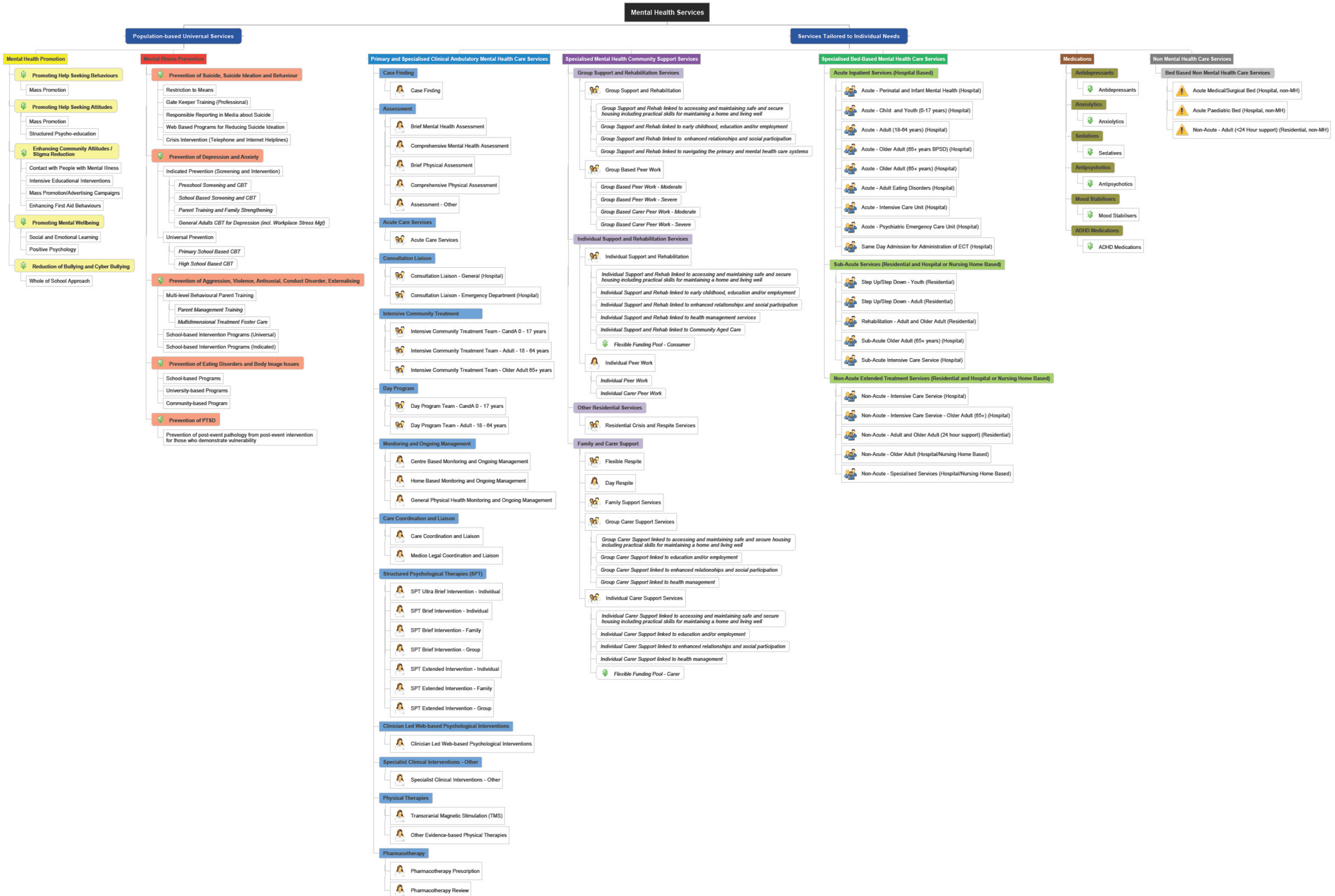
	Population-based universal services
	Mental Health Promotion
PHB	**Promoting Help Seeking Behaviours**
PHB1	Mass Promotion
PHA	**Promoting Help Seeking Attitudes**
PHA1	Mass Promotion
PHA2	Structured Psycho-Education
SR	**Enhancing Community Attitudes/Stigma Reduction**
SR1	Contact with People with Mental Illness
SR2	Intensive Educational Interventions
SR3	Mass Promotion/Advertising Campaigns
SR4	Enhancing First Aid Behaviours
PMW	**Promoting Mental Wellbeing**
PMW1	Social and Emotional Learning
PMW2	Positive Psychology
RB	**Reduction of Bullying and Cyber Bullying**
RB1	Whole of School Approach
	Mental Health Prevention
PS	**Prevention of Suicide, Suicide Ideation and Behaviour**
PS1	Restriction to Means
PS2	Gate Keeper Training (Professional)
PS3	Responsible Reporting in Media about Suicide
PS4	Web Based Programs for Reducing Suicide Ideation
PS6	Crisis Intervention (Telephone and Internet Helplines)
PDA	**Prevention of Depression and Anxiety**
PDAS	Indicated Prevention (Screening and Intervention)
PDAS1	Preschool Screening and CBT
PDAS2	School Based Screening and CBT
PDAS3	Parent Training and Family Strengthening
PDAS4	General Adults CBT for Depression (incl.Workplace Stress Mgt)
UP	Universal Prevention
UP1	Primary School Based CBT
UP2	High School Based CBT
PA	**Prevention of Aggression, Violence, Antisocial, Conduct Disorder, Externalising**
PA1	Multi-Level Behavioural Parent Training
PA2	Parent Management Training
PA3	Multidimensional Treatment Foster Care

PA4	School-Based Intervention Programs (Universal)
PA5	School-Based Intervention Programs (Indicated)
PE	**Prevention of Eating Disorders And Body Image Problems**
PE1	School-Based Programs
PE2	University-Based Programs
PE3	Community-Based Programs
PP	**Prevention of PTSD**
PP1	Prevention of Post-Event Pathology From Post-Event Intervention For Those Who Demonstrate Vulnerability
	Services tailored to individual needs
	Primary and Specialised Clinical Ambulatory MH Care Services
AC	**Case Finding**
AC1	Case Finding
AA	**Assessment**
AA1	Brief Mental Health Assessment
AA2	Comprehensive Mental Health Assessment
AA3	Brief Physical Assessment
AA4	Comprehensive Physical Assessment
AA5	Assessment - Other
AB	**Acute Care Services**
AB1	Acute Care Services
CL	**Consultation Liaison**
BG	Consultation Liaison - General (Hospital)
BL	Consultation Liaison - Emergency Department (Hospital)
AR	**Intensive Community Treatment Service**
AR1	Intensive Community Treatment Team - CandA 0 - 17 years
AR2	Intensive Community Treatment Team- Adult - 18 - 64 years
AR3	Intensive Community Treatment Team - Older Adult 65+ years
AD	**Day Program**
AD1	Day Program Team - CandA 0 - 17 years
AD2	Day Program Team - Adult - 18 - 64 years
AM	**Monitoring and Ongoing Management**
AM1	Centre Based Monitoring and Ongoing Management
AM2	Home Based Monitoring and Ongoing Management
AM3	General Physical Health Monitoring and Ongoing Management
AL	**Care Coordination and Liaison**
AL1	Care Coordination and Liaison
AL2	Medico Legal Coordination and Liaison
AT	**Structured Psychological Therapies (SPT)**
AT1	SPT Ultra Brief Intervention- Individual
AT2	SPT Brief Intervention- Individual
AT3	SPT Brief Intervention- Family
AT4	SPT Brief intervention - Group
AT5	SPT Extended Intervention- Individual
AT6	SPT Extended Intervention- Family

AT7	SPT Extended Intervention- Group
AW	**Clinician Led Web-based Psychological Interventions**
AW1	Clinician Led Web-based Psychological Interventions
AS	**Specialist Clinical Interventions - Other**
AS1	Specialist Clinical Interventions - Other
AP	**Physical Therapies**
AP2	Transcranial Magnetic Stimulation (TMS)
AP3	Other Evidence Based Physical Therapies
AY	**Pharmacotherapy**
AY1	Pharmacotherapy Prescription
AY2	Pharmacotherapy Review
	Specialised MH Community Support Services
G	**Group Support and Rehabilitation Services**
GR	Group Support and Rehabilitation
GR1	Group Support and Rehab linked to accessing and maintaining safe and secure housing including practical skills for maintaining a home and living well
GR2	Group Support and Rehab linked to early childhood, education and/or employment
GR3	Group Support and Rehab linked to enhanced relationships and social participation
GR4	Group Support and Rehab linked to navigating the primary and mental health care systems
GP	Group Based Peer Work
GP1	Group Based Peer Work - Moderate
GP2	Group Based Peer Work - Severe
GP3	Group Based Carer Peer Work - Moderate
GP4	Group Based Carer Peer Work - Severe
I	**Individual Support and Rehabilitation Services**
IR	Individual Support and Rehabilitation
IR1	Individual Support and Rehab linked to accessing and maintaining safe and secure housing including practical skills for maintaining a home and living well
IR2	Individual Support and Rehab linked to early childhood, education and/or employment
IR3	Individual Support and Rehab linked to enhanced relationships and social participation
IR5	Individual Support and Rehab linked to health management services
IR6	Individual support and Rehab linked to Community Aged Care
IR7	Flexible Funding Pool - Consumer
IP	Individual Peer Work
IP1	Individual Peer Work
IP2	Individual Carer Peer Work
O	**Other Residential Services**
OC	Residential Crisis and Respite Services
F	**Family and Carer Support**
FR	Flexible Respite
FD	Day Respite
FS	Family Support Services
FG	Group Carer Support Services
FG1	Group Carer Support linked to accessing and maintaining safe and secure housing including practical skills for maintaining a home and living well

FG2	Group Carer Support linked to education and/or employment
FG3	Group Carer Support linked to enhanced relationships and social participation
FG4	Group Carer Support linked to health management
FI	Individual Carer Support Services
FI1	Individual Carer Support linked to accessing and maintaining safe and secure housing including practical skills for maintaining a home and living well
FI2	Individual Carer Support linked to education and employment
FI3	Individual Carer Support linked to enhanced relationships and social participation
FI4	Individual Carer Support linked to health management
FI5	Flexible Funding Pool - Carer
	Specialised Bed-Based MH Care Services
B	**Acute Inpatient Services (Hospital Based)**
BP	Acute - Perinatal and Infant Mental Health (Hospital)
BY	Acute - Child and Youth (0-17 years) (Hospital)
BA	Acute - Adult (18-64 years) (Hospital)
BB	Acute - Older Adult (65+ years BPSD) (Hospital)
BO	Acute - Older Adult (65+ years) (Hospital)
BD	Acute - Adult Eating Disorders (Hospital)
BI	Acute - Intensive Care Unit (Hospital)
BE	Acute - Psychiatric Emergency Care Unit (Hospital)
BT	Same Day Admission for Administration of ECT (Hospital)
C	**Sub-Acute Services (Residential and Hospital or Nursing Home Based)**
CY	Step Up/ Step Down - Youth (Residential)
CA	Step Up/Step Down - Adult (Residential)
CQ	Rehabilitation - Adult and Older Adult (Residential)
CO	Sub-Acute Older Adult (65+ years)(Hospital)
CI	Sub-Acute Intensive Care Service (Hospital)
D	**Non-Acute Extended Treatment Services (Residential and Hospital or Nursing Home Based)**
DI	Non-Acute - Intensive Care Service (Hospital)
DC	Non-Acute -Intensive Care Service - Older Adult(65+) (Hospital Based)
DT	Non-Acute - Adult and Older Adult (24 hour support) (Residential)
DO	Non-Acute - Older Adult (Hospital/Nursing Home Based)
DS	Non-Acute - Specialised Services (Hospital/Nursing Home Based)
	Medications
N06A	**Antidepressants**
N05B	**Anxiolytics**
N05C	**Sedatives**
N06B	**ADHD medications**
NO5A	**Antipsychotics**
N03	**Mood stabilisers**
	Non-Mental Health Care Services
BN	**Bed-Based Non-Mental Health Care Services**
BH	Acute Medical/Surgical Bed (Hospital, non-MH)
BC	Acute Paediatric Bed (Hospital, non-MH)
DA	Non-Acute - Adult (<24 hour support) (Residential, non-MH)

Figure 21 - NMHSPF Taxonomy



18 List of References and Data Sources

"Schizophrenia has many faces" - evaluation of the Austrian Anti-Stigma-Campaign 2000-2002 Grausgruber, A., et al.,. *Psychiatrische Praxis*, 2009. **36**(7): p. 327-33.
"Well it's like someone at the other end cares about you." A qualitative study exploring the views of users and providers of care of contact-based interventions following self-harm Jayne Cooper, Cheryl Hunter, Amanda Owen-Smith, David Gunnell, Donovan, j, Keith Hawton, Navneet Kapur. *General Hospital Psychiatry* Volume 33, Issue 2, March–April 2011, Pages 166–176 doi:10.1016/j.genhosppsych.2011.01.009
10 Year Mental Health Strategy for Queensland
2007 National Survey of Mental Health and Wellbeing: methods and key findings. Slade T, Johnston A, Oakley Browne MA, Andrews G, Whiteford H. *Aust N Z J Psychiatry*. 2009 Jul;43(7):594-605. doi: 10.1080/00048670902970882. http://www.ncbi.nlm.nih.gov/pubmed/19530016
3222.0 - Population Projections, Australia, 2006 to 2101, Released at 11:30 AM (CANBERRA TIME) 04/09/2008 http://www.abs.gov.au/ausstats/abs@.nsf/mf/3222.0
A brief measure of vocational activity and community participation: development and reliability of the Activity and Participation Questionnaire, Stewart G, Sara G, Harris M, Waghorn G, Hall A, Sivarajasingam S, Gladman B, Mowry B. *Australian and New Zealand Journal of Psychiatry, 2010*; 44(3):258-266. Online: http://anp.sagepub.com/content/44/3/258.full.pdf+html
A domains-based taxonomy of supported accommodation for people with severe and persistent mental illness. Siskind D, Harris M, Pirkis J, Whiteford H. Soc Psychiatry Psychiatr Epidemiol. 2012a Oct 2. [Epub ahead of print]
A meta-analysis of anxiety symptom prevention with cognitive-behavioral Interventions Zalta, AK (2011). Journal of Anxiety Disorders 25 (2011) 749–760
A meta-analysis of the effects of internet- and computer-based cognitive-behavioral treatments for anxiety. Reger MA, Gahm GA. J Clin Psychol. 2009 Jan;65(1):53-75. doi: 10.1002/jclp.20536. http://www.ncbi.nlm.nih.gov/pubmed/1905127
A meta-analytic review of eating disorder prevention programs: Encouraging findings. Stice, E., Shaw, H., and Marti, C. N. (2007). *Annual Review of Clinical Psychology*, *3*, 207–231.
A Practical Guide to Recovery-Oriented Practice: Tools for Transforming Mental Health Care. Davidson, L., Rowe, M., Tondora, J., O'Connel, M. and Lawless, M. (2008) New York: Oxford University Press.
A preliminary controlled comparison of programs designed to reduce risk of eating disorders targeting perfectionism and media literacy. Wilksch, S. M., Durbridge, M. R., and Wade, T. D. (2008). Journal of the American Academy of Child and Adolescent Psychiatry, *47*, 939–947
A preliminary investigation of a prototype internet dissonance-based eating disorder prevention program for young women with body image concerns. Stice, E., Rohde, P., Durant, S. and Shaw, H. (2012). *Journal of Consulting and Clinical Psychology*, *80*, 907-16.
A prospective study on the impact of peer and parental pressure on body dissatisfaction in adolescent girls and boys. Helfert, S., and Warschburger, P. (2011). *Body Image, 8*(2), 101-109.
A public health response to a cluster of suicidal behaviors: Clinical psychiatry, prevention,

and community health. Askland, K. D., Sonnenfeld, N., and Crosby, A. (2003) *Journal of Psychiatric Practice, 9*, 219–227. doi 00131746-200305000-00005

A RCT of a Transdiagnostic Internet-Delivered Treatment for Three Anxiety Disorders:

Examination of Support Roles and Disorder-Specific Outcomes. Johnston L, Titov N, Andrews G, Spence J, Dear BF (2011) PLoS ONE 6(11): e28079. doi:10.1371/journal.pone.0028079

A structural multidisciplinary approach to depression management in nursing-home residents: a multicentre, stepped-wedge cluster-randomised trial.; Leontjevas R, Gerritsen DL, Smalbrugge M, Teerenstra S, Vernooij-Dassen MJ, Koopmans RT.;Department of Primary and Community Care, Center for Family Medicine, Geriatric Care and Public Health, Radboud University Nijmegen Medical Centre, Nijmegen, Netherlands.

A study of clozapine and long-term hospitalisation rates. Woodall AA, Menkes DB, Trevelyan TR, Lanceley CP. *Psychiatric Bulletin/ The Psychiatrist* 2004; 28:285-288.

A study of time-space clustering of suicide: Final report. Gould, M.S., Wallenstein, S., and Kleinman, N. (1987). Atlanta, GA: Centers for Disease Control.

A synthesis of the evidence for managing stress at work: a review of the reviews reporting on anxiety, depression, and absenteeism. [Review] Bhui KS. Dinos S. Stansfeld SA. White PD. Journal Of Environmental and Public Health. 2012:515874, 2012.

A systematic review of help-seeking interventions for depression, anxiety and general psychological distress. Gulliver, A., et al.,BMC Psychiatry, 2012. **12**: p. 81.

A Systematic Review of School-Based Interventions Aimed at Preventing, Treating, and Responding to Suicide- Related Behavior in Young People. Robinson J, Cox G, Malone A, Williamson M, Baldwin G, Fletcher K, O'Brien M. *Crisis.* 2012 Nov 28:1-19. [Epub ahead of print] doi: 10.1027/0227-5910/a000168

A systematic review of school-based interventions to prevent bullying. Vreeman, R.C. and A.E. Carroll ;Archives of Pediatrics and Adolescent Medicine, 2007. **161**(1): p. 78-88.

ABS Cat No 3222.0 - Population Projections, Australia, 2006 to 2101

ABS Cat No 3235.0 - Population by Age and Sex, Regions of Australia, 2012.

Act In case of Depression: The evaluation of a care program to improve the detection and treatment of depression in nursing homes. Study Protocol; Gerritsen et al;BMC Psychiatry 2011 11:91. doi:10.1186/1471-244X-11-91

Acute Care Team Model of Service, Queensland Public Mental Health Services (Endorsed Executive Director Mental Health, Queensland 02/07/2010)

Acute Care Team MOS Consultation Liaison Psychiatry Model of Service, QPMHS, Queensland, 2011.

Adult prevention and recovery care (PARC) services framework and operational guidelines

After a suicide: A toolkit for schools. American Foundation for Suicide Prevention and Suicide Prevention Resource Center. (2011). Newton, MA: Education Development Center. Retrieved from http://www.sprc.org/library/AfteraSuicide-ToolkitforSchools.pdf

Aged care packages in the community 2009–10: a statistical overview. Aged care statistics series no. 34. Cat. no. AGE 65. Australian Institute of Health and Welfare 2011 Canberra: AIHW.

AHMC (2009) Fourth National Mental Health Plan - An agenda for collaborative government action in mental health 2009-2014, Australian Government, Canberra.

AIHW "Hospital" data cubes for "Procedures":
2000-01 to 2001-02, classified using ICD-10-AM Second Edition
2002-03 to 2003-04, classified using ACHI Third Edition

2004-05 to 2005-06, classified using ACHI Fourth Edition
2006-07 to 2007-08, classified using ACHI Fifth Edition
2008-09 to 2009-10, classified using ACHI Sixth Edition

AIHW 2012. Australian hospital statistics 2011-12: emergency department care. Health services series. Cat. no. HSE 126. Canberra: AIHW.

http://www.aihw.gov.au/publication-detail/?id=10737423042

AIHW 2013. Dementia care in hospitals: costs and strategies. Cat. no. AGE 72. Canberra: AIHW.

http://www.aihw.gov.au/publication-detail/?id=60129542746

AIHW 2013. Development of a prototype Australian mental health intervention classification: a working paper. Working papers and data briefings. Australian Institute of Health and Welfare Cat. no. HSE 130. Canberra: AIHW. Viewed 25 July 2013
http://www.aihw.gov.au/publication-detail/?id=60129542689

AIHW NGO NMDS Taxonomy service type definitions (MH NGOE NMDS)
AIHW Non-Govt National Minimum Data Set Taxonomy April 2012

AIHW Non-Government Organisation Establishment (NGOE) National Minimum Dataset (NMDS) Service Taxonomy (draft January 2013)

Alzheimer's disease international World Alzheimer Report 2009; Editors Prof Martin Prince, Institute of Psychiatry, King's College London (chapter 1–2) Mr Jim Jackson (chapter 3–4)

An evaluation of a body image intervention based on risk factors for body dissatisfaction: A controlled study with adolescent girls. Richardson, S. M., and Paxton, S. J. (2010). *International Journal of Eating Disorders, 43*(2), 112-122.

An evaluation of crisis hotline outcomes. Part 1: Nonsuicidal crisis callers. Kalafat J,Gould MS, Munfakh JL,,Kleinman M *Suicide and Life-threatening Behavior* [2007, 37(3):322-337] (PMID:17579544)

An evaluation of Well Ways, a family education programme for carers of people with a mental illness. Stephens, J., Farhall, J., Farnan, S. and Ratcliff, K. (2011). *Australian and New Zealand Journal of Psychiatry, 45:* 45-53..

Antenatal and Postnatal Mental Health, The NICE Guideline on Clinical Management and Service Guidance, *NICE Clinical Guidelines, No. 45*

National Collaborating Centre for Mental Health (UK)., Leicester (UK): British Psychological Society; 2007. www.nice.org.uk/nicemedia/pdf/CG45fullguideline.pdf

ANZAED Position Statement, Inpatient Services for Eating disorders, 2007.

Assertive community treatment of the mentally ill: service model and effectiveness Adaobi Udechuku James Olver Karen Hallam, Frances Blyth, Melissa Leslie, Marina Nasso, Paul Schlesinger, Lorraine Warren, Miles Turner, Graham Burrows[1] Article first published online: Australasian Psychiatry 11 JUN 2005

Assessing the impact of media guidelines for reporting on suicides in Austria: Interrupted time series analysis. Niederkrotenthaler, T., and Sonneck, G. (2007). *Australasian Psychiatry, 41*, 419–428.

Association between older age and more successful aging: critical role of resilience and depression. Jeste DV, Savla GN, Thompson WK, Vahia IV, Glorioso DK, Martin AS, Palmer BW, Rock D, Golshan S, Kraemer HC, Depp CA. Am J Psychiatry. 2013 Feb 1;170(2):188-96. doi: 10.1176/appi.ajp.2012.12030386.

www.ncbi.nlm.nih.gov/pubmed/23223917

Associations between diet quality and depressed mood in adolescents: results from the Australian Healthy Neighbourhoods Study Jacka, FN, Kremer PJ, Leslie ER, Berk M, Patton GC,

Toumbourou JW, Williams JW (2010).. Australian and New Zealand Journal of Psychiatry, 44:435-442. http://www.gnmhealthcare.com/pdf/04-2010/16/ANPv44i5-04160550-418436_00048670903571598.pdf

AU-FAHCSIA-Family MH support-family_mental_health_support_services_fact_sheet

http://www.fahcsia.gov.au/our-responsibilities/disability-and-carers/programs-services

AU-FAHCSIA-PHAMS-phams_fact_sheet

http://www.fahcsia.gov.au/our-responsibilities/disability-and-carers/programs-services

Australian Bureau of Statistics 4430.0 - Disability, Ageing and Carers, Australia: Summary of Findings, 2009
http://www.abs.gov.au/ausstats/abs@.nsf/mf/4430.0

Australian Bureau of Statistics 4829.0.55.001 - *Health of Children, 2004* Latest ISSUE Released at 11:30 AM (CANBERRA TIME) 27/10/2004

http://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/BFDEA1987337522ECA2572820014F0FF?opendocument

Australian Bureau of Statistics (2008) *4326.0 - National Survey of Mental Health and Wellbeing: Summary of Results, 2008*; Canberra; ABS (2008); page last updated 22 October 2008. Available at:
http://www.abs.gov.au/AUSSTATS/abs@.nsf/Latestproducts/4326.0Main%20Features32007?opendocumentandtabname=Summaryandprodno=4326.0andissue=2007andnum=andview=

Australian Bureau of Statistics (23 July 2010) *Suicides in Australia 2001-2010* (cat. # 3309.0) Commonwealth of Australia. Available at: http://www.abs.gov.au/AUSSTATS/abs@.nsf/mf/3309.0/ Last updated: 24/07/2012

Australian Bureau of Statistics 2006, *National Health Survey: Summary of Results, Australia, 2004-05,* cat. no. 4364.0, ABS, Canberra

Australian Bureau of Statistics 2011, *3301.0 - Births, Australia, 2011,* cat. no. 3301.0, ABS, Canberra (Latest ISSUE Released at 11:30 AM (CANBERRA TIME) 25/10/2012)
http://www.abs.gov.au/ausstats/abs@.nsf/mf/3301.0

Australian Capital Territory population projections, URL:
http://www.cmd.act.gov.au/policystrategic/actstats/projections

***Australian Child Health Survey: Developing health and well-being in the nineties*.** Zubrick SR, Silburn SR, Garton A, Burton P, Dalby R, Carlton J, Shepherd C, Lawrence D. *Western* Perth, Western Australia. ABS and the Institute for Child Health Research,1995. (ABS Cat No 4303.5).

Australian Covert Bullying Prevalence Study (ACBPS), Cross, D., et al., 2009, Child Health Promotion Research Centre, Edith Cowan University: Perth.

Australian data and psychometric properties of the Strengths and Difficulties Questionnaire. Hawes DJ, Dadds MR *Australian and New Zealand Journal of Psychiatry 2004*; 38:644–651.

Australian Health Ministers (2009) *Fourth National Mental Health Plan - An agenda for collaborative government action in mental health 2009-2014,* Commonwealth of Australia, Canberra.

Australian Hospital Statistics 2010-2011, Australian Institute of Health and Welfare, Australian Government, November 2011.

Australian Medicines Handbook. (2013). Australian Medicines Handbook. from Australian Medicines Handbook Pty Ltd http://www.amh.net.au

***Barriers to the Dissemination of Empirically Supported Treatments: Matching Messages to the Evidence*.** Wampold, B., Imel, Z., and Miller, S. (2009) T*he Behaviour Therapis*t, 32(7), 144-155.

Bed substitution in acute psychiatric. Treatment for older people – an. Evaluation of the intensive community treatment program.,Department of Human Services - Victoria www.health.vic.gov.au/mentalhealth/aged/eval_report.pdf
Behaviour Management – A Guide to Good Practice: Managing Behavioural and Psychological Symptoms of Dementia (BPSD) www.dementiaresearch.org.au/images/dcrc/output-files/328-2012_dbmas_bpsd_guidelines_guide.pdf
Behavioural and psychological symptoms of dementia: a seven-tiered model of service delivery. Brodaty H, Draper BM, Low L-F. *Medical Journal of Australia 2003*; 178: 231–234 https://www.mja.com.au/journal/2003/178/5/behavioural-and-psychological-symptoms-dementia-seven-tiered-model-service;
Best Practice Elements of Multilevel Suicide Prevention Strategies - A Review of Systematic Reviews. van der Feltz-Cornelis, cm[1,2,14] Marco Sarchiapone,[3] Vita Postuvan,[3] Daniëlle Volker,[2] Saska Roskar,[4] Alenka Tančič Grum,[5] Vladimir Carli,[6] David McDaid,[7] Rory O'Connor,[8] Margaret Maxwell,[8] Angela Ibelshäuser,[9] Chantal Van Audenhove,[10] Gert Scheerder,[10] Merike Sisask,[11] Ricardo Gusmão,[12] and Ulrich Hegerl[13]. *Crisis*. 2011; 32(6): 319–333. Published online 2011 September 27. doi: 10.1027/0227-5910/a000109
Bird, E., Halliwell, E., Diedrichs, P.C., and Harcourt, D. (2013). Happy Being Me in the UK: A controlled evaluation of a school-based body image intervention with pre-adolescent children. *Body Image*, *10*, 326-334.
Body dissatisfaction prospectively predicts depressive mood and low self-esteem in adolescent girls and boys. Paxton, S. J., Neumark-Sztainer, D., Hannan, P. J., Eisenberg, M. (2006). *Journal of Clinical Child and Adolescent Psychology*, *35*, 539-549.
Body image development – adolescents. *Encyclopedia of Body Image and Human Appearance*, Wertheim, E.H. and Paxton, S.J. (2012). Oxford, UK: Elsevier, Ch. 29, 187-193.
Cairns Base Hospital Acute Inpatient Unit Queensland (Data Sample - Same day admission for the administration of ECT (Hospital))
Can we really prevent suicide? Schwartz-Lifshitz M, Zalsman G, Giner L, Oquendo MA. *Curr Psychiatry Rep.* 2012 Dec;14(6):624-33. doi: 10.1007/s11920-012-0318-3.
Carer Involvement Project Gathering Lived Experience Phase 1, Cassar Bartolo, K and Sanders, F. (2008) ARAFEMI, Victoria.
Carer Life Course Framework: An Evidence-based Approach to Effective Education and Support, Pagnini, D. (2005), © Carers NSW, available from Carers NSW, Sydney
Central Australian Hospital Network Charter Of Operations, Northern territory Dept of Health, http://health.nt.gov.au/library/scripts/objectifyMedia.aspx?file=pdf/76/34.pdfandsiteID=1andstr_title=CAHN%20Charter%20of%20Operations.pdf
Challenging the public stigma of mental illness: a meta-analysis of outcome studies; Corrigan, P.W., et al.,. Psychiatric Services, 2012. **63**(10): p. 963-73.
Changes in media reporting of suicide in Australia between 2000/01 and 2006/07 Pirkis J, Dare A, Blood RW, Rankin B, Williamson M, Burgess P, Jolley D.. *Crisis*. 2009;30(1):25-33. doi: 10.1027/0227-5910.30.1.25\
Changes in public attitudes to depression during the Defeat Depression Campaign. Paykel, E.S., D. Hart, and R.G. Priest; Br J Psychiatry, 1998. **173**: p. 519-22.
Child Disability and Parental Well-Being. Eric Emerson E, Llewellyn G, McCulloch A, Hatton C, Blacher J, Graham H. (presentation at LSAC conference, December 2007) see www.aifs.gov.au/growingup .
Childhood circumstances, adolescent adjustment, and suicide attempts in a New Zealand birth

cohort Fergusson DM, Lynskey MT.. *J Am Acad Child Adolesc Psychiatry.* 1995 May;34(5):612-22.

Clinical mental health service responses for people with eating disorders in Victoria, Department of Human Services, Victorian Government, 2009

Cognitive-behavioral body-image therapy: Extended evidence of the efficacy of a self-directed program. Cash, T.F., and Lavallee, D.M. (1997). *Journal of Rational Emotive and Cognitive Behavioral Therapy*, *15*, 281–294.

Common values in assessing health outcomes from disease and injury: disability weights measurement study for the Global Burden of Disease Study 2010. Salomon JA, Vos T, Hogan DR, et al, Lancet. 2012 Dec 15;380(9859):2129-43. doi: 10.1016/S0140-6736(12)61680-8.

http://www.ncbi.nlm.nih.gov/pubmed/23245605

Community Care and Secure Extended Care Units, Program Management Circular, Victorian Government, 2007. Primary source.

Community Care Unit Model of Service, QPMHS, Queensland, 2011.

Community Child and Youth Model of Service, QLD Public Mental Health Services (Endorsed Executive Director Mental Health, Queensland 02/07/2010)

Community-based rehabilitation: CBR guidelines. World Health Organization *2010,*

http://www.who.int/disabilities/cbr/guidelines/en/

Comparison of face-to-face and internet interventions for body image and eating problems in adult women: an RCT. Paxton, S. J. McLean, S. A. Gollings, E. K., Faulkner, C. and Wertheim, E. H. (2007). *International Journal of Eating Disorders*, *40*, 692-704.

Compliance with medication regimens for mental and physical disorders. Cramer JA, Rosenheck R. *Psychiatric Services* 1998;49:196-201.

Composite International Diagnostic Interview (CIDI) Version 1.0. World Health Organisation. Geneva: World Health Organisation, 1990.

Computer therapy for the anxiety and depressive disorders is effective, acceptable and practical health care: a meta-analysis. Andrews G, Cuijpers P, Craske MG, McEvoy P, Titov N. *PLoS One.* 2010;5(10):e13196. doi: 10.1371/journal.pone.0013196. http://dx.plos.org/10.1371/journal.pone.0013196.

Computer-based psychological treatments for depression: A systematic review and meta-analysis Richards D and Richardson T (2012) Clinical Psychology Review 32 (2012) 329–342

Consultation Liaison Psychiatry Model of Service, QPMHS, Queensland, 2011.

Consumer-providers of care for adult clients of statutory mental health services(Review)

Pitt V,Lowe D,Hill S,Prictor M,Hetrick SE,Ryan R,Berends L

This is a reprint of a Cochrane review, prepared and maintained by The Cochrane Collaboration and published in The Cochrane Library 2013,Issue3 http://www.thecochranelibrary.com

Contact with Mental Health and Primary Care Providers Before Suicide: A Review of the Evidence. Luoma JB, Martin CE, Pearson JL. *The American Journal of Psychiatry* 2002;159(6):909–16.

Coping with youth suicide and overdose: One community's efforts to investigate, intervene, and prevent suicide contagion. Hacker, K., Collins, J., Gross-Young, L., Almeida, S., and Burke, N. (2008). *Crisis, 29*, 86–95

Cost effectiveness of internet interventions: review and recommendations. Tate DF, Finkelstein EA, Khavjou O, Gustafson A. *Ann Behav Med.* 2009 Aug;38(1):40–5. doi: 10.1007/s12160-009-9131-

6.
Country Community Rehabilitation Centres, Service Model, Draft, Jan 2012, Government of South Australia. Primary source.
Crisis Assessment and Treatment Teams (CAT Services) (Victoria 2007)
Cross-cultural feasibility, reliability and sources of variance in the Composite International Diagnostic Interview (CIDI). Wittchen H-U, Robins LN, Cottler LB, Sartorius N, Burke JD, Regier DA, and participants in the WHO/ADAMHA Field Trials. British Journal of Psychiatry 1991;159:645-653.
Cyber and traditional bullying: differential association with depression. Wang, J., T.R. Nansel, and R.J. Iannotti; Journal of Adolescent Health, 2011. **48**(4): p. 415-7.
Data standards for mental health decision support systems: A report of the task force to revise the data content and system guidelines of the mental health statistics improvement program. Leginski W, Croze C, Driggers J, Dumpman S, Geersten D, Kamis-Gould E, Namerow J, Patton R, Wilson N, Wurster C. Washington: National institute of Mental Health, US Department of Health and Human Services, 1989. This 250+ page document may be downloaded from URL: http://www.mhsip.org/mhsiptest/documents/fn-10.htm
Delivering the Governments Mental Health Policies, Services, Staffing and Costs, Boardman and Parsonage, the Sainsbury Centre for Mental Health, UK, 2007.
Dementia among aged care residents: first information from the Aged Care Funding Instrument. Australian Institute of Health and Welfare 2011Aged care statistics series no. 32. Cat. no. AGE 63. Canberra: AIHW.
Depression, diet and exercise. Jacka, F.N. and M. Berk ; MJA Open, 2012. **1**(Suppl 4): p. 21-23.
Development and evaluation of a youth mental health community awareness campaign - The Compass Strategy. Wright, A., et al., BMC Public Health, 2006. **6**: p. 215.
Development of a framework for recovery in older people with mental disorder. Daley S, Newton D, Slade M, Murray J, Banerjee S. Int J Geriatr Psychiatry. 2013 May;28(5):522-9. doi: 10.1002/gps.3855. Epub 2012 Jul 26. www.ncbi.nlm.nih.gov/pubmed/22836929
Development of a prototype Australian mental health intervention classification: a working paper. Working papers and data briefings. Cat. no. HSE 130. Canberra: AIHW. AIHW 2013 http://www.aihw.gov.au/publication-detail/?id=60129542689
Development of Australia's first Psychiatric Emergency Centre, Frank R, Fawcett L, Emmerson B. Australasian Psychiatry, Vol13, September 2005. http://www.ncbi.nlm.nih.gov/pubmed/16174200
Differences in the use of psychiatric outpatient services between the United States and Ontario. Kessler RC, Frank RG, Edlund M, Katz SJ, Lin E, Leaf P. New England journal of medicine 1997;336:551-557.
Dissonance and healthy weight eating disorder prevention programs: Long-term effects from a randomized efficacy trial, Stice, E., Marti, N., Spoor, S., Presnell, K., and Shaw, H. (2008). *Journal of Consulting and Clinical Psychology*, 76, 329-340.
Dissonance and healthy weight eating disorder prevention programs: A randomized efficacy trial. Stice, E., Shaw, H., Burton, E., and Wade, E. (2006). *Journal of Consulting and Clinical Psychology, 74*(2), 263–275.
Dissonance-based interventions for the prevention of eating disorders: Using persuasion principles to promote health. Stice, E., Shaw, H., Becker, C. B., and Rohde, P. (2008). *Preventive*

Science, 9, 114-128.

Do nations' mental health policies, programs and legislation influence their suicide rates? An ecological study of 100 countries. Burgess, P., et al. Australian and New Zealand Journal of Psychiatry, 2004. **38**(11-12): p. 933-9.

Does body satisfaction matter? Five-year longitudinal associations between body satisfaction and health behaviors in adolescent females and males. Neumark-Sztainer, D., Paxton, S., Hannan, P. J., Haines, J., and Story, M. (2006). *Journal of Adolescent Health*, 39, 244–251.

Drug and Alcohol Psychosocial Interventions Professional Practice Guidelines, Department of Health, NSW http://www0.health.nsw.gov.au/policies/gl/2008/pdf/GL2008_009.pdf

Dutton cited by Seidel, A. C., **Rehabilitative Frame of Reference**. In Crepeau, E.B., Cohn, E.S., Boyt Schell, BA, 2003 ***Willard and Spackman's Occupational Therapy, 10th Edition***, (pp. 238 – 242). Lippincott Williams and Wilkins, USA.

Early adolescent body image predicts subsequent condom use behavior among girls. Schooler, D. (2013). Sexuality Research and Social Policy, 10, 52–61.

Early Intervention in Psychiatry: the critical period. McGorry, P., Early Intervention in Psychiatry, 2011. 5(1): p. 1-2.

Early Psychosis Prevention and Intervention Centre http://eppic.org.au/eppic-clinical-guidelines

Eating disorder prevention programs: A meta-analytic review. Stice, E., and Shaw, H. (2004). *Psychological Bulletin. Vol., 130*(2), 206-227.

Eating disorder prevention research: A Meta-Analysis. Cororve Fingeret, M., Warren, C. S., Cepeda-Benito, A., and Gleaves, D. H. (2006). *Eating Disorders, 14*(3), 191-213.

Eating Disorders Prevention, Treatment and Management: An Evidence Review. The National Eating Disorders Collaboration, Prepared for the Commonwealth Department of Health and Ageing March 2010. On-line at http://www.nedc.com.au/nedc-publications .

Eating Disorders Prevention, Treatment and Management: An Evidence Review. National Eating Disorder Collaboration (2010). National Eating Disorder Collaboration

Eating Disorders Services Model of Service Delivery, QPMHS, 2011 (Draft)

ECT Policy, South Eastern Sydney Illawarra Area Mental Health Program, NSW Health, 2009.

Editorial: The Mental Health Supplement to the Ontario Health Survey. Bland RC. Canadian Journal of Psychiatry 1996;41:541-542.

Effect of exercise on depression severity in older people: systematic review and meta-analysis of randomised controlled trials, Christopher Bridle, Kathleen Spanjers, Shilpa Patel, Nicola M. Atherton and Sarah E. Lamb, *The British Journal of Psychiatry BJP* 2012, 201:180-185., Access the most recent version at DOI: 10.1192/bjp.bp.111.095174

Effect of telephone contact on further suicide attempts in patients discharged from an emergency department: randomised controlled study. Vaiva G, Vaiva G, Ducrocq F, Meyer P, Mathieu D, Philippe A, Libersa C, Goudemand M. BMJ. 2006 May 27;332(7552):1241-5.

Effective psychosocial treatments of conduct-disordered children and adolescents: Brestan, E. V., and Eyberg, S. M. (1998). Journal of clinical child psychology, 27(2), 180-189.

Effective Strategies for Suicide Prevention in New Zealand: A Review of the Literature. Beautrais A, Fergusson D, Coggan C, Collings C, Doughty C, Ellis P, et al. *The New Zealand Medical Journal* 2007;120(1251):2459.

Effectiveness of a computer-based interactive eating disorders prevention program at long-term follow-up. Low, K. G., Charanasomboon, S., Lesser, J., Reinhalter, K., Martin, R., Jones, H., … Taylor, C. B. (2006). *Eating Disorders, 14,* 17-30.

Effectiveness of a telephone management programme for patients discharged from an emergency department after a suicide attempt: Controlled study in a Spanish population. Cebrià AI, Parra I, Pàmias M, Escayola A, García-Parés G, Puntí J, Laredo A, Vallès V, Cavero M, Oliva JC, Hegerl U, Pérez-Solà V, Palao DJ J Affect Disord. 2012 Dec 6. pii: S0165-0327(12)00769-0. doi: 10.1016/j.jad.2012.11.016. [Epub ahead of print]
Effectiveness of Australian youth suicide prevention initiatives. Page A, Taylor R, Gunnell D, Carter G, Morrell S and Martin G. *BJP* 2011, 199:423-429. DOI: 10.1192/bjp.bp.111.093856
Effectiveness of brief intervention and contact for suicide attempters: a randomized controlled trial in five countries. Fleischmann A, Bertolote JM, Wasserman D, De Leo D, Bolhari J, Botega NJ, De Silva D, Phillips M, Vijayakumar L, Värnik A, Schlebusch L, Thanh HT. Bull World Health Organ. 2008 Sep;86(9):703-9.
Effectiveness of Bullying and Violence Prevention Programs A Systematic Review *by Sharon J. Stagg, RN, MS, MPH, BSN, and Daniel Sheridan, RN, PhD* http://www.ncbi.nlm.nih.gov/pubmed/20873686
Effectiveness of home treatment for elderly people with depression: randomised controlled trial, Günter Klug, Gerhard Hermann, Brigitte Fuchs-Nieder, Manuela Panzer, Andrea Haider-Stipacek, Hans Georg Zapotoczky(deceased) and Stefan Priebe , *The British Journal of Psychiatry BJP* 2010, 197:463-467. Access the most recent version at DOI: 10.1192/bjp.bp.110.083121
Effectiveness of individually delivered indicated school-based interventions on externalizing behavior. Stoltz, Sabine, Londen, Monique van, Deković, Maja, Castro, Bram Orobio de, and Prinzie, Peter. (2012). International Journal of Behavioral Development, 36(5), 381-388. doi: 10.1177/0165025412450525
Effectiveness of Universal School-Based Programs to Prevent Violent and Aggressive Behavior: A Systematic Review. Hahn, Robert, Fuqua-Whitley, Dawna, Wethington, Holly, Lowy, Jessica, Crosby, Alex, Fullilove, Mindy, . . . Dahlberg, Linda. (2007). American Journal of Preventive Medicine, 33(2, Supplement), S114-S129. doi: http://dx.doi.org/10.1016/j.amepre.2007.04.012
Effects of early family/parent training programs on antisocial behavior and delinquency. Piquero, AlexR, Farrington, DavidP, Welsh, BrandonC, Tremblay, Richard, and Jennings, WesleyG. (2009). Journal of Experimental Criminology, 5(2), 83-120. doi: 10.1007/s11292-009-9072-x
Effects of psychoeducation for depression on help-seeking willingness: biological attribution versus destigmatization. Han, D.Y., et al., Psychiatry and Clinical Neurosciences, 2006. **60**(6): p. 662-8.
e-Interventions and Psychology, by Associate Professor Britt Klein MAPS, Co-Director, National eTherapy Centre Faculty of Life and Social Sciences, Swinburne University http://www.psychology.org.au/publications/inpsych/2010/feb/klein/
Emergency Department Mental Health Service Mapping Project (Report B), Department of Human Services, Victorian Government, December 2007.
England's time to change antistigma campaign: one-year outcomes of service user-rated experiences of discrimination. Henderson, C., et al., Psychiatric Services, 2012. **63**(5): p. 451-7.
Enhancing employment services for people with severe mental illness: the challenge of the Australian service environment. King R, Waghorn G, Lloyd C, McLeod P, McMah T, Leong C, Australian and New Zealand Journal of Psychiatry 2006: 40: 471-477
Enhancing well-being and alleviating depressive symptoms with positive psychology interventions: a practice-friendly meta-analysis. Sin, N.L. and S. Lyubomirsky ;Journal of Clinical Psychology, 2009. **65**(5): p. 467-87.
Epidemiologic field methods in psychiatry: The NIMH Epidemiologic Catchment Area program.

Orlando, Florida: Eaton WW, Kessler LG (Eds) Academic Press, 1985.

Estimating the economic cost of drug abuse in Australia. Collins DJ, Lapsley HM. (National campaign against drug abuse monograph series, No 15. Canberra: Australian Government Publishing Service, 1991.

Estimating the prevalence of DSM-IV mental illness in the Australian general population using the Kessler psychological distress scale, Sunderland M, Slade T, Stewart G, Andrews G, *Australian and New Zealand Journal of Psychiatry 2011*, 45(10):880-889.
Online: http://anp.sagepub.com/content/45/10/880.full.pdf+html

Evaluating the outcomes of adolescent day programs in an Australian child and adolescent mental health service , Kennair N, Mellor D, Brann P.
http://www.ncbi.nlm.nih.gov/pubmed/20404071

Evaluation of a brief anti-stigma campaign in Cambridge: do short-term campaigns work? Evans-Lacko, S., et al; BMC Public Health, 2010. **10**: p. 339.

Evaluation of the FaHCSIA Targeted Community Care Mental Health Initiatives

This report was prepared for the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs by Courage Partners. © Commonwealth of Australia 2011

http://www.fahcsia.gov.au/our-responsibilities/mental-health/publications-articles/evaluation-of-the-fahcsia-targeted-community-care-mental-health-initiatives

Evaluation of the German WPA "program against stigma and discrimination because of schizophrenia--Open the Doors": results from representative telephone surveys before and after three years of antistigma interventions. Gaebel, W., et al., Schizophrenia Research, 2008. **98**(1-3): p. 184-93.

Evaluation of the Mental Health Aged Care Partnership Initiative (MHACPI), NSW Health,2011

http://www0.health.nsw.gov.au/resources/mhdao/pdf/h11_519371_tab_a_mhacpi_s.pdf

Evidence based practices for services to families of people with psychiatric disabilities. Dixon, L., McFarlane, W., Lefley, H. et al. (2001). *Psychiatric Services, 52: 903-910*.

Evidence synthesis on the occurrence, causes, consequences, prevention and management of bullying and harassing behaviours to inform decision making in the NHS. Final report., Iling, J.C., et al., 2013, NIHR Service Delivery and Organisation programme.

Evidence-based Psychological Interventions in the Treatment of Mental Disorders: A Literature Review, Australian Psychological Society (APS)
http://www.psychology.org.au/practitioner/resources/interventions/

Exercise and physical activity in mental disorders Wolff E, Gaudlitz K, von Lindenberger BL, Plag J, Heinz A, Strohle A (2011) Eur Arch Psychiatry Clin Neurosci , 261 (Suppl 2):S186–S191. DOI 10.1007/s00406-011-0254-y

Exercise for depression in care home residents: a randomised controlled trial with cost-effectiveness analysis (OPERA); Underwood M, Lamb SE, Eldridge S, Sheehan B, Slowther A, Spencer A, Thorogood M, Atherton N, Bremner SA, Devine A, Diaz-Ordaz K, Ellard DR, Potter R, Spanjers K, Taylor SJ.; Health Technol Assess. 2013 May;17(18):1-281. doi: 10.3310/hta17180

Exercise for depression Rimer J, Dwan K, Lawlor DA, Greig CA, McMurdo M, Morley W, Mead GE.. Cochrane Database Syst Rev. 2012 Jul 11;7:CD004366. doi: 10.1002/14651858.CD004366.pub5.
http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD004366.pub5/pdf

Extended Recovery Services (Draft). Mind Australia. October 2012.

FaHCSIA http://www.fahcsia.gov.au/mental-health/grants-funding/targeted-community-care-mental-health-program-mental-health-respite-carer-support

Final Draft: National Practice Standards for Mental Health 2013, Mental Health Workforce Advisory Committee (2013), Victorian Government, Victoria.

Follow-up evaluation of a high school eating disorders screening program: knowledge, awareness and self-referral. D'Souza, C. M., Forman, S. F., and Austin, S. B. (2005). *Journal of Adolescent Health, 36*(3), 208-213.

Food, Mood, andAttitude: Reducing risk for eating disorders in college women. Franko, D. L., Mintz, L. B., Villapiano, M., Green, T. C., et al. (2005). *Health Psychology, 24,* 567-578.

For DSM-V, it's the "disorder threshold," stupid. Regier DA, Narrow WE, Rae DS. *Archives of General Psychiatry 2004.* 61(10):1051; author reply 1051-2.

Framework of recovery oriented practice (Victoria)
http://docs.health.vic.gov.au/docs/doc/0D4B06DF135B90E0CA2578E900256566/$FILE/framework-recovery-oriented-practice.pdf

Functional outcomes of multi-condition collaborative care and successful ageing: results of randomised trial*. Von Korff M, Katon WJ, Lin EH, et al. ; BMJ 2011*

http://www.ncbi.nlm.nih.gov/pubmed/18797646

Gatekeeper training as a preventative intervention for suicide: a systematic review Isaac M, Elias B, Katz LY, Belik SL, Deane FP, Enns MW, Sareen J; Swampy Cree Suicide Prevention Team.. *Can J Psychiatry.* 2009 Apr;54(4):260-8.

Guide to Australian longitudinal studies, FaHCSIA Research and Analysis Branch, March 2013
http://www.fahcsia.gov.au/about-fahcsia/publications-articles/research-publications/longitudinal-data-initiatives/guide-to-australian-longitudinal-studies

Guidelines for Operation of Mental Health High Dependency Units in Queensland. Queensland Government, 2004.

Guidelines for the Administration of ECT, Director of Mental Health, Queensland Government, 2006.

Handbook of Psychosocial Rehabilitation, King, Lloyd and Meehan, 2007

Health Care Needs Assessment**. Vols I and II** Stevens A, Raftery J (Eds) . Oxford: Radcliffe Medical Press, 1994.

Health Care Reform for Americans with severe mental illnesses: Report of the National Advisory Mental Health Council. National Advisory Mental Health Council. *American Journal of Psychiatry*. 1993;150:1447-1465.

Health e-cards as a means of encouraging help seeking for depression among young adults: randomized controlled trial. Costin, D.L., et al., Journal of Medical Internet Research, 2009. **11**(4): p. e42.

Health Reform: Meeting the Challenge of Ageing and Multiple Morbidities**,** OECD (2011), OECD Publishing.

http://dx.doi.org/10.1787/9789264122314-en

http://www.oecd.org/dataoecd/51/36/49151107.pdf

Health Topics, Rehabilitation, 2010, World Health Organization, <http://www.who.int/topics/rehabilitation/en>.

Healthy buddies: A novel, peer-led health promotion program for the prevention of obesity and eating disorders in children in elementary school. Stock, S., Miranda, C., Evans, S., Plessis, S., Ridley, J., Yeh, S., and Chanoine, J. P. (2007). *Pediatrics, 120*(4).

Heart disease, schizophrenia and affective psychoses: Epidemiology of risk in primary care.

McDermott, S et al (2005) , Community Mental Health Journal, 41, 747-755

Home Care Packages Program, Australian Government Department of Health and Aging,

http://www.livinglongerlivingbetter.gov.au/internet/living/publishing.nsf/Content/Consumer-Directed-Care-Home-Care-Packages

How Many Assertive Community Treatment Teams Do We Need? Gary S. Cuddeback, Ph.D., Joseph P. Morrissey, Ph.D., Piper S. Meyer, Ph.D. www.ncbi.nlm.nih.gov/pubmed/17158499

Imitative suicide on the Viennese subway. Sonneck, G., Etzersdorfer, E., and Nagel-Kuess, S. (1994) *Social Science and Medicine, 38*, 453–457.

Impact of a campaign on the public's attitudes towards depression. Dietrich, S., et al ;Health Educ Res, 2009. **25**(1): p. 135-50

Implementation of Mental Health Service Recommendations in England and Wales and Suicide Rates, 1997-2006: A Cross-Sectional and Before-and-After Observational Study. While D, Bickley H, Roscoe A, Windfuhr K, Rahman S, Shaw J, et al. *The Lancet* 2012;379(9820):1005-12.

Improving athletes' perspectives of sport psychology consultation: a controlled evaluation of two interview methods. Donohue, B., et al., Behavior Modification, 2004. **28**(2): p. 182-93.

Improving the body image, eating attitudes and behaviors of young male and female adolescents: A new educational approach that focuses on self-esteem. O'Dea, J.A., and Abraham, S. (2000). *International Journal of Eating Disorders, 28*, 43–57.

Increasing impact of mental health presentations on New South Wales public hospital emergency departments 1999–2006 Tankel, AS, Di Palma, MJ, Kramer, KM and Van Der Zwan, R 2011, *Emergency Medicine Australasia (EMA),* vol. 23, no. 6, pp. 689-696.

http://dx.doi.org/10.1111/j.1742-6723.2011.01468.x

Innovative Treatments for Depression (TMS), the Victoria Clinic,

http://www.thevictoriaclinic.com.au/index.php/our-services/innovative-treatments-for-depression-tms/

Institutional mental health services in Australia 1997-98. First report on the national minimum data set – institutional mental health care. Moore M. Shaw J, Grant B, Braddock D. Canberra: Australian Institute of Health and Welfare, 2000. (Table 1.2.1).

Intensive case management in Australia: A randomized controlled trial, Issakidis C et al. *Acta Psychiatry Scand* 1999 May 99 360-367.

Intentional Weight Loss and Changes in Symptoms of Depression: A Systematic Review and Meta-Analysis Fabricatore, AN, Wadden, TA, Higginbotham AJ, Faulconbridge, LF, Nguyen, AM, Heymsfield, SB, and Faith MS. 2011. Int J Obes (Lond). November ; 35(11): 1363–1376. doi:10.1038/ijo.2011.2.

International planning directions for provision of mental health services
Pirkis, Jane, Harris, Meredith, Buckingham, William, Whiteford, Harvey and Townsend-White, Clare (2007). *Administration and Policy in Mental Health and Mental Health Services Research*, *34* 4: 377-387

http://www.ncbi.nlm.nih.gov/pubmed/17279337

Internet-based psychological treatments for depression. Johansson R, Andersson G. Expert Rev Neurother. 2012 Jul;12(7):861-9; quiz 870. doi: 0.1586/ern.12.63. Review. PMID:22853793

http://www.ncbi.nlm.nih.gov/pubmed/22853793

Internet-delivered targeted group intervention for body dissatisfaction and disordered eating in adolescent girls: A randomized controlled trial. Heinicke, B. E., Paxton, S., McLean, S., and Wertheim, E. (2007). *Journal of Abnormal Child Psychology, 35*, 379-391.

Interpersonal psychotherapy for depression: a meta-analysis. Cuijpers P, Geraedts AS, van Oppen P, Andersson G, Markowitz JC, van Straten A. Am J Psychiatry. 2011 Jun;168(6):581-92. doi: 10.1176/appi.ajp.2010.10101411. Epub 2011 Mar 1. Review. Erratum in: Am J Psychiatry. 2011 Jun;168(6):652.

Interventions for preventing eating disorders in children and adolescents. Pratt, B. M., and Woolfenden, S. (2002). *Cochrane Database of Systematic Reviews*(2), CD002891.

Interventions for preventing eating disorders in children and adolescents. Pratt BM, Woolfenden SR. Cochrane Database Syst Rev. 2002;(2):CD002891.

Is fat talking a causal risk factor for body dissatisfaction? A systematic review and meta-analysis. Sharpe, H., Naumann, U., Treasure, J., and Schmidt, U. (2013). *International Journal of Eating Disorders*, n/a-n/a. doi: 10.1002/eat.22151

Is guided self-help as effective as face-to-face psychotherapy for depression and anxiety disorders? A systematic review and meta-analysis of comparative outcome studies. Cuijpers P, Donker T, van Straten A, Li J, Andersson G Psychol Med. 2010 Dec;40(12):1943-57. doi: 10.1017/S0033291710000772.

Is phase-specific, community-oriented treatment by early psychosis an economically viable method of improving outcome? Mihalopoulos C, McGorry PD, Carter RC. Acta Psychiatrica Scandinavica 1999; 100:47-55

Is psychiatric emergency service (PES) use increasing over time?, Michel Paradis, Carolyn Woogh, Dany Marcotte and Yves Chaput http://www.ijmhs.com/content/3/1/3

Is the prevalence of mental disorders a good measure of the need for services? Mechanic D. *Health Affairs*. Chevy Chase: Sep/Oct 2003.Vol.22, Iss. 5; pg. 8

Key Principles Underpinning Residential Services (Draft). Mind Australia. 2012.

Kidsmatter , Australian Primary Schools Mental Health Initiative,

http://www.kidsmatter.edu.au/primary/programs/cool-kids-school-version

Lifeline (2012) Lifeline Annual Report 2011-2. Deakin, ACT: Lifeline. Available at: http://www.lifeline.org.au/About-Lifeline/Publications-Library/Lifeline-Publications

Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States: Results from the National Comorbidity Survey. Kessler RC, McGonagle KA, Zhao S, Nelson CB, Hughes M, Eshleman S, Wittchen H-U, Kendler KS. Archives of General Psychiatry 1994;51:8-19

Lifetime prevalence of mental disorders in U.S. adolescents: results from the National Comorbidity Survey Replication--Adolescent Supplement (NCS-A).

Merikangas KR, He JP, Burstein M, et al. *J Am Acad Child Adolesc Psychiatry*. 2010;49(10):980–989.

http://www.ncbi.nlm.nih.gov/pubmed/20855043

Longitudinal associations between television viewing patterns and adolescent body satisfaction. Schooler, D., and Trinh, S. (2011). *Body Image, 8*(1), 34-42.

Longitudinal predictors restrictive eating and bulimic behavior in adolescent girls. Wertheim, E.H., Koerner, J. and Paxton, S.J. (2001). *Journal of Youth and Adolescence*, *30*, 69-81.

Long-term conditions and mental health, The cost of co-morbidities

Naylor C, Parsonage M,McDaid D, Knapp M, Fossey M,Galea A

http://www.kingsfund.org.uk/sites/files/kf/field/field_publication_file/long-term-conditions-mental-health-cost-comorbidities-naylor-feb12.pdf

LSAC Technical Paper No.: 2: Summarising Children's Wellbeing – The LSAC Outcome Index.

Melbourne (AUST): Sanson A, Misson S, Wake M, Zubrick SR, Silburn S, Rothman S, et al. Australian Institute of Family Studies; 2005.

Maintenance of internet-based prevention: A randomized controlled trial. Jacobi, C., Morris, L., Becker, C., Bronisch-Holtze, J., Winter, J., Winzelberg, A. J., and Taylor, C. B. (2007). *International Journal of Eating Disorders, 40,* 114-119.

Management of Co- Morbidity in Co-Morbid Mental Disorders and Substance Use Disorders: Epidemiology, Prevention and Treatment, Kavanagh, D.J., et al., , M. Teesson, Editor. 2003, Commonwealth of Australia: Canberra. p78-107

Manual for the Child Behaviour Checklist/4–18 and 1991 profile Achenbach TM.. Burlington: University of Vermont Department of Psychiatry, 1991.

Manual for the Teacher's Report Form and 1991 profile. Achenbach TM. Burlington: University of Vermont Department of Psychiatry, 1991.

Means restriction for suicide prevention. Yip PS, Caine E, Yousuf S, Chang SS, Wu KC, Chen YY. *Lancet*. 2012 Jun 23;379(9834):2393-9. doi: 10.1016/S0140-6736(12)60521-2

http://www.ncbi.nlm.nih.gov/pubmed/22726520

Measuring the fidelity of implementation of a mental health program model. McGrew JH, Bond GR, Dietzen LL et al, *Journal of consulting and clinical psychology* 1994;62:670-678.

Media guidelines for the responsible reporting of suicide: a review of effectiveness. Bohanna I, Wang X. *Crisis*. 2012;33(4):190-8. doi: 10.1027/0227-5910/a000137.

Mediators of the relationship between media literacy and body dissatisfaction in early adolescent girls: Implications for prevention. McLean, S. A., Paxton, S. J., and Wertheim, E. H. (2013). *Body Image.* http://dx.doi.org/10.1016/j.bodyim.2013.01.009

Medicare Health Assessments Resource Kit reference
http://www.health.gov.au/internet/main/publishing.nsf/Content/mha_resource_kit

Mental Disorder Diagnostic Theory And Practical Reality: An Evolutionary Perspective, Darrel A. Regier, *Health Affairs*, 22, no.5 (2003):21-27, doi: 10.1377/hlthaff.22.5.21

Mental Health Care, framework for emergency Department Services, Victorian Government, 2007.

Mental health consumer and carer participation in professional education: Getting There Together for children of parents with mental illness and their families, Cowling, V., Edan, V., Cuff, R., Armitage, P., and Herszberg, D. Australian Social Work, Vol. 59, pp. 406-21, 2007.

Mental Health Council of Australia (2010) Mental Health Carers Report 2010, MHCA Canberra.

Mental health education: An evaluation of a classroom-based strategy to modify helpseeking for mental health problems. Sharp, W., et al ; J Coll Stud Dev, 2006. **47**(4): p. 419-438

Mental health first aid for eating disorders: pilot evaluation of a training program for the public. Hart, L. M., Jorm, A. F., and Paxton, S. J. (2012). *BMC Psychiatry, 12*(1), 98.

Mental Health First Aid Manual, 2nd edn. Kitchener, B. A., Jorm A. F., andKelly, C. M. (2010) Melbourne, Victoria: Orygen Youth Health Research Centre.

Mental health information development: National information priorities and strategies under the Second National Mental Health Plan 1998-2003. Department of Health and Aged Care. (First edition June 1999). Canberra: Commonwealth of Australia, 1999.

Mental Health of Children and Adolescents in Great Britain. Meltzer H, Gatward R, Goodman R, Ford T. London: The Stationery Office, 2000.

Mental health of Indigenous Australians: a review of findings from community surveys , Jorm

AF, Cvetoversuski S, Bourchier S, Stewart G, *Medical Journal of Australia, 2012*; 196 (2): 118-121. Online: https://www.mja.com.au/journal/2012/196/2/mental-health-indigenous-australians-review-findings-community-surveys

Mental Health of Young People in Australia. Sawyer M, Arney F Baghurst P, Clark JJ, Graetz BW, Kosky RJ et al. 2000. Mental Health and Special Programs Branch, Commonwealth Department of Health and Aged Care, DoHA, Canberra, 2000.

http://www.health.gov.au/internet/main/publishing.nsf/content/70da14f816cc7a8fca2572880010456 4/$file/young.pdf

Mental health peer support for hospital avoidance and early discharge: An Australian example of consumer driven and operated service, Dr Sharon Lawn, BA, DipEd, MSW, PhD[1,2†], Ann Smith[1] and Kelly Hunter[1] 2008, Vol. 17, No. 5 , Pages 498-508 (doi:10.1080/09638230701530242)

Mental health presentations to the emergency department, 2006, Victorian Government Department of Human Services

Mental health problems of children in the community: 18 month follow up. Goodman R, Ford T, Meltzer H. *British Medical Journal, 2002*; 324:1496–1497.

Mental Health Recovery Philosophy Into Practice - A workforce development guide

http://www.mhcc.org.au/resources/staff-development-guide.aspx

Mental Health Responses in Emergency Departments, Program Management circular, Victorian Government, 2008.

Mental Health Supplement to the Ontario Health Survey: Methodology Boyle MH, Offord DR, Campbell D, Catlin G, Goering P, Lin E, Racine YA. . Canadian Journal of Psychiatry 1996;41:549-558.

Mental Health Workforce Advisory Committee (MHWAC) (2011) National Mental Health Workforce Strategy, Victorian Government Department of Health, Victoria.

MHCC Recovery Oriented Language Guide, Mental Health Coordinating Council 2013

http://mob.mhcc.org.au/

Mild disorders should not be eliminated from the DSM-V , Kessler RC. Merikangas KR. Berglund P. Eaton WW. Koretz DS. Walters EE.. *Archives of General Psychiatry 2003;* 60(11):1117-22.

Mindframe (Australian program): Commonwealth of Australia. (2002). Mindframe national media initiative. Canberra: Author. Available at : http://www.mindframe-media.info/for-media/reporting-suicide/core-mindframe-resources

Managed by the Hunter Institute of Mental Health and funded by the Australian Government under the National Suicide Prevention Program.

Mobile Support and Treatment Teams Victoria, http://docs.health.vic.gov.au/docs/doc/5163B638988176D1CA257A2C001319E3/$FILE/aged_mh_ict_pstatement.pdf

Models of Residential Services, Dr Gerry Naughtin, Mind Australia.(Presentation for NMHSPF EWG)

Models of Service Delivery (Various), QPMHS, Queensland. The acute phase of early psychosis: a handbook of management, Orygen Youth Health, Victoria, 2004.

Moving from efficacy to effectiveness in eating disorders prevention: The sorority body image program. Becker, C. B., Ciao, A. C., and Smith, L. M. (2008). *Cognitive and Behavioral Practice, 15*, 18-27.

Multicultural assessment of child and adolescent psychopathology with ASEBA and SDQ

instruments: research findings, applications, and future directions. Achenbach TM, Becker A, Döpfner M, Heiervang E, Roessner V, Steinhausen H-C, Rothenberger A. Journal of Child Psychology and Psychiatry, 2008; 49(3):251–275.

Multidimensional treatment foster care (MTFC): Results from an independent replication. Westermark, P. K., Hansson, K., and Olsson, M. (2011). Journal of Family Therapy, 33(1), 20-41.

National Action Plan for Promotion, Prevention and Early Intervention for Mental Health Commonwealth Department of Health and Aged Care 2000, Mental Health and Special Programs Branch, Commonwealth Department of Health and Aged Care, Canberra.

http://www.health.gov.au/internet/main/publishing.nsf/Content/mental-pubs-n-promote

National Benchmarking Project, Review of Key Performance Indicators, NMHS, 2008.

National evaluation of the Retirement Villages Care Pilot: final report; .Australian Institute of Health and Welfare (AIHW): Hales C, Ross L and Ryan C 2006.
Aged Care Series no. 11. AIHW cat. no. AGE 49. Canberra: AIHW.

National Health Data Dictionary V.15

National Institute of Mental Health Diagnostic Interview Schedule: its history, characteristics and validity. Robins LN, Helzer JE, Croughlan JL, Ratcliff KS Archives of General Psychiatry 1981;38:381-389.

National Mental Health Workforce Strategy. Published by the Victorian Government Department of Health, Melbourne, Victoria, on behalf of the Mental Health Workforce Advisory Committee © Copyright State of Victoria 2011

http://www.health.gov.au/internet/mhsc/publishing.nsf/Content/3545C977B46C5809CA25770D00093C93/$File/MHWAC%20Workforce%20Strategy.pdf

National Recovery-Oriented Mental Health Practice Framework - 2nd Consultation Draft , Craze, L. (2012), on behalf of the Safety and Quality Partnership Subcommittee of the Australian Health Ministers' Advisory Council, Mental Health Standing Committee.)

National Standards for Mental Health Services 2010, Australian Health Ministers' Conference (2010) Commonwealth of Australia, Canberra.

National Survey of Mental Health and Wellbeing,(2007) Australian Bureau of Statistics (ABS, 2007).

National Survey of Mental Health and Wellbeing: Summary of Results. ABS Cat No.4326.0. Canberra: ABS.

New Moves- Preventing weight -related problems in adolescent girls: A group-randomised study. Neumark-Sztainer, D., Friend, S. E., Flattum, C. F., Hannan, P. J., Story, M., Bauer, K. W., . . . Petrich, C. A. (2010) *American Journal of Preventive Medicine, 39*(5), 421-432.

NICE guidelines, National Institute for Clinical Excellence

http://www.nice.org.uk/aboutnice/about_nice.jsp

NIMH Diagnostic Interview Schedule for Children, Version IV (NIMH DISC-IV): description, differences from previous versions and reliability of some common diagnoses. Shaffer D, Fisher P, Lucas C, Dulcan MK, Schwab-Stone ME. Journal of the American Academy of Child and Adolescent Psychiatry2000; 39:28–38.

No health without mental health. Prince M, Patel V, Saxena S, Maj M, Maselko J, Phillips MR, Rahman A. Lancet 2007; 370: 859–77

Normative data for the Strengths and Difficulties Questionnaire in Australia, Mellor D. *Australian Psychologist*, November 2005; 40(3): 215 – 222

Northern Territory population projections, URL:

http://www.nt.gov.au/ntt/economics/nt_population.shtml

Norwegian Mental Health Campaign in 1992: part II: changes in knowledge and attitudes. Sogaard, A. and V. Fonnebo; Health Education Research, 1995. **10**: p. 267-278.

Noting a landmark achievement: Mental Health First Aid training reaches 1% of Australian adults. Jorm, A.F. and B.A. Kitchener ;Aust N Z J Psychiatry, 2011.

NSW Department of Planning and Infrastructure http://www.planning.nsw.gov.au/StrategicPlanning/Populationandhousingprojections/tabid/124/language/en-AU/Default.aspx

NSW Health Population Projection Series 1, 2009 URL: http://www.health.nsw.gov.au/reports/population_projections.asp

NSW Population Health Survey. Substantial risk of clinical behavioural problems by year children 4-15 years, Centre for Epidemiology and Research, NSW Health Department. , NSW, 2003-2006. On line at www.health.nsw.gov.au

NSW SACS Reclassification Guide

http://www.lcsansw.org.au/documents/item/469

NT Department of Treasury and Finance ,URL: http://www.treasury.nt.gov.au/Economy/populationprojections/Pages/default.aspx

Nutritional therapies for mental disorders. Shaheen E Lakhan, Karen F Vieira. Nutr J. 2008; 7: 2. Published online 2008 January 21. doi: 10.1186/1475-2891-7-2

Occupational therapy and physical dysfunction—principles, skills and practice, A Turner, M Fisher and SE Johnson, Elsevier Limited, London, 2005.

Older people leaving hospital: A statistical overview of the Transition Care Program 2009–10 and 2010–11. Australian Institute of Health and Welfare 2012. ; Aged care statistics series no. 38. Cat. no. AGE 71. Canberra: AIHW.

Older persons Sub Acute Program Model of Service Delivery (Draft), QPMHS, 2012

One-year prevalence of psychiatric disorder in Ontarians 15 to 64 years of age. Offord DR, Boyle MH, Campbell D, Goering P, Lin E, Wong M, Racine YA. Canadian Journal of Psychiatry 1996;41:559-563.

Optimizing Suicide Prevention Programs and their Implementation in Europe (OSPI Europe): An Evidence-Based Multilevel Approach. Hegerl U, Wittenburg L, Arensman E, Van Audenhove C, Coyne JC, McDaid D, et al. *BMC Public Health* 2009;9:428. doi:10.1186/1471-2458-9-428

Outcome in early-onset schizophrenia revisited: findings from the Early Psychosis Prevention and Intervention Centre long-term follow-up study. Amminger, G.P., et al., Schizophrenia Research, 2011. **131**(1-3): p. 112-9.

Outcomes of a randomized study of a peer-taught family-to family education program for mental illness. Dixon, L., Luckstead, A., Medoff, D. et. al. (2011). *Psychiatric Services, 62(6), 7.*

Outcomes of the peer taught 12-week family-to-family education program for severe mental illness. Dixon, L., Lucksted, A., Stewart, B., Burland, J. et al. (2004). *Acta Psychiatrica Scandanavia, 109, 207-215.*

Overcrowding in psychiatric wards and physical assaults on staff: data-linked longitudinal study

Marianna Virtanen, Jussi Vahtera, G. David Batty, Katinka Tuisku, Jaana Pentti, Tuula Oksanen, Paula Salo, Kirsi Ahola and Mika Kivimäki, *The British Journal of Psychiatry* 2011 198: 149-155

www.ncbi.nlm.nih.gov/pubmed/21282786

Overview of Future Directions, Transitional Recovery Program, Queensland Government 2008.
Oxford dictionary of psychology: Colman, A. M. (2009). Oxford University Press.
Parental mental illness is a family matter, Vicki Cowling and Patrick D McGorry https://www.mja.com.au/open/2012/1/1/parental-mental-illness-family-matter
Partners in Respite – Building Capacity in Community Mental Health Family Support and Carer Respite, Psychiatric Disability Services of Victoria (VICSERV) (2008) VICSERV, Victoria.
Peer support for hospital avoidance and early discharge, Mead, Hilton and Curtis (2001)
Peer-facilitated cognitive dissonance versus healthy weight eating disorders prevention: A randomized comparison. Becker, C. B., Wilson, C., Williams, A., Kelly, M., McDaniel, L., and Elmquist, J. (2010). *Body Image, 7*, 280-288.
Peer-Facilitated eating disorder prevention: A randomized effectiveness trial of cognitive dissonance and media advocacy. Becker, C. B., Smith, L. M., and Ciao, A. C. (2006). *Journal of Counseling Psychology, 53*(4), 550-555.
People living with psychotic illness in 2010: the second Australian national survey of psychosis. Morgan, V.A., et al ; Australian and New Zealand Journal of Psychiatry, 2012. **46**(8): p. 735-52.
Perinatal and Infant Acute Mental Health Services Model of Service Delivery, QPMHS, 2011 (Draft)
Personalised support delivered by support workers for people with severe and persistent mental illness: a systematic review of patient outcomes. Siskind, D., Harris, M., Pirkis, J., and Whiteford, H. (2012) "*Epidemiology and Psychiatric Sciences,* **21**, 97
Physical assessment MHIC code 1041.00m, AIHW MH intervention classification definition
Pilot study of a sensory room in an acute inpatient psychiatric unit, Theresa Novak, Justin Scanlan, Damien McCaul, Nathan MacDonald and Timothy Clarke ; Australas Psychiatry 2012 20: 401 originally published online 26 September 2012 DOI: 10.1177/1039856212459585 the online version of this article can be found at: http://apy.sagepub.com/content/20/5/401
Planning and budgeting to deliver services for mental health, WHO mental health policy and service guidance package - module 3, World Health Organization http://www.who.int/mental_health/policy/services/essentialpackage1v3/en/index.html
Planning Estimates for the Community Support Sector in Queensland: Harris, Siskind, Buckingham, Pirkis, Whiteford, QCMHR, 2009
Planning estimates for the mental health community support sector, Dan Siskind, Meredith Harris, Bill Buckingham, Jane Pirkis and Harvey Whiteford , 2012 46: 569 originally published online 23 March 2012 *Aust N Z J Psychiatry* DOI: 10.1177/0004867412443058 The online version of this article can be found at http://anp.sagepub.com/content/46/6/569
Plenary presentation by Professor Mike Slade from the National Mental Health Recovery Forum 2012. http://webtronwebcast.com/mentalhealth/2012/
Police, Ambulance and Clinical Early Response Evaluation Final Report April 2012 Victoria
Population Projections (Medium Series) by Age and Sex, for Hospital and Health Services (HHS) 2012, Queensland (based on 2006 census figures; ASGC 2011, released April 2012. Source: (Projections) Queensland Government population projections, 2012 edition (medium series), Office of Economic and Statistical Research, Queensland Treasury and Trade. (ERP) Australian Bureau of

Statistics, Regional Population Growth, Australia, 2010–11, cat. no. 3218.0, and unpublished data. (District groupings added by Health Statistics Centre) Apr 30, 2012

Postcards, green cards and telephone calls: therapeutic contact with individuals following self-harm. Kapur N, Cooper J, Bennewith O, Gunnell D, Hawton K. *Br J Psychiatry.* 2010 Jul;197(1):5-7. doi: 10.1192/bjp.bp.109.072496.

Post-Project Community Survey on the Public Awareness of Depression in New Territories West District of Hong Kong. Hong Kong, Health, I.o.M., *2002*, 2002, Lingnan University: Hong Kong.

Practitioner review: psychological management of anxiety disorders in childhood. Dadds MR, Barrett PM. *J Child Psychol Psychiatry.* 2001 Nov;42(8):999-1011. PMID: 11806693

Predictors (0–10 months) of psychopathology at age 1½ years – a general population study in The Copenhagen Child Cohort CCC 2000. Skovgaard AM, Olsen EM, Christiansen E, Houmann T, Landorph S, Jørgensen T, and CCC 2000 Study Group. Journal of Child Psychology and Psychiatry, 2008; 49(5): 553–562 http://www.ncbi.nlm.nih.gov/pubmed/18341552

Prevalence, Severity, and Unmet Need for Treatment of Mental Disorders in the World Mental Health Surveys. The WHO World Mental Health Survey Consortium , *Journal of the American Medical Association 2004;291:2581-2590*. Online: http://jama.ama-assn.org/content/291/21/2581.full.pdf

Preventing suicide in young people: a systematic review. Robinson J, Hetrick SE, Martin C. *Australian and New Zealand Journal of Psychiatry 2011*; 45:3-26

Preventing the second episode: a systematic review and meta-analysis of psychosocial and pharmacological trials in first-episode psychosis. Alvarez-Jimenez, M., et al., Schizophrenia Bullettin, 2011. 37(3): p. 619-630.

Prevention of Anxiety Disorders Lau EX and. Rapee RM (2011) Curr Psychiatry Rep, 13:258–266 DOI 10.1007/s11920-011-0199-x

Prevention of eating disorders in at-risk college-age women. Taylor, C.B., Bryson, S., Luce, K.H., Cunning, D., Celio Doyle, A., et al. (2006). *Archives of General Psychiatry*, *63*, 881-888.

Prevention of major depression. Muñoz RF, Cuijpers P, Smit F, Barrera AZ, Leykin Y. Annu Rev Clin Psychol. 2010;6:181-212. doi: 10.1146/annurev-clinpsy-033109-132040. Review.PMID: 20192789

http://www.ncbi.nlm.nih.gov/pubmed/20192789

Prevention programme for eating disturbances in adolescents. Is their effect maintained 30 months later? Espinoza, P., Penelo, E., and Raich, R.M. (2013). *Body Image*, *10*, 175-181.

Primary prevention of disordered eating among preadolescent girls: Feasibility and short-term effect of a community-based intervention. Neumark-Sztainer, D., Sherwood, N. E., Coller, T., Hannan, P. J., and Peregrin, T. (2000). *American Dietetic Association. Journal of the American Dietetic Association, 100*(12), 1466-1473.

Primary prevention of eating disorders: Characteristics of effective programmes and how to bring them to broader dissemination. Berger, U., Sowa, M., Bormann, B., Brix, C., and Strauss, B. (2008). *European Eating Disorders Review, 16*(3), 173-183.

Profile of rural and metropolitan telephone counselling service users. Profile 2, March 2005. Lifeline (2005) Lifeline Calls: Deakin, ACT: Lifeline.
Available at: http://www.lifeline.org.au/About-Lifeline/Publications-Library/Lifeline-Publications

Psychiatric disability in Ontario Goering P, Lin E, Campbell D, Boyle MH, Offord DR. . Canadian Journal of Psychiatry 1996;41:564-571.

Psychiatric Disability Rehabilitation and Support Services Reform Framework Consultation

paper http://docs.health.vic.gov.au/docs/doc/Psychiatric-Disability-Rehabilitation-and-Support-Services-Reform-Framework-Consultation-paper
Psychiatric disorders in America: The Epidemiologic Catchment Area Study. Robins LN, Regier DA (Eds). New York: Free Press, 1991.
Psychiatric rehabilitation promotes recovery, full community integration, and improved quality of life for persons who have been diagnosed with any mental health condition that significantly impairs their ability to lead meaningful lives. Psychiatric rehabilitation services are collaborative, person directed and individualised, Anthony, W.A., and Farkas, M. D., (2012)
Psychiatric Statistics: I. Notes towards a history of public psychiatry in New South Wales. Division of Health Services research report Np. 79/1. Shiraev N. Health Commission of New South Wales, 1979. Extracts are provided in: Public Health Division. The health of the people of New South Wales: Report of the Chief Health Officer. Sydney: NSW Health Department, March 1996, Chapter 7.
Psychological and educational interventions for preventing depression in children and adolescents. Merry SN, Hetrick SE, Cox GR, Brudevold-Iversen T, Bir JJ, McDowell H. Cochrane Database Syst Rev. 2011 Dec 7;(12):CD003380. doi: 10.1002/14651858.CD003380.pub3.
Psychological well-being and relationship outcomes in a randomized study of family led education. ;Pickett-Schenk, S., Cook, J., Steigman, P., Lippincott, R. Bennett, C. and Grey, D (2006). *Archives of General Psychiatry, 63, 1043-1050*.
Psychometric properties of the Strengths and Difficulties Questionnaire. Goodman R*Journal of the American Academy of Child and Adolescent Psychiatry, 2001*;40, 1337–1345.
Psychopathology in children and adolescents with autism compared to young people with intellectual disability. Brereton AV, Tonge BJ, Einfeld SL. *Journal of Autism and Developmental Disorders, 2006*;36:863–870.
Psychopathology in young people with intellectual disability. Einfeld SL, Piccinin AM, Mackinnon A, Hofer SM, Taffe J, Gray KM, Bontempo DE, Hoffman LR, Parmenter T, Tonge BJ. *Journal of the American Medical Association, 2006*; 296:1981-1989.
Psychosocial rehabilitation: working with people with a psychiatric disability, *Towards Recovery*, Pepper S (ed.). 2002; Volume 1, New Paradigm Press, Melbourne.
Psychosocial risk factors for eating disorders. In W.S. Agras (Ed.), *The Oxford Handbook of Eating Disorders*. Jacobi, C., and Fittig, E. (2010). New York: Oxford University Press, Ch. 8, 123-136
Public awareness campaigns about depression and suicide: a review. Dumesnil, H. and P. Verger, ; Psychiatr Serv, 2009. **60**(9): p. 1203-13.
Queensland population projections, Queensland Office of Economic and Statistical Research in Queensland Treasury URL: http://www.oesr.qld.gov.au/subjects/demography/population-projections/index.php
Queensland Public Mental Health Services Models of Service Child and Adolescent Day Programs 2011
Queensland Public Mental Health Services Models of Service– Community Care Team and Mobile Intensive Rehabilitation Team Child and Youth MHS , Older Persons Community Models of Service 2011(Endorsed Executive Director Mental Health, Queensland 02/07/2010)
Queensland Public Mental Health Services Models of Service Early Psychosis 2011 (Endorsed Executive Director Mental Health, Queensland 02/07/2010)
Randomised controlled trial of acute mental health care by a crisis resolution team: the north Islington crisis study. Sonia Johnson, Fiona Nolan, Stephen Pilling, Andrew Sandor, John Hoult,

Nigel McKenzie, Ian R White, Marie Thompson, and Paul Bebbington, BMJ. 2005 September 17; 331(7517): 599.

Randomized controlled trial of a mutual support group for family caregivers of patients with schizophrenia. Chien, W., Norman, I. and Thompson, D. (2004). *International journal of Nursing Studies, 41, 637-649.*

RANZCP clinical guidelines for Anorexia

http://www.ranzcp.org/Publications/guides-for-the-public.aspx

RANZCP clinical practice guidelines

Recent developments and promising directions in the prevention of negative body image and disordered eating in children and adolescents. Levine, M. P., and Smolak, L. (2009). In L. Smolak and J. K. Thompson (Eds.), *Body Image, Eating Disorders and Obesity in Youth: Assessment, Prevention and Treatment* (2 ed., pp. 135-155). Washington D.C.: American Psychological Association.

Recognition and Respect – Mental Health Carers Report (2012), Sharon Lawn, Anne Smith and Kelly Hunter (Journal of Mental Health October 2008; 17(5) 498-508

Recovery: the lived experience of rehabilitation, Deegan P, Psychosocial Rehabilitation Journal, vol. 11, no. 4, 1988, p. 11.

Reducing eating disorder risk factors in sorority members: A randomized trial. Becker, C. B., Smith, L. M., and Ciao, A. C. (2005). *Behavior Therapy, 36*(3), 245-253.

Reducing Suicidal Ideation: Cost-Effectiveness Analysis of a Randomized Controlled Trial of Unguided Web-Based Self-help. van Spijker, BAJ, PhD, M. Cristina Majo, PhD, Filip Smit, PhD, Annemieke van Straten, PhD, and Ad J.F.M Kerkhof, PhD; J Med Internet Res. *2012* Sep-Oct; 14(5): e141. Published online 2012 October 26. doi: 10.2196/jmir.1966 PMCID: PMC3517339

Reducing the burden of eating disorders: A model for population-based prevention and treatment for university and college campuses Wilfley, D. E., Agras, W. S. and Taylor, C. B. (2013).. *International Journal of Eating Disorders*, *46*, 529-532.

Reforming community support services for people with a mental illness: Reform framework for Psychiatric Disability Rehabilitation and Support Services, State of Victoria, Department of Health, 2013
URL: http://docs.health.vic.gov.au/docs/doc/Reforming-community-support-services-for-people-with-a-mental-illness:-Reform-framework-for-Psychiatric-Disability-Rehabilitation-and-Support-Services

Report to the NSW Minister for Health: A framework for change. NSW Ministerial Advisory Committee on Health Services in Smaller Towns. Sydney: NSW Government, 2000.

Residential aged care in Australia 2009–10: a statistical overview. Australian Institute of Health and Welfare 2011.Aged care statistics series no. 35. Cat. no. AGE 66. Canberra: AIHW.

Residential alternatives to acute psychiatric hospital admission: systematic review. Lloyd-Evans B, Slade M, Jagielska D, Johnson S., Br J Psychiatry. 2009 Aug;195(2):109-17

Rethinking prevention efforts in eating disorders. Franko, D. L. (2001). *Cognitive and Behavioral Practice*, *8*, 265-270.

Return on investment: Evidence-based options to improve statewide outcomes, Lee, S., Aos, S., Drake, E., Pennucci, A., Miller, M., and Anderson, L. (2012). *April 2012* (Document No. 12-04-1201). Olympia: Washington State Institute for Public Policy.

Review of Emergency Mental Health Services in North Metropolitan Perth, Department of Health, Western Australia, 2007.

Review of internet-based prevention and treatment programs for anxiety and depression in children and adolescents. Calear AL, Christensen H. Med J Aust. 2010 Jun 7;192(11 Suppl):S12-4.

Review. https://www.mja.com.au/journal/2010/192/11/review-internet-based-prevention-and-treatment-programs-anxiety-and-depression?0=ip_login_no_cache%3Db80e854aa64b4adfb0277ac54e81ba2f
Review of the admission or referral to and the discharge and transfer practices of public mental health facilities/services in Western Australia, Professor Bryant Stokes, AM http://www.mentalhealth.wa.gov.au/Libraries/pdf_docs/Mental_Health_Review_Report_by_Professor_Bryant_Stokes_AM_1.sflb.ashx
Review of the PDRSS Day Program, Adult Residential Rehabilitation and Youth Residential Rehabilitation Services for the Victorian Department of Health **State of Victoria**, Department of Health, 2012
Review: early intervention services can be clinically beneficial for people with early psychosis. Killackey, E., Evidence Based Mental Health, 2011. 14(2): p. 50.
Revised prevalence estimates of mental disorders in the United States: using a clinical significance criterion to reconcile 2 surveys' estimates. Narrow WE, Rae DS, Robins LN, Regier DA. *Archives of General Psychiatry 2002*. 59(2):115-23.
Risk factors for onset of eating disorders: Evidence of multiple risk pathways from an 8-year prospective study. Stice, E., Marti, C. N., and Durant, S. (2011). *Behaviour Research and Therapy*, *49*, 622–627.
Risk factors for suicide and attempted suicide among young people. Beautrais AL. *Aust N Z J Psychiatry*. 2000 Jun;34(3):420-36.
Risk factors in the development of body image, eating problems and obesity. Smolak, L. (2009). In L. Smolak and J. K. Thompson (Eds.), *Body Image, Eating Disorders and Obesity in Youth: Assessment, Prevention and Treatment* (2 ed., pp. 135-155). Washington D.C.: American Psychological Association.
Risk of suicide and related adverse outcomes after exposure to a suicide prevention programme in the US Air Force:cohort study. Knox KL, Litts DA, Talcott GW, et al. Br Med J. 2003;327:1376–1378.
Royal Australian and New Zealand College of Psychiatrists RANZCP clinical guidelines for Anorexia http://www.ranzcp.org/Publications/guides-for-the-public.aspx
Royal Australian and New Zealand College of Psychiatrists. Clinical memorandum 12.
Royal College of Psychiatrists, Standards for Mother and Baby Units, UK, 2008
School based intervention programs and shared care collaborative models targeting the prevention of or early intervention in child and adolescent mental health problems: An Evidence Check rapid review brokered by the Sax Institute for the NSW Ministry of Health, October 2011. Christensen, H., Calear, A., Tait, R., Gosling, J., Griffiths, K., Murray, K. (2011). http://www.saxinstitute.org.au/policyresearchexchange/EvidenceCheckReviews.cfm?objid=945
School-Based Interventions for Aggressive and Disruptive Behavior: Update of a Meta-Analysis. Wilson, Sandra Jo, and Lipsey, Mark W. (2007). American Journal of Preventive Medicine, 33(2, Supplement), S130-S143. doi: http://dx.doi.org/10.1016/j.amepre.2007.04.011
School-based overweight preventive intervention lowers incidence of disordered weight-control behaviors in early adolescent girls. Austin, S., Kim, J., Wiecha, J., Troped, P. J., Feldman, H. A., and Peterson, K. E. (2007). *Archives of Pediatrics and Adolescent Medicine, 161*(9), 865-869.
Secondary prevention for eating disorders: The impact of education, screening, and referral in a college-based screening program. Becker, A. E., Franko, D. L., Nussbaum, K., and Herzog, D. B. (2004). *International Journal of Eating Disorders, 36*(2), 157-162.
Secondary prevention in child health: effects of psychological intervention, particularly home

visitation, on children's development and other outcome variables. Lagerberg, D. (2000), Acta Paediatrica, 89: 43–52. doi: 10.1111/j.1651-2227.2000.tb03095.x
Secure Mental Health Rehabilitation Unit Model of Service
Self-directed Triple P (Positive Parenting Program) for mothers with children at-risk of developing conduct problems. Markie-Dadds, C., and Sanders, M. R. (2006). Behavioural and Cognitive Psychotherapy, 34(3), 259-275.
Self-Harm and Suicide in Adolescents; Hawton K, Saunders KE, O'Connor RC.. *Lancet*. 2012;379(9834):2373-82.
Sensory Modulation in Mental Health Clinical Settings: A review of the literature, 2011, Auckland, Te Pou o te Whakaaaro Nui
Service Model Guidelines (Draft), Transitional Recovery Program, Queensland government, 2011
Service Model: South Australian Statewide Specialist Eating Disorder Services, SA Health, 2011.
Service use for mental health problems: findings from the 2007 National Survey of Mental Health and Wellbeing. Burgess PM, Pirkis JE, Slade TN, Johnston AK, Meadows GN, Gunn JM. *Aust N Z J Psychiatry.* 2009 Jul;43(7):615-23. doi: 10.1080/00048670902970858.
SMHWBCA 1998, Survey of Mental Health and Wellbeing-Adult (SMHWBA 1997),
Social inclusion and mental health, Sayce, L. (2001). *Psychiatric Bulletin*, 25, 121-123.
South Australian population projections, South Australian Department of Planning and Local Government, URL: http://www.sa.gov.au/subject/Housing%2C+property+and+land/Building+and+development/South+Australia's+land+supply+and+planning+system/Planning+data+for+research+and+mapping/Population+and+demographics/Population+projections#Small_area_population_projections_2006-2026
Southern Cross high Dependency Residential Care Service for older Persons – Protocols
Specialised Mental Health Community Support Services: Evidence Review. Lee, S. and Kulkarni, J (2013) Monash Alfred Psychiatry Research Centre, Melbourne, Victoria.
Statewide Youth Sub-Acute Unit: An Integrated Service Approach. Government of South Australia. April 2012.
Stepped-Care Prevention of Anxiety and Depression in Late Life, Petronella J. van't Veer-Tazelaar, MA; Harm W. J. van Marwijk, MD, PhD; Patricia van Oppen, PhD; Hein P. J. van Hout, PhD; Henriëtte E. van der Horst, MD, PhD; Pim Cuijpers, PhD; Filip Smit, PhD; Aartjan T. F. Beekman, MD, PhD, Arch Gen Psychiatry. 2009;66(3):297-304, doi:10.1001/archgenpsychiatry.2008.555. http://archpsyc.jamanetwork.com/article.aspx?articleid=482992
Stepped-care prevention of anxiety and depression in late life: a randomized controlled trial van't Veer-Tazelaar PJ, van Marwijk HW, van Oppen P, van Hout HP, van der Horst HE, Cuijpers P, Smit F, Beekman AT. www.ncbi.nlm.nih.gov/pubmed/19255379
Stigmatization of people with mental illnesses: a follow-up study within the Changing Minds campaign of the Royal College of Psychiatrists. Crisp, A., et al., World Psychiatry, 2005. **4**(2): p. 106-13.
Study of the use of antidepressants for depression in dementia: the HTA -SADD trial – a multicentre, randomised, double-blind, placebo-controlled trial of the clinical effectiveness and cost-effectiveness of sertraline and mirtazapine; S Banerjee et al; Health Technology Assessment. volume 17 issue 7 February 2013. ISSN 1366-5278 DOI 10.3310/hta17070

Suicidal thoughts and behaviours among Australian adults: findings from the 2007 National Survey of Mental Health and Wellbeing. Johnston AK, Pirkis JE, Burgess PM. *Aust N Z J Psychiatry.* 2009 Jul;43(7):635-43. doi: 10.1080/00048670902970874.

Suicide Hawton K, van Heeringen K.. *Lancet.* 2009 Apr 18;373(9672):1372-81. doi: 10.1016/S0140-6736(09)60372-X. http://www.ncbi.nlm.nih.gov/pubmed/19376453

Suicide awareness weeks: the outcomes,.Proceedings of the 16th Congress of the International Association for Suicide Prevention; Dyck, R 1993: Regensburg, Germany

Suicide clusters in young people: evidence for the effectiveness of postvention strategies. Cox GR, Robinson J, Williamson M, Lockley A, Cheung YT, Pirkis J. *Crisis*. 2012;33(4):208-14. doi: 10.1027/0227-5910/a000144.

Suicide intervention in training evaluation: a preliminary report. Crisis. Tierney RJ. 1994;15:69–76.

Suicide Locations of Concern. ChooseLife Guidelines - Guidance on action to reduce suicides at locations of concern. NHS Health Scotland National Working Group: Report for NHS Health Scotland, 2012

Suicide prevention programs in the schools – a review and public health perspective. Milller D, Eckert T and Mazza J. School Psychology Reveiw. 32(2):168-188

Suicide prevention strategies: a systematic review. Mann JJ, Apter A, Bertolote J, et al. *JAMA* 2005; **294:** 2064–74.

Supplement to: Common values in assessing health outcomes from disease and injury: disability weights measurement study for the Global Burden of Disease Study 2010. Salomon JA, Vos T, Hogan DR, et al.; Lancet 2012; 380: 2129–43.

Supported Education and Psychiatric Rehabilitation: Models and Methods, (pp 181-194), Linthicum, MD: International Association of Psychosocial Rehabilitation Services.

Systematic review of school-based prevention and early intervention programs for depression Calear, A and Christensen, H 2010, Journal of Adolescence, vol. 33, no. 3, pp. 429-438.

Targeted preliminary evaluation of Department of Health FaPMI strategy. Maybery, D., Reupert, A., Grove, C., Goodyear, M., Marston N. and Sutton K. (2012). , Report to Victorian Department of Health, Mental Health, Drugs and Regions Division.

Tasmania population projections , Department of Treasury and Finance URL: http://www.treasury.tas.gov.au/domino/dtf/dtf.nsf/85069fc0572051bbca257488007edd54/8fc289071851901cca257b8f001d2666?OpenDocument

Tasmania population projections, Demographic Change Advisory Council, URL: http://www.dcac.tas.gov.au/pages/pop-projections.html

Taste of food, fun, and fitness: a community-based program to teach young girls to feel better about their bodies. Coller, T. G., Neumark-Sztainer, D., Bulfer, J., and Engebretson, J. (1999). *Journal of Nutrition Education, 31*(5), 292-293.

The 'Co-morbidity Roundabout': a Framework to Guide Assessment and Intervention Strategies and Engineer Change Among People With Co-morbid Problems, Kay-Lambkin, F.J., et al.. Drug and Alcohol Review 2004; 23(4): p407-424.

The alliance against depression:2-year evaluation of a community-based intervention to reduce suicidality. Hegerl U, Althaus D, Schmidtke A, et al. Psychol Med. 2006;36:1225–1233.

The Australasian Health Facility Guidelines (AusHFG)

URL: http://www.healthfacilityguidelines.com.au/default.aspx

the Australian National Survey of Mental Health and Wellbeing (SMHWB-1997)

The Australian Population: Statistical Local Area Population Projections, 2007 to 2027, Revised. Commonwealth department of Health and Ageing. , URL: http://www.health.gov.au/internet/main/publishing.nsf/Content/ageing-stats-lapp.htm

The Australian Population: Statistical Local Area Population Projections, 2007 to 2027, Revised. Commonwealth department of Health and Ageing. URL: http://www.health.gov.au/internet/main/publishing.nsf/Content/ageing-stats-lapp.htm

The Body Project: Promoting body acceptance and preventing eating disorder: Facilitator guide. New York: Stice, E. and Presnell, K. (2007). Oxford University Press.

The British Child and Adolescent Mental Health Survey 1999: The Prevalence of DSM-IV Disorders. Ford T, Goodman G, Meltzer H. *Journal of the American Academy of Child and Adolescent Psychiatry, 2003*; 42(10):1203–121

The burden of disease and injury in Aboriginal and Torres Strait Islander peoples 2003. Vos T, Barker B, Stanley L, Lopez AD 2007. Brisbane: School of Population Health, The University of Queensland

The burden of disease and injury in Australia 2003. Begg S, Vos T, Barker B, Stevenson C, Stanley L, Lopez AD, 2007. PHE 82. Canberra: AIHW. We thank A/Prof Theo Vos for assistance with using this material.

The Chief Psychiatrist's Guidelines for the use of Electroconvulsive Therapy in Western Australia, Department of Health, Western Australia, 2006

The Christchurch Health and Development Study: review of findings on child and adolescent mental health. Fergusson DM, Horwood LJ. *Aust N Z J Psychiatry.* 2001 Jun;35(3):287-96.

The Clinical Antipsychotic Trials of Intervention Effectiveness project (CATIE) is a new research project to evaluate the clinical effectiveness of atypical antipsychotics in the treatment of schizophrenia and Alzheimer's disease. (see the Web site http://www.catie.unc.edu/).

The economic analysis of prevention in mental health programs. Mihalopoulos, C., Vos, T., Pirkis, J., and Carter, R. (2011). *Annual Review of Clinical Psychology,* 7, 169–201.

The economic analysis of prevention in mental health programs. Mihalopoulos, C., et al., Annu Rev Clin Psychol, 2011. **7**: p. 169-201.

The effect of web based depression interventions on self reported help seeking: randomised controlled trial *[ISRCTN77824516].* Christensen, H., et al., BMC Psychiatry, 2006. **6**: p. 13.

The effectiveness of peer support groups in psychosis: a randomized controlled trial. Catelein, S., Bruggeman, R., van Busschbach, M., van der Gaag, M., Stant, A. D., Knegtering, H., Wiersma, D. (2008). *Acta Psychiatr Scand 118,* 64-72

The effects of school-based intervention programs on aggressive behavior: A meta-analysis. Wilson, Sandra Jo, Lipsey, Mark W., and Derzon, James H. (2003). Journal of Consulting and Clinical Psychology, 71(1), 136-149. doi: 10.1037/0022-006X.71.1.136

The Essential Guide to Psychiatric Rehabilitation Practice. Anthony W, Farkas M. (2012) Boston University Center for Psychiatric Rehabilitation, Boston)

The Evidence Base of Systemic Family and Couples Therapies, Professor Peter Stratton

AFT Academic and Research Development Officer , January 2011

The Evidence Base to Guide Development of Tier 4 CAMHS, Zarrina Kurtz, April 2009 National CAMHS Support Service, Department of Health.

http://www.nmhdu.org.uk/silo/files/the-evidence-base-to-guide-dvt-of-tier-4-camhs-apr-09.pdf

The impact of a school-based obesity prevention trial on disordered weight-control behaviors

in early adolescent girls. Austin, S. B., Field, A. E., Wiecha, J., Peterson, K. E., and Gortmaker, S. L. (2005). *Archives of Pediatrics and Adolescent Medicine, 159*(3), 225-230.
The impact of beyondblue: the national depression initiative on the Australian public's recognition of depression and beliefs about treatments. Jorm, A.F., H. Christensen, and K.M. Griffiths ; Aust N Z J Psychiatry, 2005. **39**(4): p. 248-54.
The impact of enhancing students' social and emotional learning: a meta-analysis of school-based universal interventions. Durlak, J.A., et al., Child Development, 2011. 82(1): p. 405-32.
The Impact of Enhancing Students' Social and Emotional Learning: A Meta-Analysis of School-Based Universal Interventions. Durlak, Joseph A., Weissberg, Roger P., Dymnicki, Allison B., Taylor, Rebecca D., and Schellinger, Kriston B. (2011). Child Development, 82(1), 405-432. doi: 10.1111/j.1467-8624.2010.01564.x
The key to reducing duration of untreated first psychosis: information campaigns. Joa, I., et al., Schizophr Bull, 2008. **34**(3): p. 466-72.
The mental health of Australian mothers and fathers of young children at risk of disability. Emerson E, Llewellyn G. *Australian and New Zealand Journal of Public Health, 2008*; 32:53-9.
The Mental Health of Young People in Australia. Sawyer MG, Arney FM, Baghurst PA, Clark JJ, Graetz BW, Kosky RJ, Nurcombe B, Patton GC, Prior MR, Raphael B, Rey J, Whaites LC and Zubrick SR. Canberra: Mental Health and Special Programs Branch, Commonwealth Department of Health and Aged Care, 2000. URL: http://www.health.gov.au/internet/main/publishing.nsf/Content/mental-pubs-m-young
The mental health of young people in Australia: key findings from the child and adolescent component of the national survey of mental health and well-being. Sawyer, M.G., et al., The Australian and New Zealand Journal of Psychiatry, 2001. **35**(6): p. 806-14.
The mental health of young people: a new frontier in the health and social policy of the 21st century. McGorry, P., Early Intervention in Psychiatry, 2011. 5: p. 1-3.
The National Eating Disorders Framework 2012   http://www.nedc.com.au
The National Mental Health Strategy publication glossaries; the (2011) NMHCCF *'Unravelling Psychosocial Disability'* publication; and the Our Consumer Place (2011) *'Psychobabble'* publication.
The NCS   The first nationally representative US National Comorbidity Survey[118]
The NIMH Epidemiologic Catchment Area Program: historical context, major objectives, and study population characteristics. Regier DA, Myers JK, Kramer M, Robins LN, Blazer DG, Hough RL, Eaton WW, Locke BZ: *Archives of General Psychiatry* 1984;41:934-941.
The oregon multidimensional treatment foster care model: Features, outcomes, and progress in dissemination. Chamberlain, Patricia. (2003). Cognitive and Behavioral Practice, 10(4), 303-312. doi: http://dx.doi.org/10.1016/S1077-7229(03)80048-2
The prevalence of mental health problems in children 1½ years of age – the Copenhagen Child Cohort 2000. Skovgaard AM, Houmann T, Christiansen E, Landorph S, Jørgensen T, and CCC 2000 Study Team (Olsen EM, Heering K, Kaas-Nielsen S, Samberg V, Lichtenberg A). Journal of Child Psychology and Psychiatry,2007; 48(1):62–70. Note that the data quoted and the Table used are not affected by a correction elsewhere (Skovgaard A.M., Houmann T, Christiansen E., Landorph S., Jørgensen T., and The CCC 2000 Study Team, Olsen E.M., Heering K., Kaas-Nielsen S.,

[118] Kessler RC, McGonagle KA, Zhao S, Nelson CB, Hughes M, Eshleman S, Wittchen H-U, Kendler KS. Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States: Results from the National Comorbidity Survey. Archives of General Psychiatry 1994;51:8-19.

Samberg V.,

The Prevention of Child and Adolescent Anxiety: A Meta-analytic Review Fisak Jr BJ, Richard D, Mann A (2011). Prev Sci 12:255–268. DOI 10.1007/s11121-011-0210-0

http://www.ncbi.nlm.nih.gov/pubmed/21437675

The Prevention of Violent Behavior by Chronic and Serious Male Juvenile Offenders: A 2-Year Follow-up of a Randomized Clinical Trial. Eddy, J. M., Whaley, R. B., and Chamberlain, P. (2004). Journal of Emotional and Behavioral Disorders, 12(1), 2-8.

The quality of mental disorder information websites: A review. Reavley, N.J. and A.F. Jorm; Patient Educ Couns, 2010. **85**(2): p. e16-25.

The role of diet in the prevention and management of adolescent depression. Bamber DJ, Stokes CS, Stephen AM (2007). *Nutrition Bulletin* 32 (suppl 1), 90–99

http://www.cheryltherman.org/wp-content/uploads/CTHbamber-2007.pdf

The structured clinical interview for DSM-III-R (SCID). I: history, rationale, and description. Spitzer RL, Williams JBW, Gibbon M, First MB. Archives of General Psychiatry 1992;49:624-629.

The structured clinical interview for DSM-III-R (SCID). II: multisite test-retest reliability. Williams JBW, Gibbon M, First MB, Spitzer RL, Davies M. Borus J, Howes MJ, Kane J, Harrison GP Jr, Rounsaville B, Wittchen H-U. Archives of General Psychiatry 1992;49:630-636.

The Sydney Multisite Intervention of Laughter Bosses and ElderClowns (SMILE) study:cluster randomised trial of humour therapy in nursing homes; Low L-F, Brodaty H, Goodenough B, et al. BMJ Open 2013;3:e002072. doi:10.1136/ bmjopen-2012-002072

The use of mental health services in Ontario: Epidemiologic findings. Lin E, Goering P, Offord DR, Campbell D, Boyle MH. *Canadian Journal of Psychiatry* 1996;41:72-577.

Therapeutic Guidelines Limited. (2013). eTG complete. Retrieved 28th August 2013, from Therapeutic Guidelines Limited http://www.tg.org.au/

Tolkien II Published in 2006, a needs-based, costed, stepped-care model for mental health services : recommendations, executive summaries, clinical pathways, treatment flowcharts, costing structures.

http://trove.nla.gov.au/work/19579090?versionId=23008117

Top End Hospital Network Charter Of Operations, Northern territory Dept of Health, http://health.nt.gov.au/library/scripts/objectifyMedia.aspx?file=pdf/76/35.pdfandsiteID=1andstr_title=TEHN%20Charter%20of%20Operations.pdf

Treating children well: a guide to the evidence base in commissioning and managing services for the mental health of children and young people. Kurtz Z London: The Mental Health Foundation, 1996.

Treating Children With Early-Onset Conduct Problems: Intervention Outcomes for Parent, Child, and Teacher Training. Webster-Stratton, C., Reid, M. J., and Hammond, M. (2004). Journal of Clinical Child and Adolescent Psychology, 33(1), 105-124.

Trends in the utilization of psychotropic medication in Australia from 2000 to 2011. Stephenson CP, Karanges E, McGregor IS. *ANZ J Psychiatry* 2013; 47:74-87.

http://www.ncbi.nlm.nih.gov/pubmed/23144164

Understanding mental health treatment in persons without mental diagnoses: results from the National Comorbidity Survey Replication. Druss BG. Wang PS. Sampson NA. Olfson M. Pincus HA. Wells KB. Kessler RC. *Archives of General Psychiatry 2007*, 64(10):1196-203.

Unmet need in psychiatry: problems, resources, responses. Andrews G, Henderson S (Eds) (Scientific symposium of the World Psychiatric Association Section of Epidemiology and Public Health, Sydney, 1997). Cambridge: Cambridge University Press, 2000.

URL: http://www.planning.wa.gov.au/dop_pub_doc/Local_Government_Areas_by_Age_by_Sex.xls
URL: http://www.planning.wa.gov.au/Publications/723.aspx. Note 14 July 2011 – These projections no longer exist on the WAPS website, but there were no new ones there.
US preventive task force;
Using health promotion principles to prevent eating disorders in 8 to 10 year old girls: uniting self-esteem, media literacy, and feminist approaches. Fiissel, D. L. (2006). *Dissertation Abstracts International: Section B: The Sciences and Engineering, 66*(11-B), 6333.
Using modeling and vicarious reinforcement to produce more positive attitudes toward mental health treatment. Buckley, G.I. and J.M. Malouff Journal of Psychology, 2005. **139**(3): p. 197-209.
Victoria in Future 2012 (VIF 2012) Department of Planning and Community Development, URL: http://www.dpcd.vic.gov.au/home/publications-and-research/urban-and-regional-research/census-2011/victoria-in-future-2012
Victorian population bulletin (2012) URL: http://www.dpcd.vic.gov.au/__data/assets/pdf_file/0006/99348/Vic-Pop-Bulletin-2012-FINAL.pdf
Vocational Education, Training and Employment (VETE) Pilot Project Report – Psychiatric Rehabilitation Services 2006-2007, *Frost, B., Morris, A., Sherring, J. and Robson, E. (2008) NSW Health, Sydney.*
Vocational Rehabilitation and Employment Support Options for People Affected by Mental Illness and the Associated Barriers to Employment – The Picture in the ACT, Lee, M (2008) ACT Health, Canberra.
Walk the walk and talk the talk - A summary of some peer support activities in IIMHL countries, Peters, J. (2010) Te Pou, NZ
Western Australia Tomorrow, Population Report No.7, 2006 to 2026, February 2012.
Western Australian child health survey: developing health and well-being in the nineties, Zubrick SR, Silburn SR, Garton A et al.. Perth: Australian Bureau of Statistics and the Institute for Child Health Research, 1995.
Winning the mental illness battle, but losing the war, by *Louise Pascale*, (J.Parks "25 years too late" http://www.abc.net.au/rampup/articles/2012/09/10/3586516.htm.
Work and depression/anxiety disorders – a systematic review of reviews Harvey SB, Joyce S, Modini M, Christensen H, Bryant R, Mykletun A, Mitchell P. (in prep).
Work in Practice – Best practice employment support services for people with mental illness McLaren, K (2004), NZ).
Workplace Bullying: We just want it to stop, Commonwealth of Australia, House of representatives, Standing Committee on Education and Employment: Canberra 2012.
Youth Early Psychosis Status Report, Dr Ruth Vine, Victorian Government, 2007.
Youth prevention and recovery care (Y-PARC) framework and operational guidelines. Victorian Government 2010. Primary source.

19 NMHSPF Mapping with AIHW Non Government Organisations National Minimum Data Set (NGO NMDS)

Draft AIHW Mental Health NGOE NMDS	National Mental Health Service and Planning Framework
Counselling—face-to-face	Individual Support and Rehabilitation Services
Counselling, support, information and referral—telephone	
Counselling, support, information and referral—online	
Personalised support—other	
Individual advocacy	
Personalised support—linked to housing	
Staffed residential services	Other Residential Services
Group support activities	Group or Individual support and rehabilitation
Mutual support and self-help	
Family and carer support	Family and Carer Support
Self-help—online	N/A
Education, employment and training	Group/Individual support and rehabilitation and Family and carer support
Sector development and representation	Mental health promotion
Mental health promotion	
Mental illness prevention	Mental illness prevention
Care coordination	N/A
Service integration infrastructure	

20 Sensitivity Testing of Numbers in NMHSPF Model

Towards the final stages of the NMHSPF Project, the Executive Group membership reviewed the draft Estimator Tool Output Reports based on State level data. Because the model was a 'should be' model, members were advised that higher outputs were expected than those currently in service. Members were asked to review the data and advise if there were any anomalies or unexpected results in the data, provide feedback regarding the utility of the model and format of the reports. It was also noted that the model sits within a greater health and social service environment that contribute to an individual's care and should not be considered in isolation of those other services beyond remit of the mental health care system.

This initial testing process identified some key data issues which prompted the review and amendment of the service mapping and some care package modelling.

Feedback highlighted a fundamental issue of the need to be able to separate services that might be considered relevant to the user. The model does not discern between public, private and community managed sectors of service delivery but rather estimates total services and associated resources. In response to this feedback, the Project Team built in capacity for each line of each care package to be allocated a number between 1 and 5. These numbers can represent anything for the user and can then be filtered in custom reports. This new feature allows far greater accuracy in modelling services specific to the user.

Other feedback highlighted the current difficulty in estimating public services as the quantum of service delivery in private sector health services is not known by jurisdictions. For example, many NGO report only dollar figures, and do not report the number of services that are delivered.

The new labelling mechanism just described goes a long way in resolving this issue, but some services still require proportional estimates, for example specialist ambulatory services have a lot of overlap between the public and private sectors.

Members also noted that it would take time to adequately map their service system to the NMHSPF taxonomy and so were largely unable to provide detailed feedback regarding the estimates themselves. Following a presentation to the Mental Health, Drug and Alcohol Principal Committee Meeting (MHDAPC) in August 2013, Executive Group members were given the draft Estimator Tool itself to explore the modelling process earlier than any of the Expert Working Groups.

The Estimator Tool was also reviewed by the modelling Group membership in September 2013 and provided the final advice for action prior to completion of the project.

The final meeting of the NMHSPF Project was scheduled for October 20, 2013. Executive Group members will consider options for what happens after the tool is released and how it is promoted up the governance structure.

21 Level of Evidence Classification

The structure was drawn from the research of by Mihalopoulos et al (2011) and was modified for the purposes of the NMHSPF Project. The approach will be applied to all service elements. Members noted that international evidence may not be easily generalised to the Australian service environment and to consider this in attributing the rating for level of evidence.

Members noted that the levels of evidence were not hierarchal in nature, but were rather just ways of categorising the strength of the evidence. Evidence often exists in the context of efficacy of interventions, but not necessarily on the prevalence or population to which it applies.

National Mental Health Service Planning Framework (NMHSPF) – Classifying the level of evidence in

support of service elements and care package development (adapted from Classifying the strength of the evidence in support of approach adopted in Assessing Cost Effectiveness (ACE)-Prevention[119])

Table 37 - Level of Evidence Classification

Level	Description	Detail
1.*	"Sufficient evidence of Effectiveness"	Effectiveness is demonstrated by sufficient evidence from well designed research: a) The effect is unlikely to be due to chance (eg. P<0.05), and b) The effect is unlikely to be due to bias, eg. evidence from1: - a level I study design; - several good-quality level II studies; or - several high quality level III-1 or III-2 studies from which effects of bias and confounding can be reasonably excluded on the basis of the design and analysis.
2.*	"Limited evidence of effectiveness"	Effectiveness is demonstrated by limited evidence from studies of varying quality The effect is probably not due to change eg. P< 0.10, but bias – although not certainly an explanation for the effect – cannot be excluded as a possible explanation; eg. evidence from3: a) one level II study of uncertain or indifferent quality; b) evidence from one level III-1 or III-2 study of high quality; c) evidence from several level III-1 or III-2 studies of insufficiently high quality to rule out bias as a possible explanation; or d) evidence from a sizeable number of level III-3 studies that are of good quality and consistent in suggesting an effect.
3.*	"Inconclusive evidence of effectiveness"	Inadequate evidence due to insufficient research or research of inadequate quality. No position could be reached on the presence or absence of an effect of the intervention (eg. no evidence from level I or level II studies; level III studies are available, but they are few and of poor quality).
4.#	"Likely to be effective"	Effectiveness results are based on: a) Sound theoretical rationale and program logic; and b) Level IV studies, indirect evidence1 or parallel evidence2 for outcomes; or c) Epidemiological modelling to the desired outcome using a mix of evidence types or levels. The effect is unlikely to be due to chance (the final uncertainty interval does not include zero and there is no evidence of systematic bias in the supporting studies). Implementation of this intervention should be accompanied by an appropriate evaluation budget.
5. #	"May be effective"	Effectiveness results are based on: a) Sound theoretical rationale and program logic; or b) Level IV studies, indirect[120] or parallel evidence[121] for outcomes; or

[119] Mihalopoulos, C., Vos, T;, Pirkis, J and Carter, R. (2011) "The Economic Analysis of Prevention in Mental Health Programs",
Annual Review of Clinical Psychology 2011. 7:169–201

[120] The evidence classifications below are based on those of the Natl. Med. Res. Counc. (2000).
I: evidence obtained from a systematic review of all relevant randomized controlled trials..
II: evidence obtained from at least one properly designed randomized controlled trial.

		c) Epidemiological modelling to the desired outcome using a mix of evidence types or levels. The effect is probably not due to chance, but bias – although not certainly an explanation for the effect – cannot be excluded as a possible explanation. The intervention would benefit from further research and /or pilot studies before implementation.
6. ^	"Consensus of expertise"	Agreement by individuals with expertise in the mental health sector (including consumers, carers, community support workers and clinical workers) sourced from both within and/or external to the Project.
7. #	"No evidence of effectiveness"	No position could be reached on the likely credentials of this intervention. Further research may be warranted.

***** Conventional approach based on epidemiological study design: Evidence from Level I-II study designs.
# Additional categories utilized in the ACE-Prevention study: evidence from Level IV studies, indirect2 or parallel evidence[122], and/or from epidemiological modelling using a mixture of study designs.
^ Added for purposes of the NMHSPF Project.
3 Parallel evidence: evidence of intervention effectiveness for another public health issue using similar strategies (eg., the role of social marketing,
regulation, or behavioural change initiatives in tobacco control, sun exposure, speeding , etc) (Swinburn et al. 2005).

III-I: evidence obtained from well-designed pseudo-randomized controlled trials (alternate allocation or some other method).
III-2: evidence obtained from comparative studied with concurrent controls and allocation not randomized (cohort studies), case-control studies, or interrupted time series with a control group.
III-3: evidence obtained from comparative studies with historical control, two or more single-arm studies, or interrupted time series without a parallel Control group.
IV: evidence obtained from either pretest or posttest case series. Source: Table is based on Habyt et al.(2006).
[121] Indirect evidence: information that strongly suggests that the evidence exists (eg. A high and continued investment in food advertising is indirect evidence
that there is positive (but proprietary) evidence that food advertisement increases sales of those products (Swinburn et al. 2005).
[122] Parallel evidence: evidence of intervention effectiveness for another public health issue using similar strategies (eg., the role of social marketing,
regulation, or behavioural change initiatives in tobacco control, sun exposure, speeding , etc) (Swinburn et al. 2005).

22 Staffing Profiles

Staffing Profiles are detailed rosters of either a single practitioner or a particular staff mix that would work together as a team to provide a particular service. A separate staffing profile is attached to each service element in the taxonomy where individually focused care is provided (ie. No staffing profiles for promotion, prevention and indicated prevention service elements as their modelling approach differs).

Staffing profiles may take the form of a single practitioner or a team based profile and provides a mechanism to calculate salary, personnel on-costs, corporate overhead costs, leave relief and proportion of client service delivery time.

Included on the staffing profile sheet is the capacity to input populations and extrapolate the quantum of each workforce type required to provide that service to that population. Separately to this function, the Estimator Tool links in with the summary data of the staffing profile and multiplies the workforce information with the care package quantities of service and relevant population to determine the total workforce resources required for each care package. Note that the data is represented at the Staff Category level (Peer workers, Vocationally Qualified, Tertiary Qualified, Medical, Other) but that the staffing profiles use greater delineation of workforce to more accurately assess cost of the resources.

The actual staffing profiles are very detailed and are held in individual spreadsheets:-

- Ambulatory Teams Staffing Profiles
- Bed Based Staffing Profiles
- Community Support Staffing Profiles
- Individual Practitioner Staffing Profiles

The tables below represent a summary representation of the data, provided as a quick snapshot of the mix of staff relevant to each service element. Note however, that these tables do not reflect the full details of different staff or the proportion of 'client service delivery' time versus 'other time'.

22.1 SPECIALISED CLINICAL AMBULATORY MH CARE SERVICES TEAMS

The following table shows a summary of the number of FTE in each Staff Category needed to staff each of the teams modelled in the Specialised Clinical Ambulatory MH Care Services stream. Note that each team has a context of size that partners with the profile. Eg Acute Care Service (Team modelled for approximately 250,000 people @ 11 FTE/100k)

Table 38 - Specialised Clinical Ambulatory Team Staffing Profiles

Specialised Clinical Ambulatory Team Profiles					
Team	**Medical**	**Nursing**	**AHP**	**VQ/Peer**	**Total**
AcuteCareServices	3.2	20.5	3.8	1.4	29.0
ConsultLiaisonGeneral	4.0	6.5	2.3	-	12.8
ConsultLiaisonEmergencyDept	3.9	8.2	2.3	-	14.4
IntensCommTreatOlderAdult	2.4	6.3	3.5	0.6	12.8
IntensCommTreatCA	0.9	6.8	17.6	4.6	29.9
IntensCommTreatAdult	4.7	21.9	20.2	6.0	52.8
DayProgramChildandAdol	0.9	1.3	3.5	0.3	6.0
DayProgramAdult	0.9	1.3	3.5	0.3	5.9

22.2 SPECIALISED MENTAL HEALTH COMMUNITY SUPPORT SERVICE TEAMS

The following tables show the ratio of FTE within each community support team. Further details are provided in the Service element description document and in the Staffing Profiles.

Table 39 - Community Support Team Staffing Profiles

Service	Tertiary Qualified Level 7	Tertiary Qualified Level 6	Vocational Qual Level 5	Vocational Qual Level 4	Vocational Qual Level 3-4	Peer Workers
Flexible Respite		0.4 FTE	2.0 FTE		6.0 FTE	
Day Respite		0.4 FTE	2.0 FTE		6.0 FTE	
Family Support Services		0.4 FTE	2.0 FTE		6.0 FTE	
Group Carer Support Services	1.0 FTE			1.0 FTE		
Individual Carer Support Services		0.4 FTE	2.0 FTE		6.0 FTE	
Individual Support and Rehabilitation		0.4 FTE	2.0 FTE		6.0 FTE	
Group Support and Rehabilitation Average 6x participants per facilitator/staff member.		1.0 FTE	1.0 FTE		3.5 FTE	

Table 40 - Group Based Peer and Carer – Facilitator/Participant Ratios

Workforce		
	Group Based Peer Work – Moderate: 2x Facilitators per 12 participants. 50% business hours (BH), 50% after hours (AH) **Group Based Peer Work – Severe**: 2x Facilitators per 6 participants, 90% business hours (BH), 10% after hours (AH)	**Group Based Carer Peer Work – Moderate**: 2x Facilitators per 12 participants. 50% business hours (BH),, 50% after hours (AH) **Group Based Carer Peer Work – Severe**: 2x Facilitators per 6 participants 70% business hours (BH),, 30% after hours (AH)

22.3 BED BASED TEAMS

The bed based staffing profiles are particularly detailed and complex. The tables below represent a summary of the workforce, according to client service delivery hours, and is depicted in both summary form of Staff Category and again with greater detail within the workforce groups.

Table 41 - Bed Based Team – Summary FTE Consumer Service Delivery Time (hours) per year

Taxonomy names	Vocationally Qualified	Peer Worker	Tertiary Qualified	Medical
Acute - Perinatal and Infant Mental Health (Hospital)		1,715	1,648	1,766
Acute - Child and Youth (0-17 years) (Hospital)	1,639	1,715	1,622	1,766
Acute - Adult (18-64 years) (Hospital)	1,639	1,715	1,612	1,766
Acute - Older Adult (65+ years) (Hospital)	1,639	1,715	1,634	1,766
Acute - Older Adult (65+ years BPSD) (Hospital)	1,639	1,715	1,633	1,766
Acute - Adult Eating Disorders (Hospital)	1,639	1,715	1,664	1,766
Acute - Intensive Care Unit (Hospital)			1,541	1,766
Acute - Psychiatric Emergency Care Unit (Hospital)	1,639		1,641	1,766
Same Day Admission for Administration of ECT (Hospital)	1,639		1,671	1,766
Step Up/ Step Down - Youth (Residential)	1,715	1,715	1,682	1,766
Step Up/Step Down - Adult_(Residential)	1,715	1,715	1,689	1,766
Rehabilitation - Adult_and Older Adult (Residential)	1,715	1,715	1,637	1,766
Sub-Acute Older Adult (65+ years)(Hospital)	1,658		1,633	1,766
Sub-Acute Intensive Care Service (Hospital)	1,639	1,715	1,588	1,766
Non-Acute - Intensive Care Service (Hospital)	1,639	1,715	1,588	1,766
Non-Acute -Intensive Care Service - Older Adult(65+) (Hospital Based)	1,658	1,715	1,589	1,766
Non-Acute - Adult and Older Adult (24 hour support) (Residential)	1,715	1,715	1,636	1,766
Non-Acute - Older Adult (Hospital/Nursing Home Based)	1,639	1,715	1,621	1,766
Non-Acute - Specialised Services (Hospital/Nursing Home Based)	1,639	1,715	1,619	1,766

Table 42 - Bed Based Team Staffing Profiles – detail part 1

Taxonomy names	Total Medical	Psychiatrist	Registrar	Junior Medical Officer	Other Specialist	Total Nursing	Registered Nurse	Nurse Practitioner	Enrolled Nurse	Total Allied Health
Acute - Perinatal and Infant Mental Health (Hospital)	0.2	0.1	0.1			2.8	2.6	0.2		0.2
Acute - Child and Youth (0-17 years) (Hospital)	0.3	0.1	0.1	0.0		1.9	1.5	0.1	0.3	0.2
Acute - Adult (18-64 years) (Hospital)	0.3	0.1	0.1	0.0		1.4	1.3		0.1	0.1
Acute - Older Adult (65+ years) (Hospital)	0.2	0.1	0.1	0.0		1.3	1.1		0.2	0.2
Acute - Older Adult (65+ years BPSD) (Hospital)	0.2	0.1	0.1	0.0		1.6	0.9		0.7	0.2
Acute - Adult Eating Disorders (Hospital)	0.3	0.1	0.1	0.2		1.5	1.2		0.4	0.5
Acute - Intensive Care Unit (Hospital)	0.2	0.0	0.1			3.8	3.4	0.4		0.1
Acute - Psychiatric Emergency Care Unit (Hospital)	0.6	0.1	0.4			4.0	3.5		0.4	
Same Day Admission for Administration of ECT (Hospital)	0.2	0.1	0.1		0.0	0.6	0.4		0.2	
Step Up/ Step Down - Youth (Residential)	0.1	0.0	0.0			0.3	0.3			0.3
Step Up/Step Down - Adult_(Residential)	0.1	0.0	0.1			0.2	0.2			0.1
Rehabilitation - Adult_and Older Adult (Residential)	0.0	0.0	0.0			0.4	0.4			0.2
Sub-Acute Older Adult (65+ years)(Hospital)	0.2	0.1	0.1	0.0		1.3	0.9		0.4	0.2
Sub-Acute Intensive Care Service (Hospital)	0.1	0.0	0.1			1.3	1.2	0.1	0.1	0.1
Non-Acute - Intensive Care Service (Hospital)	0.1	0.0	0.1			1.3	1.2		0.1	0.1
Non-Acute -Intensive Care Service - Older Adult(65+) (Hospital Based)	0.1	0.0	0.1	0.0		1.3	1.2		0.1	0.1
Non-Acute - Adult and Older Adult (24 hour support) (Residential)	0.0	0.0	0.0			0.4	0.4			0.2
Non-Acute - Older Adult (Hospital/Nursing Home Based)	0.0	0.0	0.0			1.1	0.9		0.2	0.1
Non-Acute - Specialised Services (Hospital/Nursing Home Based)	0.1	0.0	0.0	0.0		1.3	0.9	0.1	0.4	0.1

Table 43 - Bed Based Team Staffing Profiles – detail part 2

Taxonomy names	Psychologists	Social Workers	Occupational Therapists	Other	VQ and Peer Workers	Consumer Peer Worker	Carer Peer Worker	VQMH Worker	VQ Other
Acute - Perinatal and Infant Mental Health (Hospital)	0.0	0.1	0.1		0.2	0.1	0.1		
Acute - Child and Youth (0-17 years) (Hospital)	0.1	0.1	0.0		0.1	0.0	0.0		
Acute - Adult (18-64 years) (Hospital)	0.0	0.0	0.0	0.0	0.1	0.0	0.0		
Acute - Older Adult (65+ years) (Hospital)	0.0	0.1	0.0	0.1	0.1	0.1	0.1		
Acute - Older Adult (65+ years BPSD) (Hospital)	0.0	0.1	0.0	0.1	0.1	0.1	0.1		
Acute - Adult Eating Disorders (Hospital)	0.2	0.1		0.1	0.2	0.1	0.1		
Acute - Intensive Care Unit (Hospital)	0.1		0.1						
Acute - Psychiatric Emergency Care Unit (Hospital)									
Same Day Admission for Administration of ECT (Hospital)									
Step Up/ Step Down - Youth (Residential)	0.1	0.1	0.1	0.1	0.7	0.1	0.1	0.6	
Step Up/Step Down - Adult_(Residential)		0.1	0.0		0.9	0.1	0.1	0.8	
Rehabilitation - Adult_and Older Adult (Residential)	0.0	0.1	0.2		0.4	0.0	0.0	0.3	
Sub-Acute Older Adult (65+ years)(Hospital)	0.0	0.1	0.1	0.0	0.1			0.1	0.1
Sub-Acute Intensive Care Service (Hospital)	0.0	0.0	0.0	0.0	0.1	0.0	0.0		
Non-Acute - Intensive Care Service (Hospital)	0.0	0.0	0.0	0.0	0.0	0.0			
Non-Acute -Intensive Care Service - Older Adult(65+) (Hospital Based)	0.0	0.0	0.0	0.1	0.1	0.0			0.0
Non-Acute - Adult and Older Adult (24 hour support) (Residential)	0.0	0.1	0.2	-	0.3	0.0		0.2	
Non-Acute - Older Adult (Hospital/Nursing Home Based)	0.0	0.0	0.0	0.0	0.1	0.1			
Non-Acute - Specialised Services (Hospital/Nursing Home Based)	0.0	0.0	0.0	0.0	0.1	0.1			

23 Eating Disorder Admissions

23.1 OVERVIEW

This is a technical note that was presented to the Adult Care Package Expert Working Group (EWG). The modelling recommendations were accepted and incorporated into the NMHSPF model.

23.2 ISSUE

The Adult Care Package EWG proposed two care packages for Severe Eating Disorders.

- SEV-AMB-Eat – this involves only ambulatory care, and was deemed to meet 75% of the demand
- SEV_ABB_Eat – this involves an admitted patient stay, and was deemed to meet 25% of the demand.

Amb Only	Eating Disorders	Amb+ IP Stay
75%	14,041	25%

The figure above shows the division on the flowchart for the June 2011 population of Australia aged 18-64. The population estimate is the 65% of those meeting diagnostic criteria for Anorexia Nervosa (7,104) and/or Bulimia Nervosa (6,937) in the Australian Burden of Disease data who were estimated to have a SEVERE disorder. The estimated inpatient demand is 25%*14,041 = 3,510.

NMHSPF AGES 18-64 (Demand, Numbers, AUS, 2011)

Dx=PRIMARY Diagnosis (MI)	Dx (N)	Tx-MI(N)	Tx-MILD(N)	Tx-MOD(N)	Tx-SEV(N)
J02 Schizophrenia	85,200	85,200	-	-	85,200
J04 Bipolar Disorder	91,288	91,288	-	-	91,288
J03 Anxiety/Depression	1,670,300	1,097,625	477,228	381,783	238,614
J05 Personality Disorder, isolated	401,466	245,697	129,807	103,846	12,044
J06 Anorexia Nervosa	10,929	10,164	-	3,060	7,104
J06 Bulimia Nervosa	10,673	9,926	-	2,988	6,937
J07a ADHD	14,966	9,835	4,276	3,421	2,138
SMHWB(C&A) - Balance	-	-	-	-	-
Subtotal (Dx of Primary MI)	2,284,822	1,549,736	611,312	495,098	443,326
Dx=PRIMARY Diagnosis (non-MI)	Dx (N)	Tx-MI(N)	Tx-MILD(N)	Tx-MOD(N)	Tx-SEV(N)
J07b Autism - *Excess over K09*	44,498	7,594	3,302	2,641	1,651
J07b Asperger's Syndrome + PDD (nos)	17,392	-	-	-	-
K01 Dementia - BPSD	10,140	4,315	1,521	1,416	1,378
K09 Intellectual Disability-MI	303,714	63,950	27,804	22,243	13,902
J01a Alcohol-MI	898,997	82,708	35,960	28,768	17,980
J01b Heroin-MI	49,924	13,451	5,848	4,679	2,924
J01c Benzodiazepines-MI	52,625	9,683	4,210	3,368	2,105
J01d Cannabis-MI	252,434	23,224	10,097	8,078	5,049
J01e Stimulants-MI	72,773	6,695	2,911	2,329	1,455
Subtotal (Dx with MI Concurrent)	1,702,498	211,619	91,653	73,522	46,444
TOTAL MI TREATMENT DEMAND for NMHSPF		**1,761,355**	**702,965**	**568,620**	**489,770**

The admitted patient group was further divided into two sub-groups:

- 70% who had an admitted patient stay of 49 days in a general medical/surgical bed (Code BH)
- 30% who had an admitted patient stay of 49 days in a designated psychiatric bed, with 85% ordinary acute care (Code BA) and 15% intensive care (Code BI).

The issue was to review observed admission data to see how the proposed care models varied from current utilisation.

23.3 ANALYSIS #1 – AIHW HOSPITAL DATA CUBES

We estimate current volume of separations from the Australian Institute of Health and Welfare (AIHW) Hospital data cubes, and in particular for people with primary diagnoses in the ICD Sub-Chapter codes F50-F59. Within this chapter, between 96%-97% of all records were included by selecting codes F50.0 Anorexia nervosa/ F50.1 Atypical anorexia nervosa, F50.2 Bulimia nervosa/ F50.3 Atypical bulimia nervosa, or F50.9 Eating disorder, unspecified.

This initial analysis of four years of Australian Admitted Patient data for overnight stays is below:

2006-07	Seps	%F50-F59	TotBD	PsyBD	GenLOS	PsyLOS	ALOS
AN	1566	72%	42,610	25,926	**10.7**	**16.6**	**27.2**
BN	241	11%	4,916	3,863	**4.4**	**16.0**	**20.4**
ED Oth	285	13%	6,103	4,604	**5.3**	**16.2**	**21.4**
Total	2092	96%	53,629	34,393	**9.2**	**16.4**	**25.6**

2007-08	Seps	%F50-F59	TotBD	PsyBD	GenLOS	PsyLOS	ALOS
AN	1576	72%	42,989	26,532	**10.4**	**16.8**	**27.3**
BN	240	11%	4,541	3,469	**4.5**	**14.5**	**18.9**
ED Oth	299	14%	6,960	4,708	**7.5**	**15.7**	**23.3**
Total	2115	97%	54,490	34,709	**9.4**	**16.4**	**25.8**

2008-09	Seps	%F50-F59	TotBD	PsyBD	GenLOS	PsyLOS	ALOS
AN	1,692	70%	43,697	29,124	**8.6**	**17.2**	**25.8**
BN	254	10%	4,970	4,310	**2.6**	**17.0**	**19.6**
ED Oth	407	17%	8,527	6,569	**4.8**	**16.1**	**21.0**
Total	2353	97%	57,194	40,003	**7.3**	**17.0**	**24.3**

2009-10	Seps	%F50-F59	TotBD	PsyBD	GenLOS	PsyLOS	ALOS
AN	1,778	69%	44,934	29,506	**8.7**	**16.6**	**25.3**
BN	287	11%	6,313	5,620	**2.4**	**19.6**	**22.0**
ED Oth	397	15%	8,582	6,630	**4.9**	**16.7**	**21.6**
Total	2,462	96%	59,829	41,756	**7.3**	**17.0**	**24.3**

In this crude analysis the "ALOS" is just the bed-day total divided by the total number of separations. "PsyLOS" is the total number of psychiatric care days (ie days in designated psychiatric units) divided by the total number of separations. The difference between Total Bed-days and Psychiatric Bed-days provides a measure of the number of bed-days in general medical/surgical beds.
"GenLOS" is the result of dividing this total by the number of separations.

The main findings from this crude analysis are:

- The rate of admission increased by nearly 18% over the three years from 2006-07 (n=2,092) to 2009-10 (n=2,462). This is well in excess of population growth during the period. However, even if we allowed an additional 9% to take us from the 31 Dec 2009 midyear population of 2009/10 data and the June 30 reference point for the 2001 reference population in the NMHSPF model, the estimated usage of 2,685 for all ages together is 14% less than the estimated admitted patient demand of 3,510 for ages 18-64 only.
- The usage data for Australia in all years are consistent with a ALOS of about 25 days. However, this is only about half the ALOS of 49 days proposed for the NMHSPF model.
- In this analysis we do not know how individuals divided between the specialist units where they accumulate psychiatric care days, and the other units where they accumulate general care days. For that reason, the averages for GenLOS and PsyLOS are used only to indicate that about 2/3 of the bed-days are in psychiatric beds. This is NOT consistent with a proposed model in which stays are the same (49 days) in both settings, and pn;ly 30% occur in designated psychiatric beds.

To obtain additional information on these matters we analysed the separations for Subchapter F50-F59, 3td digit code F50 in the AIHW data cubes for MH-Related admitted patient care.

23.4 ANALYSIS #2 – AIHW MENTAL HEALTH RELATED ADMITTED PATIENT DATA CUBES

These data cubes have the advantage that it is possible to exclude "ambulatory equivalent" same day admissions, and to look at the difference between:

- Admitted patient stays with at least one day in a designated psychiatric unit (described as "with specialist mental health care")
- Admitted patient stays without any days in a designated psychiatric unit (described as "with specialist mental health care")

Since all admissions with primary diagnosed F50-F59 are included in both sets of AIHW date cubes, the only basis for a difference in total numbers of separations is the exclusion of ambulatory equivalent same day admissions in the analyses below. [These are relatively rare in Eating Disorders, but for some other conditions the differences are large.]

In the analyses shown below, we use the same subgroup of Diagnoses (F50.0,F50.1, F50.2, F50.3, F50.9), and have divided the data into the NMHSPF age groups. The analysis for all ages appears below.

Sector and Setting 2009/10	Seps	% Seps	Total OBD	Psy OBD	Gen OBD	ALOS	PsyLOS	GenLOS
Private-Psy	1152	42%	27156	27085	71	23.6	23.5	0.1
Private-Gen	93	3%	1386	0	1386	14.9	-	14.9
Private	1245	45%	28542	27085	1457	22.9	21.8	1.2
Public-Psy	563	20%	15956	14854	1102	28.3	26.4	2.0
Public-Gen	949	34%	15518	0	15518	16.4	-	16.4
Public	1512	55%	31474	14854	16620	20.8	9.8	11.0
Acute-Psy	1715	62%	43112	41939	1173	25.1	24.5	0.7
Acute_Gen	1042	38%	16904	0	16904	16.2	-	16.2
Acute	2757	100%	60016	41939	18077	21.8	15.2	6.6

This analysis clarifies the previous results:

- There were 2,757 Acute stays for Eating Disorders in Australia in 2009-10, across all ages.
- 62% of these stays occurred in specialised psychiatric beds, though a small proportion of the stay, on average, might be in a general bed (usually about 1 day in 25)
- 45% of stays were in private hospitals and 55% in Public acute hospitals
- In the private sector, almost all the stays (93%) were in designated psychiatric beds, whereas in the public sector the proportion was only 62%.
- The ALOS for stays in specialist psychiatric beds was shorter in Private (23.6 days) than in Public Acute (28.3 days) hospitals and both were much briefer than the model proposal of 49 days.
- The ALOS for stays in general medical/ surgical beds was much the same in Private (14.9 daysas in Public Acute (16.4 days) hospitals. Both were shorter than the stays in specialised beds and much shorter than the model stay of 49 days.

23.5 ANALYSIS #3 – AIHW MENTAL HEALTH RELATED ADMITTED PATIENT DATA CUBES, BY AGE GROUPS

For all the tables below we split the AIHW age groups as described in other technical notes:

- Age 10-14 : 25% ages 10,11 / 75% ages 12, 13,14
- Age 15-19: 55% ages 15,16,17 / 45% ages 18,19

With this done we were able to show the data in NMHSPF age groups as follows:

23.5.1 Age 0-4

The Australian Burden of Disease data estimates zero prevalence in this age range, and the 2009-10 data records 1 admission with a primary diagnosis of F50.9 Eating Disorder, unspecified. The total stay was 24 days of which 11 days was in a public acute psychiatric bed.

23.5.2 Age 5-11

The Australian Burden of Disease data estimates 78 children with SEVERE Anorexia nervosa and 95 with SEVERE Bulimia nervosa in this age range in Australia in 2011. The admitted patient data appears below.

Sector and Setting 2009/10	Seps	% Seps	Total OBD	Psy OBD	Gen OBD	ALOS	PsyLOS	GenLOS
Private-Psy	2	2%	59	59	-	33.4	33.4	-
Private-Gen	1	1%	15	-	15	20.0	-	20.0
Private	3	3%	74	59	15	29.4	23.4	6.0
Public-Psy	17	18%	483	434	49	29.3	26.3	3.0
Public-Gen	72	79%	1,326	-	1,326	18.5	-	18.5
Public	88	97%	1,809	434	1,375	20.6	4.9	15.6
Acute-Psy	18	20%	542	493	49	29.7	27.0	2.7
Acute_Gen	72	80%	1,341	-	1,341	18.6	-	18.6
Acute	91	100%	1,883	493	1,390	20.8	5.4	15.4

Although there were only 91 admissions of children aged 5-11 throughout Australia in 2009-10, 70 of them were for Anorexia nervosa as principal diagnosis, and this is almost equal to the number of prevalent SEVERE cases of Anorexia nervosa estimated from the AusBoDd data (n=78).

80% of admissions were to general acute beds with an ALOS of around 20 days, while the other 20% were to specialised psychiatric units with an ALOS of around 30 days.

Note that the NMHSPF model for this age group currently (10 July 2013) uses the NSW admission rates to estimate 368 general admissions with ALOS around 14 days, and 522 specialist MH admissions with ALOS around 21 days for this age group. There is no specific Eating Disorders care package, buy there is clearly scope within the admitted patient "sprinkle" to deal with the observed rated of admissions for eating disorders.

CL_PAED_PDMH
368
0.9%

MH Ac IP
522
1.2%

23.5.3 Age 12-17

The Australian Burden of Disease data estimates 1,253 teenagers with SEVERE Anorexia nervosa and 1,615 with SEVERE Bulimia nervosa in this age range in Australia in 2011. The admitted patient data for 2009/10 appears below.

Sector and Setting 2009/10	Seps	% Seps	Total OBD	Psy OBD	Gen OBD	ALOS	PsyLOS	GenLOS
Private-Psy	229	27%	4,490	4,490	-	19.6	19.6	-
Private-Gen	9	1%	159	-	159	16.9	-	16.9
Private	238	28%	4,649	4,490	159	19.5	18.9	0.7
Public-Psy	157	18%	4,640	4,330	310	29.6	27.6	2.0
Public-Gen	467	54%	8,559	-	8,559	18.3	-	18.3
Public	624	72%	13,199	4,330	8,869	21.2	6.9	14.2
Acute-Psy	385	45%	9,130	8,821	310	23.7	22.9	0.8
Acute_Gen	477	55%	8,718	-	8,718	18.3	-	18.3
Acute	862	100%	17,848	8,821	9,028	20.7	10.2	10.5

Of the 862 admissions of teenagers aged 12-17, 70% had a primary diagnosis of Anorexia Nervosa.

The admissions were mainly (72%) in the public sector and within the public sector they occurred mainly (467/624 = 75%) in general medical/ surgical beds. In the public sector the ALOS was around 30 days for those in specialist beds and otherwise the ALOS was about 20 days in all settings.

There is no specific "Admitted" care package in the NMHSPF model for ages 12-17, since inpatient care is treated as a "sprinkle". The volume currently (10 July 2013) modelled from NSW rates allows for 2,824

general admissions for an ALOS of 9 days, and 4000 specialised psychiatric admissions with an ALOS of 21 days.

CL_PAED_PDMH
2,824
7.0%

MH Ac IP
4000
9.9%

When the NMHSPF rates and ALOS estimates are finalised with Australian data, it will include the volume of relatively long admissions for Eating Disorders.

23.5.4 Age 65+

The Australian Burden of Disease data estimates only 15 people aged 65+ with SEVERE Anorexia nervosa, and none with SEVERE Bulimia nervosa in this age range in Australia in 2011. The admitted patient data for 2009/10 shows a total of 11 admissions of which 6 were for Anorexia nervosa and 5 for Eating disorder, unspecified. 3 admissions were to private psychiatric beds with an ALOS of 15 says, and the remainder were to public general beds with an ALOS of 13 days.

It seems appropriate to absorb this small demand in the general provision for admitted patient care in this age group.

23.5.5 Age 18-64

This is the only age group for which there is an explicit model. We repeat the AusBoD data:

NMHSPF AGES 18-64 (Demand, Numbers, AUS, 2011)

Dx=PRIMARY Diagnosis (MI)	Dx (N)	Tx-MI(N)	Tx-MILD(N)	Tx-MOD(N)	Tx-SEV(N)
J02 Schizophrenia	85,200	85,200	-	-	85,200
J04 Bipolar Disorder	91,288	91,288	-	-	91,288
J03 Anxiety/Depression	1,670,300	1,097,625	477,228	381,783	238,614
J05 Personality Disorder, isolated	401,466	245,697	129,807	103,846	12,044
J06 Anorexia Nervosa	10,929	10,164	-	3,060	7,104
J06 Bulimia Nervosa	10,673	9,926	-	2,988	6,937
J07a ADHD	14,966	9,835	4,276	3,421	2,138
SMHWB(C&A) - Balance	-	-	-	-	-
Subtotal (Dx of Primary MI)	2,284,822	1,549,736	611,312	495,098	443,326
Dx=PRIMARY Diagnosis (non-MI)	Dx (N)	Tx-MI(N)	Tx-MILD(N)	Tx-MOD(N)	Tx-SEV(N)
J07b Autism - *Excess over K09*	44,498	7,594	3,302	2,641	1,651
J07b Asperger's Syndrome + PDD (nos)	17,392	-	-	-	-
K01 Dementia - BPSD	10,140	4,315	1,521	1,416	1,378
K09 Intellectual Disability-MI	303,714	63,950	27,804	22,243	13,902
J01a Alcohol-MI	898,997	82,708	35,960	28,768	17,980
J01b Heroin-MI	49,924	13,451	5,848	4,679	2,924
J01c Benzodiazepines-MI	52,625	9,683	4,210	3,368	2,105
J01d Cannabis-MI	252,434	23,224	10,097	8,078	5,049
J01e Stimulants-MI	72,773	6,695	2,911	2,329	1,455
Subtotal (Dx with MI Concurrent)	1,702,498	211,619	91,653	73,522	46,444
TOTAL MI TREATMENT DEMAND for NMHSPF		**1,761,355**	**702,965**	**568,620**	**489,770**

This suggests 14,041 adults aged with SEVERE Anorexia nervosa or Bulimia nervosa in Australia in 2011. The proposed model says that 25% of this group (n=3,510) would have an inpatient admission. It also proposes that 70% would be admitted to general beds with an ALOS of 49 days, and 30% would be admitted to designated psychiatric beds with an ALOS of 49 days.

The observed admitted patient data for 2009/10 in this age group appears below:

Sector and Setting 2009/10	Seps	% Seps	Total OBD	Psy OBD	Gen OBD	ALOS	PsyLOS	GenLOS
Private-Psy	919	51%	22,563	22,492	71	24.6	24.5	0.1
Private-Gen	83	5%	1,212	-	1,212	14.6	-	14.6
Private	1,002	56%	23,775	22,492	1,283	23.7	22.5	1.3
Public-Psy	389	22%	10,809	10,079	730	27.8	25.9	1.9
Public-Gen	402	22%	5,524	-	5,524	13.7	-	13.7
Public	791	44%	16,333	10,079	6,254	20.6	12.7	7.9
Acute-Psy	1,307	73%	33,372	32,571	801	25.5	24.9	0.6
Acute_Gen	485	27%	6,736	-	6,736	13.9	-	13.9
Acute	1,793	100%	40,108	32,571	7,537	22.4	18.2	4.2

The main findings in this analysis are:

- The observed number of admissions (n=1,793) is just over half the modelled rate (n=3,510).
- The division between specialised psychiatric admissions and admissions to general beds is 73% to 27% which is the reverse of the proposed model of 30% specialised 70% general.
- The ALOS in specialised beds is about 26 days and thus a little over half the ALOS of 49 days proposed in the model.
- The ALOS in general beds is about 15 days and thus less than a third of the stay proposed in the model.

23.6 DISCUSSION

The proposed model would require 3,501 x 49 = 171,549 bed days per year for the age group 18-64, with 70% being in general acute hospital beds and 30% in specialist psychiatric beds. The gap analysis below shows how far this is from current utilisation.

	Seps		ALOS		OBD's		Beds @ 87% occupancy	
	Observed	Predicted	Observed	Predicted	Observed	Predicted	Observed	Predicted
Acute-Psy	1,307	1,053	24.9	49	32,571	51,597	103	162
Acute_Gen	485	2,457	13.9	49	6,736	120,393	21	379
Acute	1,793	3,510	22.4	49	40,108	171,990	126	542

There is no strong policy initiative to suggest that such an increase in admitted patient care for eating disorders would be warranted.

The evidence review by the National Eating Disorders Collaboration (NEDC) [123] states an argument (see Box) for the neccessity of "some" inpatient beds or even "more" inpatient beds, within an integrated model of care, but it makes no quantified recommendations, and its endorsement of inpatient care is qualified at a number of points. It certainly does not present an argument that could support doubling the rate of admission and doubling or tripling the Average Length of Stay.

[123] The National Eating Disorders Collaboration. *Eating Disorders Prevention, Treatment and Management: An Evidence Review.* Prepared for the Commonwealth Department of Health and Ageing March 2010. On-line at http://www.nedc.com.au/nedc-publications .

23.6.1 Integrated Service Delivery

The comparative effectiveness of service delivery settings, such as outpatient, day patient, inpatient, and residential, on Eating Disorder outcome is a significant research gap that requires attention in future research.

Individuals with AN who access treatment are often hospitalised at one point or another, sometimes for many weeks, which can hinder social and occupational functioning. AN requires a significant length of treatment, and symptom severity and morbidity including medical risk, varies throughout the course of the illness.

Although some Eating Disorder hospital admissions are necessary to avert a medical crisis, the impact and rationale for protracted inpatient or residential management is unclear. Until there is further evidence to shed light on this important issue, integrated service delivery that incorporates a continuum-of-care model is recommended for Eating Disorders management.

An appropriate strategy for Eating Disorders management, therefore, is not simply to create more inpatient beds or residential units – these models have not been demonstrated to be more efficacious - but to create a more sustainable, integrated service delivery model - which may include more inpatient beds.

In the summary table of evidence, the NEDC report has little that is positive to say about inpatient treatment, either for “Degree to which evaluated” or “Magnitude of effect”.

For Anorexia nervosa in young people it states that “Inpatient psychiatric treatment” has only received “some” evaluation, showing a “low” magnitude of effect.

For Anorexia nervosa in adults, inpatient psychiatric treatment is not mentioned at all.

For Bulimia nervosa in young people, inpatient psychiatric treatment is not mentioned at all,

For Bulimia nervosa in Adults, “Multimodal inpatient program” has only received “some” evaluation, showing a “Moderate” magnitude of effect.

It is of course possible that many of the treatments reviewed might be delivered in an inpatient setting. However the issue for an “adequate practice” model is the extent to which an inpatient setting is a necessary aspect of effective treatment, and this does not appear to have been evaluated.

In addition to evidence for the necessity or added value of an inpatient setting, we would also need to have some evidence of when a specialist psychiatric inpatient setting is needed, as against a general medical;/ surgical inpatient setting. The proposed model implies that general settings “should” be used on 70% of occasions, but the observed data is that they are used only on 27% of admissions.

Lastly, we need some evidence to accept that a 49 day ALOS is necessary aspect of effective treatment in BOTH settings, when the evidence suggests that the ALOS is only 25-30 days in specialist settings and 145 days in general medical/ surgical settings.

23.7 CONCLUSIONS

A basic principle of the NSW predecessors of the NMHSPF model was that, in the absence of strong evidence to the contrary (including consensus of expert opinion), existing utilisation of particular services can be regarded as “adequate”. This is not simply laziness – existing service levels are the results of years of lobbying and decision making in a democratic political system, so it is reasonable enough to argue that they cannot be too grossly wrong. Moreover, it is a “do no harm” approach, in the sense that no reduction in

existing services is modelled unless there is evidence, while at the same time, there is an opportunity cost that would be incurred if we were to expand a service without evidence.
We need to consider each of the questions separately:

23.7.1 Volume of care

By taking 25% of the prevalent SEVERE population as needing an inpatient stay, we arrive at a demand of 3,501 against an observed utilisation of 1,793 separations. Previous analyses indicated that demand might be increasing by 6% per year in recent times, so we might add 9% to bring the 2009/10 observation in line with the June 2011 population date used in the model. This would be 1,954 separations or 14% of the prevalent population, as against 25% modelled at present. If the rate of increase were to continue through a model lifetime of 5 years, we might expect to add a further 30% to the number of admissions. This would raise them to about 17% of prevalence, since some of the demand would simply be from population growth.

Recommendation : That inpatient demand is modelled at 17% of prevalence, not 25%.

23.7.2 Division between specialist psychiatric beds and general medical beds with inreach MH Consultation-liaison

The evidence for supposing that 70% of admissions would be to general beds is unknown. The observed data show the opposite ratio.

Recommendation : That inpatient demand is modelled as 70% for specialised beds and 30% for general beds.

23.7.3 Average Length of Stay in general beds.

No evidence is cited for a 49 day ALOS in general beds, and the observed ALOS is around 15 days.

Recommendation : That inpatient ALOS is modelled at 14 days for general medical/surgical beds.

23.7.4 Average Length of Stay in psychiatric beds.

Observationally, the ALOS is 25 days. However, it may well be that a State-level super-specialty service might be needed which would have an ALOS of 49 days. We might reasonably suppose that a smallish percentage (15%) of people who need a specialist admissions would need to spend 49 days in a unit with (probably) an intensive profile. The remainder would stay in a regular unit (with 15% intensive bed-days) for an ALOS of 14 days that would yield the observed overall average of around 25 days.

23.7.5 Summary Recommendations

The outcome of these recommendations is shown below.

We have modelled that 17% of the AusBod prevalence of AN and BN in age 18-24 (N=14,041) will need an inpatient admission. This is 2,387 admissions, or an increase of about 30% on the number on 2009/10.

We have modelled 70% of these being specialist admissions, and 30% in general beds.

We have modelled a 14 day ALOS for admissions to general beds. The result is that the 21 beds used nationally in 2009/10 would rise to 32, or a 50% increase.

We have modelled an unchanged ALOS of 25 days for specialist beds overall, but divided into:

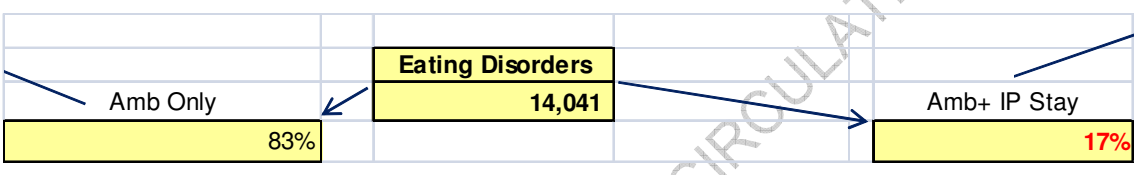
- 15% who have an intensive stay with ALOS 49 days
- 85% who have a regular acute MH stay (15% intensive) with ALOS 21 days.

		15%						
	Seps		ALOS		OBD's		Beds @ 87% occupancy	
	Observed	Predicted	Observed	Predicted	Observed	Predicted	Observed	Predicted
Acute-Psy-In 15%	1,307	251	25	49	32,571	12,281	103	39
Acute-Psy-Reg 85%		1,420	25	21		29,825		94
Acute_Gen	485	716	14	14	6,736	10,025	21	32
Acute	1,793	2,387	22	22	40,108	52,131	126	164

The gap analysis suggests that Australia would increase specialist beds by about 30% (from 103 to 133) and that 39 of these beds nationally would be superspecialty intensive units with an ALOS of 49 days.

23.8 CARE PACKAGE MODIFICATIONS

1. The Flow chart has to be altered to take 17% of prevalence.



2. Care Package change to get general % = 30% not 70% who receive 14 days of BH

BH	Acute medical/surgical bed (Hospital, non-MH)	30%	1	x	14	days		Modelled that 30% of stays are in general medical/ surgical - can be changed. Specialist unit received residue

3. Check that this flows back to flowchart.

716	26256
% general	
30%	<==Set in Care Pkg
SEV_ABB_Eat	SEV_ABB-Ac_IP_A1
2,387	26,256
0.5%	5.4%

4. 70% getting specialist, but divided:

- 15% of 70% getting 49 days of intensive BI
- 85% of 70% getting 21 days of regular, which is 15% intensive, so tis means
  - 85% of 85% of 70% getting 21 days of BA
  - 15% of 85% of 70% getting 21 days of BI

BA	Acute - Adult (18-64 years) (Hospital)	51%	1	x	21	days	Staffing Profile template	70% Psych, 85% regulkar 21 days, 85% not intensive	1
BI	Acute - Intensive Care Unit (Hospital)	8.93%	1	x	21	days	Staffing Profile template	70% Psych, 85% regulkar 21 days,15% intensive	1
BI	Acute - Intensive Care Unit (Hospital)	10.50%	1	x	49	days	Staffing Profile template	Superspecialty	1

24 Mental Health Admissions in General Medical/ Surgical Beds

24.1 OVERVIEW

This is a technical note that was presented to the Adult Care Package Expert Working Group (EWG). The modelling recommendations were accepted and incorporated into the NMHSPF model.

24.2 ISSUE

Currently, a large proportion of "mental health related" admissions occur in general acute medical/ surgical beds in general hospitals (both public and private), as distinct from beds in designated psychiatric units or wards. Explanations of this range from supposing that all or most of these records are errors with the wrong primary diagnostic code [that is, they are not really "mental health related" admissions], through to arguments this is an appropriate use of the "least restrictive environment" principle [that is, the person does not need the more restrictive environment of a designated psychiatric facility for effective care to be provided for their mental health condition.] In between these extremes there are arguments that these are "out-lier" or "over-flow" admissions where the person is either waiting for a specialised bed or has been discharged from one as a kind of "step-down" arrangement.

There are many other theories about this group of people too, and probably each provides a reasonable account of some of the data. The aim of the present exercise is simply to analyse readily available data and compare what we know about the admissions in the specialist units versus others.

Hopefully, this will provide guidance about the appropriate way of modelling the demand for hospital care for mental health related problems.

24.3 BACKGROUND

The National Mental Health Service Planning Framework (NMHSPF) is one of the key initiatives contained in the *Fourth national mental health plan* (specifically action 16). With funding provided by the Australian Government Department of Health and Ageing, the NMHSPF project is being led by NSW Ministry of Health in partnership with Queensland Health and other jurisdictions.

The anticipated outcome of the project is to achieve a population based planning model for mental health that will better identify service demand and care packages across the sector in both inpatient and community environments.

Source: http://www.health.gov.au/internet/main/publishing.nsf/content/mental-nmhspf

The model starts with the Australian Estimated Resident Population for June 2011 and applies the epidemiology of the *Australian Burden of Disease* study, which it stratifies by levels of severity. It then estimates the level of service demand within each severity level. The Service Mapping component of the model divides the demand across *Care Packages* that are appropriate and adequate to meet the needs of each sub-group.

In particular cases, such as Emergency Department attendances, the model simply recognises that there is a current level of demand that must be met, and aims to (a) estimate the mental health proportion and (b) prescribe an appropriate amount of mental health consultation-liaison.

In other cases, current utilisation is used to apportion demand between service types (for example, admitted patient care in specialist versus non-specialist units). The current utilisation of a particular type of service

(eg, Acute Inpatient care) may also partially diverted through new types of service, or replaced by alternative types of care. At a minimum, current utilisation provides a general credibility check on the modelling.

24.4 METHOD

We downloaded the AIHW data cubes for mental health related separations over the four years 2006-07 through 2009-10, excluding those deemed by the AIHW to be "ambulatory equivalent", and created a data set in Excel that could be used to generate a pivot table.

The AIHW classifies these separations as:

- Separations "with specialised psychiatric care" [at least one day of the stay was in a designated psychiatric facility or ward]
- Separations "without specialised psychiatric care" [no days spent in a designated psychiatric facility or ward.]

The AIHW also classifies them by the "sector" in which they occur, namely:

- Private acute
- Public Acute
- Public Psychiatric

Separations are deemed to be "mental health related" on various criteria:

- A primary diagnosis in Chapter V of the ICD (F00-F99), and a small selection of other diagnoses
- Irrespective of primary diagnosis, if there is any specialised psychiatric care during the stay.

One consequence of this AIHW coding is that people receiving specialised psychiatric care may have two components to their Total Length of Stay (LoS), namely the number of days in a general medical/ surgical bed (GenLoS) and the number of days in a designated psychiatric bed (PsyLoS). By contrast, people not receiving specialised psychiatric care have LoS = GenLoS and PsyLoS = 0.

Another consequence is that "mental health related" includes some diagnostic groups within Chapter V that are not ordinarily included within the scope of mental health services. These are:

- Organic, including symptomatic, mental disorders (F00-F09)
- Mental and behavioural disorders due to psychoactive substance use (F10-F19)
- Mental retardation (F70-F79)

Lastly, there are two sources of "mental health related" separations with primary diagnoses outside the Chapter V range:

- Any primary diagnosis for anyone who received any specialised psychiatric care
- The relatively brief list of non-Chapter V diagnoses deemed to be "mental health –related by the AIHW.

The difficulty that arises from the AIHW definition of "mental health related" is that it is NOT possible to modify it simply by excluding diagnostic groups. The simplest example is the substance use diagnoses F10-F19. If the group is excluded as a whole, this eliminates those who are treated in a designated psychiatric unit, who are usually considered as "in scope" for specialist mental health services.

For most of the descriptive and comparative analyses here, therefore, we have accepted the AIHW definition of "mental health related" separations.

24.5 ANALYSIS BY NMHSPF AGE GROUPS

To present the AIHW data by NMHSPF age groups we have to divide the numbers in the AIHW age group 10-14 between those aged 10-11 (who are combined with those aged 5-9 to make up the NMHSPF age group 5-11) and those aged 12-14 (who are combined with those aged 15-17 to make up the NMHSPF age group 12-17).

Similarly, we have to divide the numbers in the AIHW age group 15-19 between those aged 15-17 (who are combined with those aged 12-14 to make up the NMHSPF age group 12-17) and those aged 18-19 (who are combined with those aged 20-64 to make up the NMHSPF age group 18-64).

Previous analyses of all AIHW mental health related separations for 2009-10 showed that the rapid increase through late childhood and adolescence and then the deceleration of this rate of increase through early adulthood could not easily be fitted by any simple function.

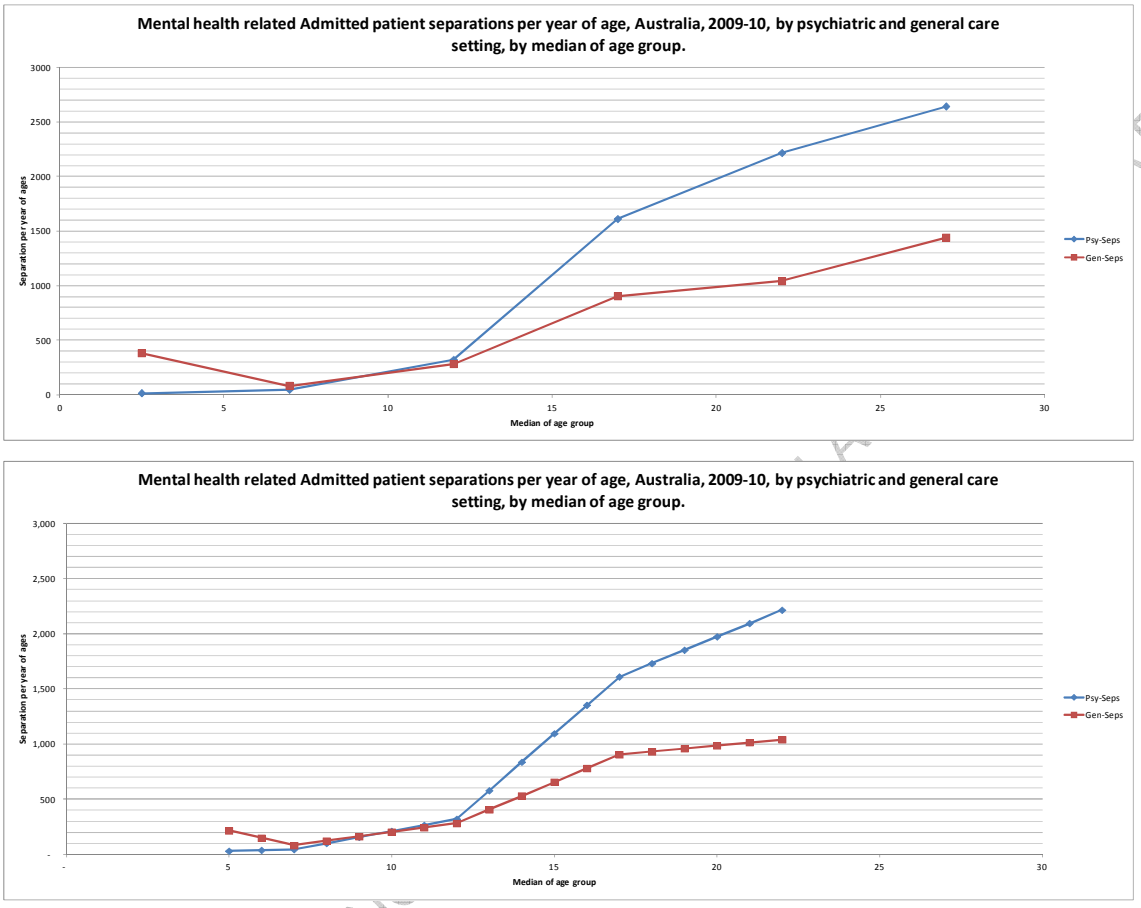


Exhibit 1 - Piecewise linearization of separation rate by age

Thus, to interpolate through the age ranges and assist in dividing age groups, we fitted a piecewise linear function to the observed data (Exhibit 1), and used this to estimate the number at each year of age. On this basis, the age groups could reasonably be divided:

AIHW Age 10-14 ➔ 25% ages 10-11 / 75% ages 12-14

AIHW Age 15-19 ➔ 55% ages 15-17 / 45% ages 18-19

24.6 RESULTS (1) PRIVATE ACUTE VERSUS PUBLIC ACUTE HOSPITALS

Age_Split	(Multiple Items)					
ICD Diagnosis Chapter	(All)					
	Column Labels					
	Private Hospital					
	Admitted patient with specialised psychiatric care			Admitted patient without specialised psychiatric care		
Row Labels	Sum of Seps_All	Sum of PsyD_All	Sum of BD-All	Sum of Seps_All	Sum of PsyD_	Sum of BD-All
00-04	1	5	5	379	-	1,572
05-11	5	100	100	61	-	82
12-17	766	14,731	14,748	127	-	960
18-64	32,820	516,935	518,002	5,989	-	63,918
65+	5,097	93,208	93,506	3,036	-	35,449
Grand Total	38,689	624,979	626,361	9,592	-	101,981

	Column Labels					
	Private Hospital					
	Admitted patient with specialised psychiatric care			Admitted patient without specialised psychiatric care		
Row Labels	% Seps	PsyLOS	ALOS	% Seps	PsyLOS	ALOS
00-04	0.3%	5.0	5.0	99.7%	-	4.1
05-11	6.9%	22.2	22.2	93.1%	-	1.3
12-17	85.8%	19.2	19.2	14.2%	-	7.6
18-64	84.6%	15.8	15.8	15.4%	-	10.7
65+	62.7%	18.3	18.3	37.3%	-	11.7
Grand Total	80.1%	16.2	16.2	19.9%	-	10.6

Exhibit 2 - Private Hospital mental health related separations, Australia, 2009-10

In private acute hospitals in 2009-10, the vast majority (80.1%) of people who were admitted with mental health related conditions received their care in designated psychiatric beds, with at most a fraction of a day in a general bed on average.

However, children aged 0-11 were rarely admitted for mental health related conditions, and when they were it was almost always to a general bed rather than a designated psychiatric bed.

At all ages, the length of stay for those who received specialised psychiatric care was considerably longer than for those who didn't.

Age_Split						
ICD Diagnosis Subchapter						
	Public Acute hospital					
	Admitted patient with specialised psychiatric care			Admitted patient without specialised psychiatric care		
Row Labels	Sum of Seps_All	Sum of PsyD_All	Sum of BD-All	Sum of Seps_All	Sum of PsyD_All	Sum of BD-All
00-04	18	168	212	3,369	-	11,452
05-11	460	5,322	5,511	705	-	3,011
12-17	4,339	48,687	49,766	3,422	-	16,031
18-64	65,301	1,004,704	1,022,994	53,821	-	187,702
65+	8,855	211,116	216,187	21,438	-	202,831
Grand Total	78,973	1,269,997	1,294,670	82,754	-	421,027

	Public Acute hospital					
	Admitted patient with specialised psychiatric care			Admitted patient without specialised psychiatric care		
Row Labels	% Seps	PsyLOS	ALOS	% Seps	PsyLOS	ALOS
00-04	0.5%	9.3	11.8	99.5%	-	3.4
05-11	39.5%	11.6	12.0	60.5%	-	4.3
12-17	55.9%	11.2	11.5	44.1%	-	4.7
18-64	54.8%	15.4	15.7	45.2%	-	3.5
65+	29.2%	23.8	24.4	70.8%	-	9.5
Grand Total	48.8%	16.1	16.4	51.2%	-	5.1

Exhibit 3 - Public Acute Hospital mental health related separations, Australia, 2009-10

In public acute hospitals in 2009-10, only about half (48.8%) of the people who were admitted with mental health related conditions received their care in designated psychiatric beds, with at most a fraction of a day in a general bed on average.

Children aged 0-4 were rarely admitted for mental health related conditions, and when they were it was almost always to a general bed rather than a designated psychiatric bed. For children aged 5-11 about 40% were admitted to specialised beds.

At all ages, the length of stay for those who received specialised psychiatric care was considerably longer than for those who didn't.

24.7 RESULTS (2) DIAGNOSES OUTSIDE CHAPTER V

Age_Split	(Multiple Items)					
ICD Diagnosis Subchapter	All Subchapters					
	Column Labels					
	Private Hospital					
	Admitted patient with specialised psychiatric care			Admitted patient without specialised psychiatric care		
Row Labels	Sum of Seps_All	Sum of PsyD_All	Sum of BD-All	Sum of Seps_All	Sum of PsyD_All	Sum of BD-All
00-04	1	5	5	328	-	1,230
05-11	2	2	2	47	-	48
12-17	3	6	6	45	-	47
18-64	113	1,754	1,782	835	-	1,814
65+	113	3,083	3,087	548	-	5,091
Grand Total	231	4,850	4,882	1,802	-	8,229

	Column Labels					
	Private Hospital					
	Admitted patient with specialised psychiatric care			Admitted patient without specialised psychiatric care		
Row Labels	% Seps	PsyLOS	ALOS	% Seps	PsyLOS	ALOS
00-04	0.3%	5.0	5.0	99.7%	-	3.8
05-11	3.1%	1.0	1.0	96.9%	-	1.0
12-17	5.5%	2.5	2.5	94.5%	-	1.0
18-64	11.9%	15.5	15.8	88.1%	-	2.2
65+	17.1%	27.3	27.3	82.9%	-	9.3
Grand Total	11.4%	21.0	21.1	88.6%	-	4.6

Exhibit 4 - Private Hospital mental health related separations, Australia, Primary diagnoses outside Chapter v, 2009-10

In private acute hospitals in 2009-10, onl;y a small minority (11.4%) of people who were admitted with mental health related conditions other than those in Chapter V received their care in specialised beds.

Children and adolescents aged 0-17 were rarely admitted for mental health related conditions outside Chapter V, and when they were it was almost always to a general bed rather than a designated psychiatric bed.

At all ages, the length of stay for those who received specialised psychiatric care was considerably longer than for those who didn't.

Age_Split						
ICD Diagnosis Subchapter						
	Public Acute hospital					
	Admitted patient with specialised psychiatric care			Admitted patient without specialised psychiatric care		
Row Labels	Sum of Seps_All	Sum of PsyD_All	Sum of BD-All	Sum of Seps_All	Sum of PsyD_All	Sum of BD-All
00-04	13	94	125	2,740	-	9,499
05-11	43	225	295	81	-	111
12-17	464	2,446	2,750	196	-	536
18-64	5,134	45,990	53,232	2,909	-	10,928
65+	926	31,063	32,815	2,186	-	29,209
Grand Total	6,580	79,819	89,217	8,112	-	50,283

	Public Acute hospital					
	Admitted patient with specialised psychiatric care			Admitted patient without specialised psychiatric care		
Row Labels	% Seps	PsyLOS	ALOS	% Seps	PsyLOS	ALOS
00-04	0.5%	7.2	9.6	99.5%	-	3.5
05-11	34.7%	5.2	6.8	65.3%	-	1.4
12-17	70.3%	5.3	5.9	29.7%	-	2.7
18-64	63.8%	9.0	10.4	36.2%	-	3.8
65+	29.8%	33.5	35.4	70.2%	-	13.4
Grand Total	44.8%	12.1	13.6	55.2%	-	6.2

Exhibit 5 - Public Acute Hospital mental health related separations, Australia, Primary diagnoses outside Chapter v, 2009-10

In public acute hospitals in 2009-10, less than half (44.8%) of the people who were admitted with mental health related conditions outside Chapter V received their care in designated psychiatric beds, with at most a fraction of a day in a general bed on average.

Children aged 0-4 were quite frequently admitted for mental health related conditions outside Chapter V, and when they were it was almost always to a general bed rather than a designated psychiatric bed. Children aged 5-11 were much less frequently admitted for mental health related conditions outside Chapter V, and usually to a general bed.

At all ages, the length of stay for those who received specialised psychiatric care was considerably longer than for those who didn't.

24.8 RESULTS (3) ORGANIC, INCLUDING SYMPTOMATIC, MENTAL DISORDERS (F00-F09)

Age_Split	(Multiple Items)					
ICD Diagnosis Subchapter	Organic, includi	ymptomatic, mental disorders (F00-F09)				
	Column Labels					
	Private Hospital					
	Admitted patient with specialised psychiatric care			Admitted patient without specialised psychiatric care		
Row Labels	Sum of Seps_All	Sum of PsyD_All	Sum of BD-All	Sum of Seps_All	Sum of PsyD_All	Sum of BD-All
00-04						
05-11				1	-	2
12-17	1	3	3	-	-	-
18-64	82	1,870	1,870	51	-	419
65+	135	4,329	4,329	1,069	-	14,751
Grand Total	218	6,202	6,202	1,121	-	15,172

	Column Labels					
	Private Hospital					
	Admitted patient with specialised psychiatric care			Admitted patient without specialised psychiatric care		
Row Labels	% Seps	PsyLOS	ALOS	% Seps	PsyLOS	ALOS
00-04	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	-	#DIV/0!
05-11	0.0%	#DIV/0!	#DIV/0!	100.0%	-	2.0
12-17	100.0%	5.0	5.0	0.0%	-	#DIV/0!
18-64	61.8%	22.7	22.7	38.2%	-	8.2
65+	11.2%	32.1	32.1	88.8%	-	13.8
Grand Total	16.3%	28.4	28.4	83.7%	-	13.5

Age_Split						
ICD Diagnosis Subchapter						
	Public Acute hospital					
	Admitted patient with specialised psychiatric care			Admitted patient without specialised psychiatric care		
Row Labels	Sum of Seps_All	Sum of PsyD_All	Sum of BD-All	Sum of Seps_All	Sum of PsyD_All	Sum of BD-All
00-04				5	-	5
05-11	1	11	13	27	-	39
12-17	11	136	142	54	-	91
18-64	484	13,727	14,164	916	-	8,575
65+	682	23,628	24,162	9,521	-	122,799
Grand Total	1,179	37,502	38,481	10,523	-	131,508

	Public Acute hospital					
	Admitted patient with specialised psychiatric care			Admitted patient without specialised psychiatric care		
Row Labels	% Seps	PsyLOS	ALOS	% Seps	PsyLOS	ALOS
00-04	0.0%	#DIV/0!	#DIV/0!	100.0%	-	1.0
05-11	4.5%	8.8	10.4	95.5%	-	1.5
12-17	17.5%	11.9	12.4	82.5%	-	1.7
18-64	34.6%	28.3	29.2	65.4%	-	9.4
65+	6.7%	34.6	35.4	93.3%	-	12.9
Grand Total	10.1%	31.8	32.6	89.9%	-	12.5

24.9 RESULTS (4) MENTAL AND BEHAVIOURAL DISORDERS DUE TO PSYCHOACTIVE SUBSTANCE USE (F10-F19)

Age_Split	(Multiple Items)					
ICD Diagnosis Subchapter	Mental and behaviou	disorders due to psychoactive substance use (F10-F19)				
	Column Labels					
	Private Hospital					
	Admitted patient with specialised psychiatric care			Admitted patient without specialised psychiatric care		
Row Labels	Sum of Seps_All	Sum of PsyD_All	Sum of BD-All	Sum of Seps_All	Sum of PsyD_All	Sum of BD-All
00-04						
05-11				1	-	1
12-17	56	849	855	15	-	125
18-64	4,899	69,009	69,390	2,011	-	25,360
65+	358	5,244	5,320	223	-	2,227
Grand Total	5,313	75,102	75,565	2,250	-	27,713

	Column Labels					
	Private Hospital					
	Admitted patient with specialised psychiatric care			Admitted patient without specialised psychiatric care		
Row Labels	% Seps	PsyLOS	ALOS	% Seps	PsyLOS	ALOS
00-04	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	-	#DIV/0!
05-11	0.0%	#DIV/0!	#DIV/0!	100.0%	-	1.0
12-17	79.0%	15.1	15.2	21.0%	-	8.4
18-64	70.9%	14.1	14.2	29.1%	-	12.6
65+	61.6%	14.6	14.9	38.4%	-	10.0
Grand Total	70.2%	14.1	14.2	29.8%	-	12.3

Age_Split						
ICD Diagnosis Subchapter						
	Public Acute hospital					
	Admitted patient with specialised psychiatric care			Admitted patient without specialised psychiatric care		
Row Labels	Sum of Seps_All	Sum of PsyD_All	Sum of BD-All	Sum of Seps_All	Sum of PsyD_All	Sum of BD-All
00-04				12	-	102
05-11	4	12	12	50	-	55
12-17	230	1,860	1,889	807	-	1,209
18-64	4,511	34,116	35,375	19,647	-	76,156
65+	116	2,419	2,511	1,473	-	8,894
Grand Total	4,861	38,406	39,787	21,989	-	86,416

	Public Acute hospital					
	Admitted patient with specialised psychiatric care			Admitted patient without specialised psychiatric care		
Row Labels	% Seps	PsyLOS	ALOS	% Seps	PsyLOS	ALOS
00-04	0.0%	#DIV/0!	#DIV/0!	100.0%	-	8.5
05-11	7.9%	2.7	2.8	92.1%	-	1.1
12-17	22.2%	8.1	8.2	77.8%	-	1.5
18-64	18.7%	7.6	7.8	81.3%	-	3.9
65+	7.3%	20.9	21.6	92.7%	-	6.0
Grand Total	18.1%	7.9	8.2	81.9%	-	3.9

24.10 RESULTS (5) MENTAL RETARDATION (F70-F79)

Age_Split	(Multiple Items)					
ICD Diagnosis Subchapter	Mental retardation (F70-F79)					
	Column Labels					
	Private Hospital					
	Admitted patient with specialised psychiatric care			Admitted patient without specialised psychiatric care		
Row Labels	Sum of Seps_All	Sum of PsyD_All	Sum of BD-All	Sum of Seps_All	Sum of PsyD_All	Sum of BD-All
00-04						
05-11				0	-	0
12-17				1	-	1
18-64				3	-	3
65+						
Grand Total				4	-	4

	Column Labels					
	Private Hospital					
	Admitted patient with specialised psychiatric care			Admitted patient without specialised psychiatric care		
Row Labels	% Seps	PsyLOS	ALOS	% Seps	PsyLOS	ALOS
00-04	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	-	#DIV/0!
05-11	0.0%	#DIV/0!	#DIV/0!	100.0%	-	1.0
12-17	0.0%	#DIV/0!	#DIV/0!	100.0%	-	1.0
18-64	0.0%	#DIV/0!	#DIV/0!	100.0%	-	1.0
65+	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	-	#DIV/0!
Grand Total	0.0%	#DIV/0!	#DIV/0!	100.0%	-	1.0

Age_Split						
ICD Diagnosis Subchapter						
	Public Acute hospital					
	Admitted patient with specialised psychiatric care			Admitted patient without specialised psychiatric care		
Row Labels	Sum of Seps_All	Sum of PsyD_All	Sum of BD-All	Sum of Seps_All	Sum of PsyD_All	Sum of BD-All
00-04				26	-	32
05-11	3	25	25	23	-	41
12-17	23	236	238	22	-	40
18-64	115	3,430	3,473	121	-	613
65+	3	44	44	7	-	70
Grand Total	144	3,734	3,780	199	-	796

	Public Acute hospital					
	Admitted patient with specialised psychiatric care			Admitted patient without specialised psychiatric care		
Row Labels	% Seps	PsyLOS	ALOS	% Seps	PsyLOS	ALOS
00-04	0.0%	#DIV/0!	#DIV/0!	100.0%	-	1.2
05-11	12.4%	7.5	7.7	87.6%	-	1.8
12-17	50.8%	10.3	10.4	49.2%	-	1.8
18-64	48.7%	29.9	30.3	51.3%	-	5.1
65+	30.0%	14.7	14.7	70.0%	-	10.0
Grand Total	42.0%	25.9	26.3	58.0%	-	4.0

24.11 DISCUSSION AND RECOMMENDATIONS

As far as possible the NMHSPF model used data for the reference population data (30 June 2011). In the present case the latest available data are for 2009-10, and there is an indication in Exhibit 3 that rates may be increasing, though there are also years (2007-08) when they decrease. In these circumstances it seems best to make the simplest assumption – that the number in 20011 would be the same as in the latest observed data.

On this basis, we recommend the following rates for the NMHSPF model:

AIHW Age Group	Est SD ECT 2009-10	Est Pop 2011	Est Rate per 100K
12-17	105	1,710,731	6.1
18-64	12,576	14,158,397	88.8
65+	6,419	3,076,539	208.6

Exhibit 6 - Recommended age-specific rates of Same Day Admission for ECT in NMHSPF model

24.11.1 Avoidance of double-counting

If we make the reasonable assumption that people admitted for Same Day ECT have a primary mental illness diagnosis, then we need to remove them from the demand modelled for:

- People admitted to a general medical/surgical bed with a primary MI
- People admitted to a designated psychiatric bed with a primary MI

In some age groups these demands may be subdivided across a number of care packages.

From Exhibit 3 we know that SD Admitted Patient stays occur in both general medical/surgical and designated psychiatric facilities, though the relative proportions seem to be very variable from year to year. This is made explicit in Exhibit 7 below.

MH related SD Admissions	SD 2006-07	SD 2007-08	SD 2008-09	SD 2009-10
SD Admitted patient with specialised psychiatric care (%)	39%	42%	62%	44%
SD Admitted patient without specialised psychiatric care (%)	61%	58%	38%	56%
SD ECT % of Total Admitted SD	**62%**	**56%**	**61%**	**61%**

Exhibit 7 - SD Admitted Patient Stays with and without specialist psychiatric care

The data in Exhibit 7 is for all ages, and is based on "mental health related separations" as defined by the AIHW. These include:

- All separations with specialised psychiatric case (ie separations from a designated facility), irrespective of diagnosis
- Diagnosis-defined separations without specialised psychiatric care (ie separations from general medical/ surgical facility.

In the latter case the diagnostic range includes people (eg, those with a primary substance use condition) who are out of scope for the model.

Year	2009-10					
ICD Diagnosis Chapter	(All)					
ICD Diagnosis Subchapter	(All)					
	Column Labels					
	Admitted patient with specialised psychiatric care			Admitted patient without specialised psychiatric care		
Row Labels	Sum of Seps_ON	Sum of Seps_SD	Sum of Seps_All	Sum of Seps_ON	Sum of Seps_SD	Sum of Seps_All
18-64	**97,950**	**10,204**	**108,154**	**47,662**	**12,171**	**59,834**
Private Hospital	26,116	6,704	32,820	5,300	689	5,989
Public Acute hospital	63,099	3,234	66,333	42,352	11,469	53,821
Public Psychiatric	8,735	266	9,001	10	13	24
Grand Total	**97,950**	**10,204**	**108,154**	**47,662**	**12,171**	**59,834**

Exhibit 8 - Admitted Patients Age 18-64, Australia, 2009-10, AIHW "Mental health related"

Exhibit 8 shows that there were 108,154 Admitted Patient separations from designated units, for which the primary diagnostic spectrum is irrelevant. However, the 59,834 separations from general medical/ surgical units include admissions with primary diagnoses that are out of scope for NMHSPF, notably those with primary substance use. This is illustrated in Exhibit 9.

Row Labels	Column Labels: Admitted patient without specialised psychiatric care — Sum of Seps_ON	Sum of Seps_SI	Sum of Seps_All
Private Hospital	**5,300**	**689**	**5,989**
18-64	**5,300**	**689**	**5,989**
V. Mental and Behavioural Disorders	4,493	661	5,155
Behavioural and emotional disorders with onset usually occurring in childhood and adolescence (F90-F98)	12	-	12
Behavioural syndromes associated with physiological disturbances and physical factors (F50-F59)	140	43	183
Disorders of adult personality and behaviour (F60-F69)	74	2	77
Disorders of psychological development (F80-F89)	-	1	1
Mental and behavioural disorders due to psychoactive substance use (F10-F19)	1,965	46	2,011
Mental retardation (F70-F79)		3	3
Mood (affective) disorders (F30-F39)	1,225	234	1,459
Neurotic, stress-related and somatoform disorders (F40-F48)	879	315	1,194
Organic, including symptomatic, mental disorders (F00-F09)	49	2	51
Schizophrenia, schizotypal and delusional disorders (F20-F29)	148	14	162
Unspecified mental disorder (F99)	1	-	1
VI. Diseases of the Nervous System	572	14	587
All Subchapters	572	14	587
XV. Pregnancy, Childbirth, and the Puerperium	221	4	226
All Subchapters	221	4	226
XVIII. Symptoms, Signs and Abnormal Clinical and Laboratory Findings not elsewhere classified	8	5	13
All Subchapters	8	5	13
XXI. Factors Influencing Health Status and Contact with Health Services	5	4	9
All Subchapters	5	4	9
Public Acute hospital	**42,352**	**11,469**	**53,821**
18-64	**42,352**	**11,469**	**53,821**
V. Mental and Behavioural Disorders	39,651	11,261	50,912
Behavioural and emotional disorders with onset usually occurring in childhood and adolescence (F90-F98)	198	44	243
Behavioural syndromes associated with physiological disturbances and physical factors (F50-F59)	1,006	51	1,056
Disorders of adult personality and behaviour (F60-F69)	938	246	1,184
Disorders of psychological development (F80-F89)	49	14	63
Mental and behavioural disorders due to psychoactive substance use (F10-F19)	17,894	1,753	19,647
Mental retardation (F70-F79)	102	19	121
Mood (affective) disorders (F30-F39)	6,543	4,727	11,270
Neurotic, stress-related and somatoform disorders (F40-F48)	7,486	843	8,328
Organic, including symptomatic, mental disorders (F00-F09)	810	106	916
Schizophrenia, schizotypal and delusional disorders (F20-F29)	4,527	3,407	7,934
Unspecified mental disorder (F99)	98	52	149
VI. Diseases of the Nervous System	972	8	980
All Subchapters	972	8	980
XV. Pregnancy, Childbirth, and the Puerperium	1,210	85	1,295
All Subchapters	1,210	85	1,295
XVIII. Symptoms, Signs and Abnormal Clinical and Laboratory Findings not elsewhere classified	308	86	394
All Subchapters	308	86	394
XXI. Factors Influencing Health Status and Contact with Health Services	211	29	240
All Subchapters	211	29	240
Public Psychiatric	**10**	**13**	**24**
18-64	**10**	**13**	**24**
V. Mental and Behavioural Disorders	9	13	23
Behavioural and emotional disorders with onset usually occurring in childhood and adolescence (F90-F98)	-	-	-
Disorders of adult personality and behaviour (F60-F69)	-	2	2
Disorders of psychological development (F80-F89)			
Mental and behavioural disorders due to psychoactive substance use (F10-F19)	2	4	6
Mental retardation (F70-F79)	-	-	-
Mood (affective) disorders (F30-F39)	2	4	6
Neurotic, stress-related and somatoform disorders (F40-F48)	4	2	6
Organic, including symptomatic, mental disorders (F00-F09)		1	1
Schizophrenia, schizotypal and delusional disorders (F20-F29)	1	-	1
VI. Diseases of the Nervous System	1		1
All Subchapters	1		1
XXI. Factors Influencing Health Status and Contact with Health Services	-	-	-
All Subchapters	-	-	-
Grand Total	**47,662**	**12,171**	**59,834**

Exhibit 9 - AIHW "Mental Health Related" separations from general medical/ surgical facilities, Australia, Age 18-64, 2009. Note the large number of substance use diagnoses.

For NMHSPF purposes, we included only separations in Chapter V, within which we excluded Mental and behavioural disorders due to psychoactive substance use (F10-F19); Organic, including symptomatic, mental disorders (F00-F09), and Mental Retardation (F70-F79). The results are shown in Exhibit 10.

Year	2009-10		
ICD Diagnosis Chapter	V. Mental and [illegible]aviour Disorders		
	Column Labels		
	Admitted patient without specialised psychiatric car		
Row Labels	Sum of Seps_ON	Sum of Seps_SD	Sum of Seps_All
Private Hospital	**2,479**	**610**	**3,089**
18-64	**2,479**	**610**	**3,089**
Behavioural and emotional disorders with onset usually occurring in childhood and adolescence (F90-F98)	12	-	12
Behavioural syndromes associated with physiological disturbances and physical factors (F50-F59)	140	43	183
Disorders of adult personality and behaviour (F60-F69)	74	2	77
Disorders of psychological development (F80-F89)	-	1	1
Mood (affective) disorders (F30-F39)	1,225	234	1,459
Neurotic, stress-related and somatoform disorders (F40-F48)	879	315	1,194
Schizophrenia, schizotypal and delusional disorders (F20-F29)	148	14	162
Unspecified mental disorder (F99)	1	-	1
Public Acute hospital	**20,845**	**9,383**	**30,228**
18-64	**20,845**	**9,383**	**30,228**
Behavioural and emotional disorders with onset usually occurring in childhood and adolescence (F90-F98)	198	44	243
Behavioural syndromes associated with physiological disturbances and physical factors (F50-F59)	1,006	51	1,056
Disorders of adult personality and behaviour (F60-F69)	938	246	1,184
Disorders of psychological development (F80-F89)	49	14	63
Mood (affective) disorders (F30-F39)	6,543	4,727	11,270
Neurotic, stress-related and somatoform disorders (F40-F48)	7,486	843	8,328
Schizophrenia, schizotypal and delusional disorders (F20-F29)	4,527	3,407	7,934
Unspecified mental disorder (F99)	98	52	149
Public Psychiatric	**7**	**8**	**16**
18-64	**7**	**8**	**16**
Behavioural and emotional disorders with onset usually occurring in childhood and adolescence (F90-F98)	-	-	-
Disorders of adult personality and behaviour (F60-F69)	-	2	2
Disorders of psychological development (F80-F89)			
Mood (affective) disorders (F30-F39)	2	4	6
Neurotic, stress-related and somatoform disorders (F40-F48)	4	2	6
Schizophrenia, schizotypal and delusional disorders (F20-F29)	1	-	1
Grand Total	**23,331**	**10,002**	**33,333**

Exhibit 10 - Separations with in-scope diagnoses from general medical/ surgical facilities, Age 18-64, 2009-10

When the data in Exhibit 8 for designated psychiatric units is put together with the data in Exhibit 10 for general medical/ surgical units, we obtain Exhibit 11:

Year	2009-10			Year	2009-10	
ICD Diagnosis Chapter	(All)			ICD Diagnosis Chapte	(All)	
ICD Diagnosis Subchapter	(All)			ICD Diagnosis Subchapter		Selected
	Column Labels					
	Admitted patient with specialised psychiatric care			Admitted patient without specialised psychiatric care		
Row Labels	Sum of Seps_ON	Sum of Seps_SD	**Sum of Seps_All**	Sum of Seps_ON	Sum of Seps_SD	**Sum of Seps_All**
18-64	97,950	10,204	**108,154**	23,331	10,001	**33,333**
Private Hospital	26,116	6,704	**32,820**	2,479	610	**3,089**
Public Acute hospital	63,099	3,234	**66,333**	20,845	9,383	**30,228**
Public Psychiatric	8,735	266	**9,001**	7	8	**16**

Exhibit 11 - "In Scope" NMHSPF separations, age 18-64, Australia, 2009-10

Note that the total of 141,487 separations is almost exactly 1% of the Age 18-64 population (2011).

Note that Same Day separations are almost equal in specialised (10,205) and general medical/ surgical units (10,001). Note that the age 18-64 Same Day ECT separations shown in Exhibit 6 (12,576) are 62% of the total of SD separations (20,206).

The AIHW data cubes do not allow us to look at the diagnoses of those recveiving procedures. However, we would expect that the Same Day ECT separations would be mainly for people with Mood disorder diagnoses. This is tested in Exhibit 12.

Year	2009-10					
ICD Diagnosis Chapter	V. Mental and B aviour al Disorders					
ICD Diagnosis Subchapter	Mood (affective isorders (F30-F39)					
	Column Labels					
	Admitted patient with specialised psychiatric care			Admitted patient without specialised psychiatric care		
Row Labels	Sum of Seps_ON	Sum of Seps_SD	Sum of Seps_All	Sum of Seps_ON	Sum of Seps_SD	Sum of Seps_All
18-64	**30,622**	**6,831**	**37,452**	**7,769**	**4,965**	**12,735**
Private Hospital	13,227	4,785	18,012	1,225	234	1,459
Public Acute hospital	15,787	1,903	17,690	6,543	4,727	11,270
Public Psychiatric	1,608	143	1,750	2	4	6

Exhibit 12 - Separations with Primary Diagnoses of Mood Disorders, Age 18-64, Australia, 209-10

There were 11,796 Same Day Admitted Patient stays in 2009-10 of people with a primary diagnosis of Mood Disorder, as against 12,576 Same Day Admitted patient stays for administration of ECT. Although we do not have a direct comparison, these numbers are at least consistent with what would be expected.

In these circumstances it seems appropriate to subtract the Same Day ECT Admitted Patient demand equally from the demand for same day admitted patient stays in specialised psychiatric units and in general medical/ surgical units.

24.12 MODELLING AGE 18-64

ABB (AMB & Bed Based with or without Low-Support PDSRR)							
113,267							
Sprinkle	Obs=141,487	incl 25% readmit	141,584				
Total SD ECT	Acute and Sub-Acute amidst Ambulatory care						
12,573	43,904						
		Acute (Incl SD ECT)				Other	
SEV-SD_ECT-Psy		94%				3%	x 2 because
50%		41,270				1,317	includes Ac stay
6,286		34,984					
	12%	70%	18%	84%		16%	
SEV-SD_ECT-Psy	SEV-ABB-SU	SEV_ABB-Ac_IP	SEV-ABB-SD	SEV_ABB_SAR		SEV_ABB_SAI	
6,286	4,198	24,489	6,297	1106		211	
1.3%	0.9%	5.0%	1.3%	0.2%		0.0%	

Exhibit 13 - Modelling SD ECT in specialist units

Exhibits 13 and 14 show the service mappings for the total Admitted Patient volumes of 2011. There are 113,627 people, based on 1% of population with a 25% annual readmission rate (141,584 admissions) which is very close to observed for 2009-10 (141,487).

Sprinkle							
Total SD ECT	Gen	MIU-A	MIU-B	MIU-C	EIP_Yr1	EOP_Yr2	Ac_IP-A1
12,573	69,363						
	General Beds incl obstetric		MIU				Mainly private MH IP
SEV_SD_ECT_Gen	26,666		3,016				
50%		65%	20%	15%			AIHW
							32820
6,286	18,420	1,961					26256
					Age 18-24	Age 18-24	
SEV_SD_ECT_Gen	CL_GEN-PDMH	CL_OBS-MIU	SEV_MIU-A	SEV_MIU-B	EIP_Yr1	EIP_Yr2	SEV_ABB-Ac_IP_A1
6,286	24,706	1,961	603	452	4,549	4,549	26,256
1.3%	5.0%	0.4%	0.1%	0.1%	0.9%	0.9%	5.4%

Exhibit 14 - Modelling SD ECT in general medical/ surgical units

The total volume divides between “special” units (Exhibit 14) and “regular” units (Exhibit 13). The total Same Day ECT Volume (88.8 per 100,000 age 18-64, or 12,573) is divided 50%/ 50% between SEV_SD_ECT_Gen and SEV_SD_ECT_PSy where it is a subdivision of the overall demand for general medical/ surgical beds for people with primary MH diagnoses. Thus in Exhibit 15 this demand maps onto three services and care packages: SEV_SD_ECT_Gen, CL_GEN_PDMH, and CL_OBS_MIU.

At the specialist end (Exhibit 13) the overall mapping is much more complicated. The SEV_SD_ECT_Psy demand is a subset of the SEV_ABB_Ac_IP (Acute MH inpatient) demand.

25 Electroconvulsive Therapy (ECT) Procedural Admissions

25.1 OVERVIEW

This is a technical note that was presented to the Adult Care Package Expert Working Group (EWG). The modelling recommendations were accepted and incorporated into the NMHSPF model.

25.2 ISSUE

The Adult Care Package EWG requested that we model Same Day Admissions for ECT.

A Service Element has been developed: **Code BT – Same Day Admission for Administration of ECT (Hospital).**

It is proposed that we model this demand as a "sprinkled" care package at current volumes in each of the age groups where it occurs, namely 12-17, 18-64, 65+.

We estimate current volume from the Australian Institute of Health and Welfare (AIHW) Hospital data cubes, and in particular the data cubes for Procedures. These do not provide data on the setting (public, private, specialist mental health or general hospital) or on patient diagnosis, but they do distinguish between same day (SD) and overnight (ON) attendances, and include the procedure code.

The ICD10-AM ACHI 6th edition codes for ECT are 93341-00 for an unspecified number of treatments; 93341-01 through 92241-98 for one through 98 treatments in the course of an Episode of Care (EoC), and 93341-99 for more than 98. These apply to Admitted Patient data from 2008-09. In the ACHI 5th Edition the specific codes were only: 93340–02 Electroconvulsive therapy (ECT) <= 12 treatments and 93340–03 Electroconvulsive therapy (ECT) >12 treatments.

For Same Day ECT there is logically only one treatment during the EoC, because in this case the EoC covers only one SD attendance – even if a series of such attendances constitutes a "course of treatment" from a clinical vierwpoint.

Since we do not have data on individuals it is proposed that we model the number of SD attendances.

We note that to avoid multiple counting we should remove these Admitted Patient SD attendances from other Admitted Patient demands, but this is complicated by the lack of diagnostic and setting information in the AIHW procedure data cubes.

25.3 BACKGROUND

The National Mental Health Service Planning Framework (NMHSPF) is one of the key initiatives contained in the *Fourth national mental health plan* (specifically action 16). With funding provided by the Australian Government Department of Health and Ageing, the NMHSPF project is being led by NSW Ministry of Health in partnership with Queensland Health and other jurisdictions.

The anticipated outcome of the project is to achieve a population based planning model for mental health that will better identify service demand and care packages across the sector in both inpatient and community environments.

Source: http://www.health.gov.au/internet/main/publishing.nsf/content/mental-nmhspf

The model starts with the Australian Estimated Resident Population for June 2011 and applies the epidemiology of the *Australian Burden of Disease* study, which it stratifies by levels of severity. It then estimates the level of service demand within each severity level. The Service Mapping component of the model divides the demand across *Care Packages* that are appropriate and adequate to meet the needs of each sub-group.

In particular cases, such as Emergency Department attendances, the model simply recognises that there is a current level of demand that must be met, and aims to (a) estimate the mental health proportion and (b) prescribe an appropriate amount of mental health consultation-liaison.

In other cases, current utilisation is used to apportion demand between service types (for example, admitted patient care in specialist versus non-specialist units). The current utilisation of a particular type of service (eg, Acute Inpatient care) may also partially diverted through new types of service, or replaced by alternative types of care. At a minimum, current utilisation provides a general credibility check on the modelling.

25.4 SAME DAY ATTENDANCES IN MENTAL HEALTH

NMHSPF modelling has followed the AIHW analyses of mental health related admissions by making a distinction within the class of Same Day (SD) admissions reported to Admitted Patient collections. A large proportion of these admissions are classified as "Ambulatory Equivalent" and excluded from calculation of hospital statistics because the care provided does not need to be delivered in a hospital setting. The demand is included in the model as part of ambulatory care.

In the current NMHSPF model, the remaining SD Admitted Patient stays are not separately modelled. They are treated as part of the admitted patient demand, with a 1-day length of stay.

MH related SD Admissions	SD 2006-07	SD 2007-08	SD 2008-09	SD 2009-10
SD Admitted patient with specialised psychiatric care	10,257	11,201	17,660	13,712
SD Admitted patient without specialised psychiatric care	15,737	15,767	10,737	17,685
SD Admitted Patient TOTAL	25,994	26,968	28,397	31,397

Exhibit 15 - Same Day Admitted Patient stays, Mental Health Related, Australia, 2006-2010

Exhibit 1 shows the division of SD admitted patient stays between those delivered in designated psychiatric facilities ("with specialised psychiatric care") and those delivered in general facilities ("without specialised psychiatric care). Note that although the total seems to rise steadily, the division in 2008-09 seems quite different from other years.

25.5 METHOD FOR ANALYSIS OF SAME DAY ECT

Episodes of Care that involve ECT procedures can be identified in the following AIHW "Hospital" data cubes for "Procedures":

- 2000-01 to 2001-02, classified using ICD-10-AM Second Edition
- 2002-03 to 2003-04, classified using ACHI Third Edition
- 2004-05 to 2005-06, classified using ACHI Fourth Edition
- 2006-07 to 2007-08, classified using ACHI Fifth Edition
- 2008-09 to 2009-10, classified using ACHI Sixth Edition

In the ICD10-AM Australian Coding of Health Interventions (ACHI), ECT appears in Block 1907, which is in the group 1867 – 1908 Therapeutic Interventions within ACHI Chapter XIX - Non–invasive, Cognitive and Other Interventions, not elsewhere classified.

The manner of coding ECT changed between ACHI Version 5 (2006-07 and 2007-08 data) and ACHI Version 6 (2008-09 and 2009-10 data). Formerly the only distinction was between:

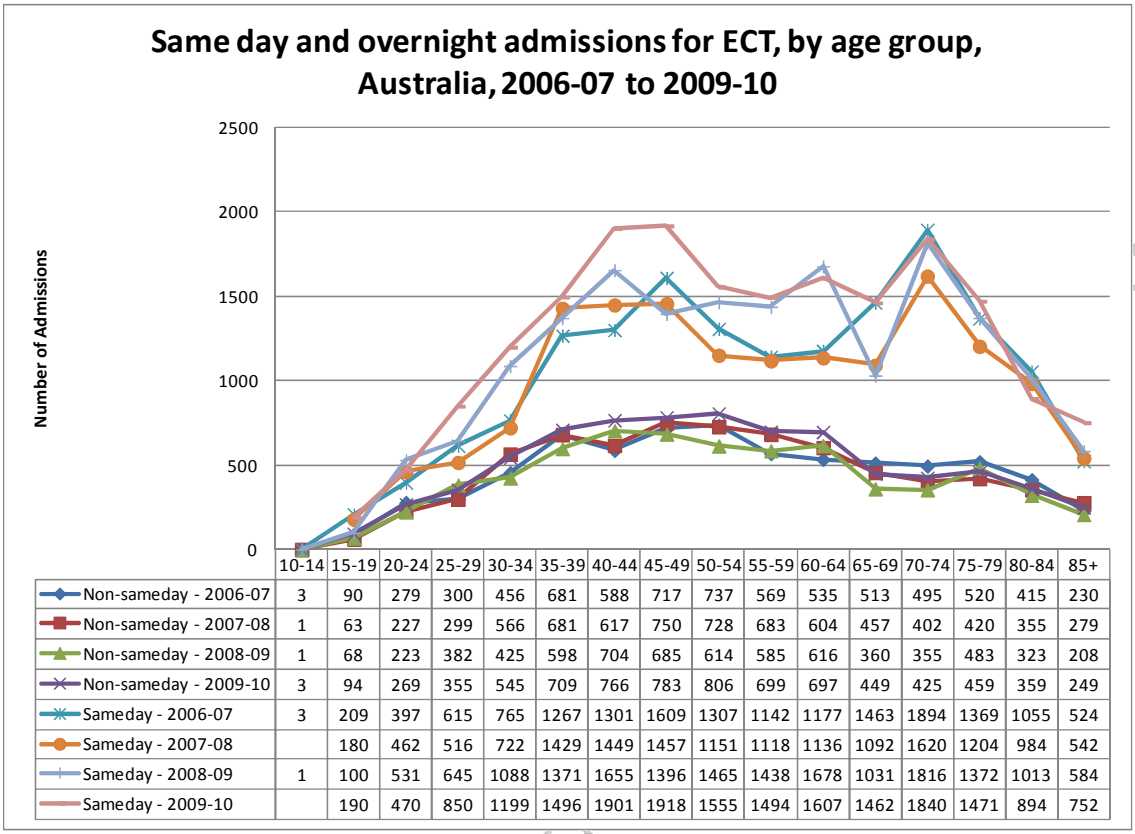
- 93340-02 Electroconvulsive therapy (ECT) <= 12 treatments
- 93340-03 Electroconvulsive therapy (ECT) >12 treatments

Subsequently, the options are:

- 93341-00 Electroconvulsive therapy (ECT) unspecified number of treatments
- 93341-01 to -98 Electroconvulsive therapy (ECT) 1-98 treatments
- 93341-99 Electroconvulsive therapy (ECT) >=99 treatments

On this basis tables were set up using the online AIHW application for each of the last two data cubes, downloaded to Excel, and converted to a pivot table.

25.6 ANALYSIS



	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+
Non-sameday - 2006-07	3	90	279	300	456	681	588	717	737	569	535	513	495	520	415	230
Non-sameday - 2007-08	1	63	227	299	566	681	617	750	728	683	604	457	402	420	355	279
Non-sameday - 2008-09	1	68	223	382	425	598	704	685	614	585	616	360	355	483	323	208
Non-sameday - 2009-10	3	94	269	355	545	709	766	783	806	699	697	449	425	459	359	249
Sameday - 2006-07	3	209	397	615	765	1267	1301	1609	1307	1142	1177	1463	1894	1369	1055	524
Sameday - 2007-08		180	462	516	722	1429	1449	1457	1151	1118	1136	1092	1620	1204	984	542
Sameday - 2008-09	1	100	531	645	1088	1371	1655	1396	1465	1438	1678	1031	1816	1372	1013	584
Sameday - 2009-10		190	470	850	1199	1496	1901	1918	1555	1494	1607	1462	1840	1471	894	752

Exhibit 16 Admissions for ECT, by type and age group, Australia, 2006-2010,

Exhibit 2 shows that the number of Non-same day admissions for ECT has been relatively stable within age groups over the 4-year period considered, while Same Day admissions have been occurring at about twice the rate and with greater variation.

MH related SD Admissions	SD 2006-07	SD 2007-08	SD 2008-09	SD 2009-10
SD Admitted patient with specialised psychiatric care	10,257	11,201	17,660	13,712
SD Admitted patient without specialised psychiatric care	15,737	15,767	10,737	17,685
SD Admitted Patient TOTAL	25,994	26,968	28,397	31,397
SD ECT	16,097	15,062	17,184	19,099
SD ECT % of Total Admitted SD	**62%**	**56%**	**61%**	**61%**

Exhibit 17 - Same Day Admissions for ECT, Australia, 2006-2010

Exhibit 3 shows that SD admissions for ECT comprised about 60% of all SD Admitted Patient stays in hospitals in the 4-year period covered.

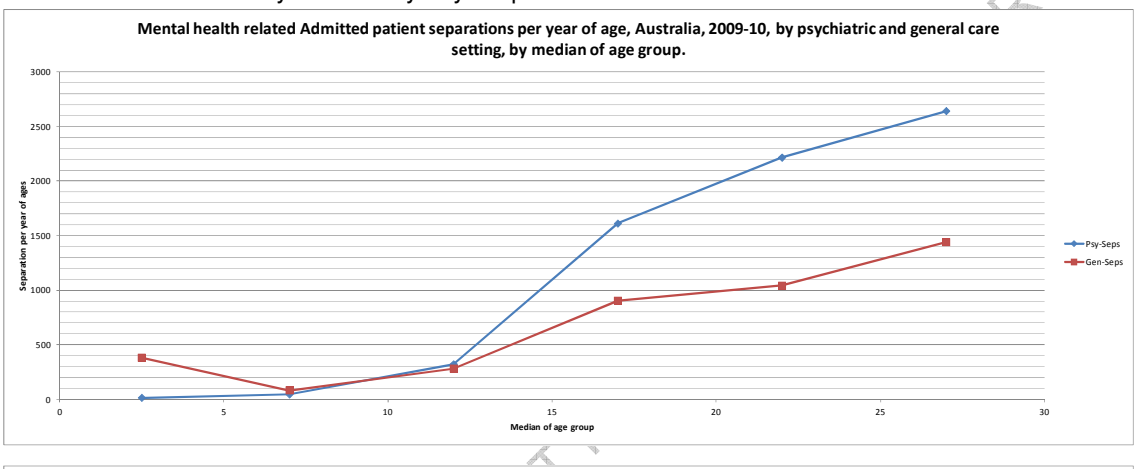
25.7 ANALYSIS BY NMHSPF AGE GROUPS

To present the AIHW data by NMHSPF age groups we have to divide the numbers in the AIHW age group 10-14 between those aged 10-11 (who are combined with those aged 5-9 to make up the NMHSPF age group 5-11) and those aged 12-14 (who are combined with those aged 15-17 to make up the NMHSPF age group 12-17).

Similarly, we have to divide the numbers in the AIHW age group 15-19 between those aged 15-17 (who are combined with those aged 12-14 to make up the NMHSPF age group 12-17) and those aged 18-19 (who are combined with those aged 20-64 to make up the NMHSPF age group 18-64).

It is clear from Exhibit 2 that there are usually zero same day admissions for ECT in the age group 10-14 so that we may reasonably ignore this age group in calculation.

Previous analyses of all AIHW mental health related separations for 2009-10 showed that the rapid increase through late childhood and adolescence and then the deceleration of this rate of increase through early adulthood could not easily be fitted by any simple function.



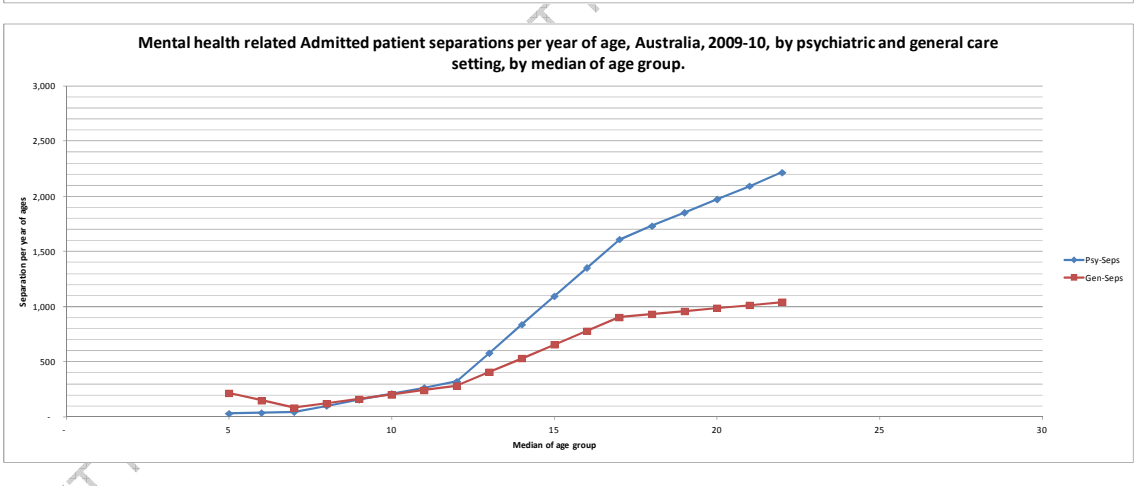


Exhibit 18 - Piecewise linearization of Separation rate by ages

Thus, to interpolate through the age ranges and assist in dividing age groups, we fitted a piecewise linear function to the observed data (Exhibit 4), and used this to estimate the number at each year of age. On this basis, the age groups could reasonably be divided:

AIHW Age 10-14 ➔ 25% ages 10-11 / 75% ages 12-14

AIHW Age 15-19 ➔ 55% ages 15-17 / 45% ages 18-19

We applied this division to the Same Day ECT separation data.

AIHW Age Group	SD ECT 2009-10	Working Age Group	Est SD ECT 2009-10	AIHW Age Group	Est SD ECT 2009-10
10-14	-	10-14	-		
		15-17	105	12-17	105
15-19	190	18,19	86		
20-64	12,490	20-64	12,490	18-64	12,576
65+	6,419	65+	6,419	65+	6,419
ALL	19,099	ALL	19,099	ALL	19,099

Exhibit 19 - Estimated Same Day ECT Admissions, by NMHSPF Age Groups, 2009-10

Exhibit 5 shows that this boils down to assuming that 55% of the admissions for age group 15-19 occurred in those aged 15-17, and the remainder were for those aged 18-19. This is consistent with the observed increase with age in the data.

25.8 DISCUSSION AND RECOMMENDATIONS

As far as possible the NMHSPF model used data for the reference population data (30 June 2011). In the present case the latest available data are for 2009-10, and there is an indication in Exhibit 3 that rates may be increasing, though there are also years (2007-08) when they decrease. In these circumstances it seems best to make the simplest assumption – that the number in 20011 would be the same as in the latest observed data.

On this basis, we recommend the following rates for the NMHSPF model:

AIHW Age Group	Est SD ECT 2009-10	Est Pop 2011	Est Rate per 100K
12-17	105	1,710,731	6.1
18-64	12,576	14,158,397	88.8
65+	6,419	3,076,539	208.6

Exhibit 20 - Recommended age-specific rates of Same Day Admission for ECT in NMHSPF model

25.8.1 Avoidance of double-counting

If we make the reasonable assumption that people admitted for Same Day ECT have a primary mental illness diagnosis, then we need to remove them from the demand modelled for:

- People admitted to a general medical/surgical bed with a primary MI
- People admitted to a designated psychiatric bed with a primary MI

In some age groups these demands may be subdivided across a number of care packages.

From Exhibit 3 we know that SD Admitted Patient stays occur in both general medical/surgical and designated psychiatric facilities, though the relative proportions seem to be very variable from year to year. This is made explicit in Exhibit 7 below.

MH related SD Admissions	SD 2006-07	SD 2007-08	SD 2008-09	SD 2009-10
SD Admitted patient with specialised psychiatric care (%)	39%	42%	62%	44%
SD Admitted patient without specialised psychiatric care (%)	61%	58%	38%	56%
SD ECT % of Total Admitted SD	**62%**	**56%**	**61%**	**61%**

Exhibit 21 - SD Admitted Patient Stays with and without specialist psychiatric care

The data in Exhibit 7 is for all ages, and is based on "mental health related separations" as defined by the AIHW. These include:

- All separations with specialised psychiatric case (ie separations from a designated facility), irrespective of diagnosis
- Diagnosis-defined separations without specialised psychiatric care (ie separations from general medical/ surgical facility.

In the latter case the diagnostic range includes people (eg, those with a primary substance use condition) who are out of scope for the model.

Year	2009-10					
ICD Diagnosis Chapter	(All)					
ICD Diagnosis Subchapter	(All)					
	Column Labels					
	Admitted patient with specialised psychiatric care			Admitted patient without specialised psychiatric care		
Row Labels	Sum of Seps_ON	Sum of Seps_SD	Sum of Seps_All	Sum of Seps_ON	Sum of Seps_SD	Sum of Seps_All
18-64	**97,950**	**10,204**	**108,154**	**47,662**	**12,171**	**59,834**
Private Hospital	26,116	6,704	32,820	5,300	689	5,989
Public Acute hospital	63,099	3,234	66,333	42,352	11,469	53,821
Public Psychiatric	8,735	266	9,001	10	13	24
Grand Total	**97,950**	**10,204**	**108,154**	**47,662**	**12,171**	**59,834**

Exhibit 22 - Admitted Patients Age 18-64, Australia, 2009-10, AIHW "Mental health related"

Exhibit 8 shows that there were 108,154 Admitted Patient separations from designated units, for which the primary diagnostic spectrum is irrelevant. However, the 59,834 separations from general medical/ surgical units include admissions with primary diagnoses that are out of scope for NMHSPF, notably those with primary substance use. This is illustrated in Exhibit 9.

Row Labels	Column Labels: Admitted patient without specialised psychiatric care — Sum of Seps_ON	Sum of Seps_SI	Sum of Seps_All
Private Hospital	**5,300**	**689**	**5,989**
18-64	**5,300**	**689**	**5,989**
V. Mental and Behavioural Disorders	4,493	661	5,155
Behavioural and emotional disorders with onset usually occurring in childhood and adolescence (F90-F98)	12	-	12
Behavioural syndromes associated with physiological disturbances and physical factors (F50-F59)	140	43	183
Disorders of adult personality and behaviour (F60-F69)	74	2	77
Disorders of psychological development (F80-F89)	-	1	1
Mental and behavioural disorders due to psychoactive substance use (F10-F19)	1,965	46	2,011
Mental retardation (F70-F79)		3	3
Mood (affective) disorders (F30-F39)	1,225	234	1,459
Neurotic, stress-related and somatoform disorders (F40-F48)	879	315	1,194
Organic, including symptomatic, mental disorders (F00-F09)	49	2	51
Schizophrenia, schizotypal and delusional disorders (F20-F29)	148	14	162
Unspecified mental disorder (F99)	1	-	1
VI. Diseases of the Nervous System	572	14	587
All Subchapters	572	14	587
XV. Pregnancy, Childbirth, and the Puerperium	221	4	226
All Subchapters	221	4	226
XVIII. Symptoms, Signs and Abnormal Clinical and Laboratory Findings not elsewhere classified	8	5	13
All Subchapters	8	5	13
XXI. Factors Influencing Health Status and Contact with Health Services	5	4	9
All Subchapters	5	4	9
Public Acute hospital	**42,352**	**11,469**	**53,821**
18-64	**42,352**	**11,469**	**53,821**
V. Mental and Behavioural Disorders	39,651	11,261	50,912
Behavioural and emotional disorders with onset usually occurring in childhood and adolescence (F90-F98)	198	44	243
Behavioural syndromes associated with physiological disturbances and physical factors (F50-F59)	1,006	51	1,056
Disorders of adult personality and behaviour (F60-F69)	938	246	1,184
Disorders of psychological development (F80-F89)	49	14	63
Mental and behavioural disorders due to psychoactive substance use (F10-F19)	17,894	1,753	19,647
Mental retardation (F70-F79)	102	19	121
Mood (affective) disorders (F30-F39)	6,543	4,727	11,270
Neurotic, stress-related and somatoform disorders (F40-F48)	7,486	843	8,328
Organic, including symptomatic, mental disorders (F00-F09)	810	106	916
Schizophrenia, schizotypal and delusional disorders (F20-F29)	4,527	3,407	7,934
Unspecified mental disorder (F99)	98	52	149
VI. Diseases of the Nervous System	972	8	980
All Subchapters	972	8	980
XV. Pregnancy, Childbirth, and the Puerperium	1,210	85	1,295
All Subchapters	1,210	85	1,295
XVIII. Symptoms, Signs and Abnormal Clinical and Laboratory Findings not elsewhere classified	308	86	394
All Subchapters	308	86	394
XXI. Factors Influencing Health Status and Contact with Health Services	211	29	240
All Subchapters	211	29	240
Public Psychiatric	**10**	**13**	**24**
18-64	**10**	**13**	**24**
V. Mental and Behavioural Disorders	9	13	23
Behavioural and emotional disorders with onset usually occurring in childhood and adolescence (F90-F98)	-	-	-
Disorders of adult personality and behaviour (F60-F69)	-	2	2
Disorders of psychological development (F80-F89)			
Mental and behavioural disorders due to psychoactive substance use (F10-F19)	2	4	6
Mental retardation (F70-F79)	-	-	-
Mood (affective) disorders (F30-F39)	2	4	6
Neurotic, stress-related and somatoform disorders (F40-F48)	4	2	6
Organic, including symptomatic, mental disorders (F00-F09)		1	1
Schizophrenia, schizotypal and delusional disorders (F20-F29)	1	-	1
VI. Diseases of the Nervous System	1		1
All Subchapters	1		1
XXI. Factors Influencing Health Status and Contact with Health Services	-	-	-
All Subchapters	-	-	-
Grand Total	**47,662**	**12,171**	**59,834**

Exhibit 23 - AIHW "Mental Health Related" separations from general medical/ surgical facilities, Australia, Age 18-64, 2009. Note the large number of substance use diagnoses.

For NMHSPF purposes, we included only separations in Chapter V, within which we excluded Mental and behavioural disorders due to psychoactive substance use (F10-F19); Organic, including symptomatic, mental disorders (F00-F09), and Mental Retardation (F70-F79). The results are shown in Exhibit 10.

Year	2009-10		
ICD Diagnosis Chapter	V. Mental and [illegible]aviour Disorders		
	Column Labels		
	Admitted patient without specialised psychiatric car		
Row Labels	Sum of Seps_ON	Sum of Seps_SD	Sum of Seps_All
Private Hospital	**2,479**	**610**	**3,089**
18-64	**2,479**	**610**	**3,089**
Behavioural and emotional disorders with onset usually occurring in childhood and adolescence (F90-F98)	12	-	12
Behavioural syndromes associated with physiological disturbances and physical factors (F50-F59)	140	43	183
Disorders of adult personality and behaviour (F60-F69)	74	2	77
Disorders of psychological development (F80-F89)	-	1	1
Mood (affective) disorders (F30-F39)	1,225	234	1,459
Neurotic, stress-related and somatoform disorders (F40-F48)	879	315	1,194
Schizophrenia, schizotypal and delusional disorders (F20-F29)	148	14	162
Unspecified mental disorder (F99)	1	-	1
Public Acute hospital	**20,845**	**9,383**	**30,228**
18-64	**20,845**	**9,383**	**30,228**
Behavioural and emotional disorders with onset usually occurring in childhood and adolescence (F90-F98)	198	44	243
Behavioural syndromes associated with physiological disturbances and physical factors (F50-F59)	1,006	51	1,056
Disorders of adult personality and behaviour (F60-F69)	938	246	1,184
Disorders of psychological development (F80-F89)	49	14	63
Mood (affective) disorders (F30-F39)	6,543	4,727	11,270
Neurotic, stress-related and somatoform disorders (F40-F48)	7,486	843	8,328
Schizophrenia, schizotypal and delusional disorders (F20-F29)	4,527	3,407	7,934
Unspecified mental disorder (F99)	98	52	149
Public Psychiatric	**7**	**8**	**16**
18-64	**7**	**8**	**16**
Behavioural and emotional disorders with onset usually occurring in childhood and adolescence (F90-F98)	-	-	-
Disorders of adult personality and behaviour (F60-F69)	-	2	2
Disorders of psychological development (F80-F89)			
Mood (affective) disorders (F30-F39)	2	4	6
Neurotic, stress-related and somatoform disorders (F40-F48)	4	2	6
Schizophrenia, schizotypal and delusional disorders (F20-F29)	1	-	1
Grand Total	**23,331**	**10,002**	**33,333**

Exhibit 24 - Separations with in-scope diagnoses from general medical/ surgical facilities, Age 18-64, 2009-10

When the data in Exhibit 8 for designated psychiatric units is put together with the data in Exhibit 10 for general medical/ surgical units, we obtain Exhibit 11:

Year	2009-10			Year	2009-10	
ICD Diagnosis Chapter	(All)			ICD Diagnosis Chapte	(All)	
ICD Diagnosis Subchapter	(All)			ICD Diagnosis Subchapter		Selected
	Column Labels					
	Admitted patient with specialised psychiatric care			Admitted patient without specialised psychiatric care		
Row Labels	Sum of Seps_ON	Sum of Seps_SD	**Sum of Seps_All**	Sum of Seps_ON	Sum of Seps_SD	**Sum of Seps_All**
18-64	97,950	10,204	**108,154**	23,331	10,001	**33,333**
Private Hospital	26,116	6,704	**32,820**	2,479	610	**3,089**
Public Acute hospital	63,099	3,234	**66,333**	20,845	9,383	**30,228**
Public Psychiatric	8,735	266	**9,001**	7	8	**16**

Exhibit 25 - "In Scope" NMHSPF separations, age 18-64, Australia, 2009-10

Note that the total of 141,487 separations is almost exactly 1% of the Age 18-64 population (2011).

Note that Same Day separations are almost equal in specialised (10,205) and general medical/ surgical units (10,001). Note that the age 18-64 Same Day ECT separations shown in Exhibit 6 (12,576) are 62% of the total of SD separations (20,206).

The AIHW data cubes do not allow us to look at the diagnoses of those recveiving procedures. However, we would expect that the Same Day ECT separations would be mainly for people with Mood disorder diagnoses. This is tested in Exhibit 12.

Year	2009-10					
ICD Diagnosis Chapter	V. Mental and B aviour al Disorders					
ICD Diagnosis Subchapter	Mood (affective isorders (F30-F39)					
	Column Labels					
	Admitted patient with specialised psychiatric care			Admitted patient without specialised psychiatric care		
Row Labels	Sum of Seps_ON	Sum of Seps_SD	Sum of Seps_All	Sum of Seps_ON	Sum of Seps_SD	Sum of Seps_All
18-64	**30,622**	**6,831**	**37,452**	**7,769**	**4,965**	**12,735**
Private Hospital	13,227	4,785	18,012	1,225	234	1,459
Public Acute hospital	15,787	1,903	17,690	6,543	4,727	11,270
Public Psychiatric	1,608	143	1,750	2	4	6

Exhibit 26 - Separations with Primary Diagnoses of Mood Disorders, Age 18-64, Australia, 209-10

There were 11,796 Same Day Admitted Patient stays in 2009-10 of people with a primary diagnosis of Mood Disorder, as against 12,576 Same Day Admitted patient stays for administration of ECT. Although we do not have a direct comparison, these numbers are at least consistent with what would be expected.

In these circumstances it seems appropriate to subtract the Same Day ECT Admitted Patient demand equally from the demand for same day admitted patient stays in specialised psychiatric units and in general medical/ surgical units.

25.9 MODELLING AGE 18-64

ABB (AMB & Bed Based with or without Low-Support PDSRR)							
113,267							
Sprinkle	Obs=141,487	incl 25% readmit	141,584				
Total SD ECT	Acute and Sub-Acute amidst Ambulatory care						
12,573	43,904						
		Acute (Incl SD ECT)				Other	
SEV-SD_ECT-Psy		94%				3%	x 2 because
50%		41,270				1,317	includes Ac stay
6,286		34,984					
	12%	70%	18%	84%		16%	
SEV-SD_ECT-Psy	SEV-ABB-SU	SEV_ABB-Ac_IP	SEV-ABB-SD	SEV_ABB_SAR		SEV_ABB_SAI	
6,286	4,198	24,489	6,297	1106		211	
1.3%	0.9%	5.0%	1.3%	0.2%		0.0%	

Exhibit 27 - Modelling SD ECT in specialist units

Exhibits 13 and 14 show the service mappings for the total Admitted Patient volumes of 2011. There are 113,627 people, based on 1% of population with a 25% annual readmission rate (141,584 admissions) which is very close to observed for 2009-10 (141,487).

Sprinkle							
Total SD ECT	Gen	MIU-A	MIU-B	MIU-C	EIP_Yr1	EOP_Yr2	Ac_IP-A1
12,573	69,363						
	General Beds incl obstetric		MIU				Mainly private MH IP
SEV_SD_ECT_Gen	26,666		3,016				
50%		65%	20%	15%			AIHW
							32820
6,286	18,420	1,961					26256
					Age 18-24	Age 18-24	
SEV_SD_ECT_Gen	CL_GEN-PDMH	CL_OBS-MIU	SEV_MIU-A	SEV_MIU-B	EIP_Yr1	EIP_Yr2	SEV_ABB-Ac_IP_A1
6,286	24,706	1,961	603	452	4,549	4,549	26,256
1.3%	5.0%	0.4%	0.1%	0.1%	0.9%	0.9%	5.4%

Exhibit 28 - Modelling SD ECT in general medical/ surgical units

The total volume divides between “special” units (Exhibit 14) and “regular” units (Exhibit 13). The total Same Day ECT Volume (88.8 per 100,000 age 18-64, or 12,573) is divided 50%/ 50% between SEV_SD_ECT_Gen and SEV_SD_ECT_PSy where it is a subdivision of the overall demand for general medical/ surgical beds for people with primary MH diagnoses. Thus in Exhibit 15 this demand maps onto three services and care packages: SEV_SD_ECT_Gen, CL_GEN_PDMH, and CL_OBS_MIU.

At the specialist end (Exhibit 13) the overall mapping is much more complicated. The SEV_SD_ECT_Psy demand is a subset of the SEV_ABB_Ac_IP (Acute MH inpatient) demand.

26 Demand for Respite Care

26.1 BACKGROUND

The NMHSPF project needs estimates of the actual rates of use and unmet need for respite care.

The best information to date includes respite for carers and their families who are providing care to a person with mental illness, or an intellectual disability , and this does not match with the NMHSPF age groups (of consumer)

The scope of any additional work is the demand for respite, by NMHSPF age group (of consumer). If it were possible to improve on the estimated quantity of respite demanded that would be very useful too. There may be specific issues of shared responsibility with general aged care respite when dealing with consumers > 64, so from that point of view it might be desirable (if possible) to put the MH demand alongside the general respite demand in this age group.

Likewise there may be special issues of availability of respite care for children 0-17, but there is nothing on the FAHCSIA website to suggest that these programs are limited by age.

ISSUES DISCUSSED

- Who can access Mental Health Respite: Carer Support?
  Carers and their families who are providing care to a person with mental illness, or an intellectual disability
- How can Mental Health Respite: Carer Support be accessed?

The program has a “no wrong door” access policy. Mental Health Respite: Carer Support services are run by a wide variety of organisations and are located in metropolitan, rural and remote regions across Australia.

Services can be accessed directly from Mental Health Respite: Carer Support funded community-based organisations and/or Commonwealth Respite and Carelink Centres.

Provider contact details are available at website www.fahcsia.gov.au/our-responsibilities/communities-and-vulnerable-people/publications-articles/mental-health-respite-carer-support-guidelines-part-c2/locating-a-respite-service-provider

The Centres can be contacted through the toll free number 1800 052 222* (*Free local call. Mobile phones charged at mobile rates.)

- Quick Facts

  - As of 30 June 2012, there were 195 Mental Health Respite: Carer Support services funded across Australia. Funding amounts vary according to the type of service delivered and service catchments.
  - $47.7 million was committed to these 195 services in 2011-12.
  - In July 2011 funding agreements were extended until June 2014.

- Since its establishment in 2007, Mental Health Respite: Carer Support has assisted around 109,000 carers. Around 29,000 carers were assisted in 2011-12.

- New Measures

Around $54.3 million over five years, from 2011-12, has been allocated to fund the expansion of Mental Health Respite: Carer Support services across Australia, to specifically assist another 1,100 carers of people with a mental illness.

BACKGROUND and ANALSYIS OF DATA PROVIDED IN 2003:

- In response to a query from Gavin Stewart (then at NSW Health's Centre for Mental Health) re respite care in 2003, Mr Ken Black of the ABS, provided a special tabulation (Table A below) from the Survey of Disability Ageing and Carers (2003) as it contains data on reported need for respite care (Table A in attachment).

- These tabulations refer to carers aged 15 and above, co-resident with recipients aged 15-64 only.

- Separate figures are given for recipients in the disability categories of Sensory, Intellectual, Physical, Psychological, Head Injury/Stroke/Other Brain Damage. However, since more than one category may apply to a recipient, there is multiple counting.

- Mr Stewart then used this data to apportion the totals for carers needing respite for any recipient disability, in proportion to the number for each recipient disability. (Table B).

- In Australia in 2003:
- 62,600 carers stated that they needed more respite care, and they listed 153,900 disabilities (average of 2.5 per recipient)
- 22% of the disabilities were Intellectual, and 17% were Psychological.

- On that basis, Mr Stewart estimated that 39% of the 62,600 carers needed more respite for recipients with intellectual disability or psychiatric disability, or 24,039.

- Of these, 75% required respite "at short notice or on an irregular basis", and only 25% required it on a "planned or regular basis".

- To estimate the corresponding number of respite places we used the tabulations of those who stated a need for more respite "more than once a month" or "less than once a month", by type. We took the total and treated it as "once a month".

- Weekday respite places: A person who needs respite once a month is assumed to need 12 "place-days" of respite per annum. A weekday respite "place" is assumed to provide 5 days per week, 52 weeks per year. Thus a single place can meet the need of 260/12 = 21.7 carers per annum.

- On that basis, Mr Stewart estimated that 628 weekday respite places are needed to serve 13,600 carers who expressed a need for more respite of this kind.

- Weeknight respite places: A person who needs respite once a month is assumed to need 12 "place-nights" of respite per annum. A weeknight respite "place" is assumed to provide 5 nights per week, 52 weeks per year.
  Thus a single place can meet the need of 260/12 = 21.7 carers per annum.

- On that basis, Mr Stewart estimated that 431 weeknight respite places are needed to serve 9,340 carers who expressed a need for more respite of this kind.

- Weekend respite places: A person who needs weekend respite once a month is assumed to need 24 "weekend place-days" of respite per annum. A weekend respite "place" is assumed to provide 2 "weekend place-days" per week, 52 weeks per year.
  Thus a single place can meet the need of 104/24 = 4.3 carers per annum.

- On that basis, Mr Stewart estimated that 4,412 weekend respite places are needed to serve 19,118 carers who expressed a need for more respite of this kind.

- This might be summarised as follows:
- 431 Week-night places
- 628 Week-day places
- 4,412 week-end places

- Given the different types of need, and the requirement that 75% is "ad hoc and at short notice", the allocation of places needs to be quite flexible.

Table A: *Estimated number of carers (aged 15 and above) who need care for recipients aged 15 – 64 years. From data in the Survey of Disability Ageing and Carers (2003).*

Est'd number of carers (aged 15 and above) who need care for recipients aged 15-64
Note: Carers are counted for each disability category of recipient

Total Australia

	Sensory	Intellectual	Physical	Psychological	stroke or other b	Total	Total Categories	ID+MH
Needs more access to respite care	31,400	33,400	46,400	25,700	17,000	62,600	153,900	
Total Apportioned between categories	20%	22%	30%	17%	11%	100%	100%	
Est'd Share of Total by category	12,772	13,586	18,874	10,454	6,915	62,600		24,(

Estimated care needed

Based on averaging "more than once a month" and "less than once a month" as "once a month".

Table B: Estimated number of carers who need care for recipients aged 15 - 64

Est'd number of carers (aged 15 and above) who need care for recipients aged 15-64
Note: Carers are counted for each disability category of recipient

Total Australia

	Sensory	Intellectual	Physical	Psychological	stroke or other b	Total	Total Categories	ID+MH
Estimated care needed								
Based on averaging "more than once a month" and "less than once a month" as "once a month".								
Weekdays	20,200	18,100	32,900	15,000	13,100	40,800	99,300	
	20%	18%	33%	15%	13%	100%	100%	
	8,300	7,437	13,518	6,163	5,382	40,800		13
Est No of days per annum @ 1 per month	99,596	89,242	162,214	73,958	64,590	489,600		163
Est No of weekday places @ 5 days per week * 52	383	343	624	284	248	1,883		
Weeknights	13,700	12,700	20,600	11,900	8,000	25,400	66,900	
	20%	19%	31%	18%	12%	100%	100%	
	5,201	4,822	7,821	4,518	3,037	25,400		9
Est No of nights per annum @ 1 per month	62,418	57,862	93,855	54,217	36,448	304,800		112
Est No of weeknight places @ 5 night per week * 5	240	223	361	209	140	1,172		
Weekends	23,300	27,800	32,200	20,500	10,900	45,400	114,700	
	20%	24%	28%	18%	10%	100%	100%	
	9,222	11,004	12,745	8,114	4,314	45,400		19
Est No of Weekend place-days per annum @ 2 pe	221,340	264,088	305,886	194,741	103,545	1,089,600		458
Est No of Weekend places @ 2 per per week * 52	2,128	2,539	2,941	1,873	996	10,477		4

Est'd number of carers (aged 15 and above) who need care for recipients aged 15-64
Note: Carers are counted for each disability category of recipient

Total Australia									
	Sensory	Intellectual	Physical	Psychological	stroke or other b	Total	Total Categories	ID+MH	
Est No of Weekend places @ 2 per per week * 52	2,128	2,539	2,941	1,873	996	10,477		1,765	
Needed: At short notice or on irregular basis	23,600	25,200	34,900	21,300	13,400	45,300	118,400		
	20%	21%	29%	18%	11%	100%	100%		
	9,029	9,642	13,353	8,149	5,127	45,300		17,791	
Needed: On a planned or regular basis	7,800	8,200	11,500	4,400	3,700	17,300	35,600		
	22%	23%	32%	12%	10%	100%	100%		
	3,790	3,985	5,588	2,138	1,798	17,300		6,123	
Needed: Check	31,400	33,400	46,400	25,700	17,100	62,600	154,000		
	20%	22%	30%	17%	11%	100%	100%		
	12,764	13,577	18,861	10,447	6,951	62,600		24,024	1

ATTACHMENTS:

AU-SDAC 2003-Gavin S for COAG

The First sheet of the “Gavin S for COAG” Excel Workbook is ABS intellectual property produced for COAG, the second sheet (Calc for COAG) is NSW property Gavin produced.

These are files that Gavin used when estimating the UNMET demand for MORE respite care back when the COAG National Action plan for MH was being developed (2005-6) and we wanted numbers on the Commonwealth respite care (delivered through FAHCSIA MH) which was not just MH but also for intellectual disability. This was built on the basis of some tables that Ken Black from the ABS ran for Gavin on SDAC 2003.

27 Population Data in the NMHSPF

27.1 ISSUE

This document describes the sources of population data used in the NMHSPF model and the Estimator Tool, and the processing of the source material into standard forms.

27.2 OVERVIEW

Standard Australian Population: The NMHSPF uses the latest estimate from the Australian Bureau of Statistics (ABS) of the estimated resident population at 30 June 2011 for the standard population in the model.

Population Projections: The NMHSPF Estimator Tool contains population projections for the period 2006-2026 for each jurisdiction, subdivided by Local Hospital Network (or other equivalent) and Local Government Area. Two separate series are available for each jurisdiction. One is a set of projections commissioned from the ABS in 2008 by the Department of Health and Ageing (DoHA). The other series is a compilation, jurisdiction by jurisdiction, of the projections produced by their local planning agencies.

Only the Standard Australian Population incorporates the data from the 2011 census. The Population Projections were all produced before the final rebased 2011 census estimates were released on 30 August 2013. It is to be expected that both DoHA and the individual jurisdictions will update their population projections during the life of the NMHSPF model.

27.3 STRUCTURE OF THE POPULATION DATA

The standard population is used in conjunction with population epidemiology to estimate the rates of key parameters (eg, persons with SEVERE levels of mental illnesses) per 100,000 persons in each of the model age groups[124]: Ages 0-4, 5-11, 12-17, 18-64 and 65+. This is done for the age-sex structure of the Australian population as determined by the ABS on 30 June 2011.

The output estimates of rates from this calculation on the standard population are used as inputs to the NMHSPF Estimator Tool. In the Estimator Tool one or more of the Population Projections is/are chosen (for example, NSW 2013-14) and the age-specific rates for Australia 2011 are applied to the age structures of the chosen population/s.

This difference in usage means that the two sets of population data are structured differently.

We structured the Australian standard population by sex and single year of age from 0 to 99 and 100+. Less detailed versions of this underlying population file were also used.

By contrast, the Population Projections were condensed to provide:

- Source (DOHA 2008 or code for a jurisdictional projection)
- Name of Local Health District (LHD) (or equivalent)
- Name of Local Government Area (split if the LGA was divided between LHD's)
- NMHSPF Age Group
- Population of persons
  - Census Years 2006-2026 (as at 30 June 2006, 2011, 2016, 2021, 2026)
  - Financial Years 2006-07 through 2025-26 (as at 31 December 2006 through 2025)

[124] The epidemiology generally requires sex-specific estimates for age 0, 1-4, 5-9, 10-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-84, 85-89, 90-94, 95-99, 100+. Occasionally it requires other ages. It was neither practical nor necessary to carry this level of detail through to the Estimator Tool,

27.4 METHODS

None of the source population files suited the requirements of the NMHSPF, so that all required a degree of additional processing. Some of the issues are:

- Most of the population projections were developed before the introduction of Local Hospital Districts (or equivalent). The LHD's were typically defined on the basis of the Statistical Local Areas (SLAs) in the 2011 Australian Standard Geographical Classification (ASGC), whereas the DoHA population projections were defined on SLA's in the 2007 ASGC, and individual jurisdictions used SLAs defined in 2008, 2009, 2010, or 2011. To create a coherent set of population data it was necessary to manually convert to a common standard of ASGC 2011.
- For reasons of space, only LGA level estimates could be included in the Estimator Tool. However, a small proportion of LGA's were divided between different LHDs in some jurisdiction, and there were also cases where SLA's were divided. To deal with this it was necessary to create "pseudo" LGA's containing the relevant sub-populations. In these cases the title was the LGA title followed by a phrase such as "(XYZ part)" where "XYZ" is the name of the LHD containing that part of the LGA. In some jurisdictions this partitioning had already been made in the jurisdictional projections, in others it had to be created. The DOHA projections had to be aligned with the LHD structures in all cases.
- Population projections generally refer to calendar years, and sometimes only to census years. Where necessary we used linear interpolation to fill the gaps. In particular, the mid-financial-year estimates (31 December) were all produced by averaging the 30 June estimates for the calendar years either side; that is, the population estimate for 2012-13 is the average of the estimate for 30 June 2012 and 30 June 2013.
- Population projections generally refer to 5 year age groups from 0-4 through 80-84, followed by an estimate for age 85+. The NMHSPF age group 5-11 requires the age group 10-14 to be divided between those aged 10 and 11 versus those aged 12-14. Likewise the NMHSPF age group 12-7 requires the age group 15-19 to be divided between those aged 15-17 and those aged 18 and 19. For most purposes it is quite adequate to assume that a five-year age group is made up of five equal single-year age groups and divide it accordingly. However, as a minor refinement, we tried to find a compatible single year of age data set for these divisions.
- In each jurisdiction there were issues that required local knowledge to resolve. We sought clarification as necessary from NMHSPF Working Group members.

27.5 AUSTRALIAN POPULATION PROJECTIONS

Source	ABS 3222&3235				
State	AUS				
LHD	Total				
LGA	Total				
	Values				
Row Labels	Sum of 2006	Sum of 2011	Sum of 2016	Sum of 2021	Sum of 2026
Total	**20,450,966**	**22,340,024**	**23,966,982**	**25,616,545**	**27,236,650**
Total	**20,450,966**	**22,340,024**	**23,966,982**	**25,616,545**	**27,236,650**
00-04	1,294,538	1,458,114	1,502,085	1,569,227	1,623,859
05-11	1,873,036	1,938,077	2,078,469	2,190,172	2,285,661
12-17	1,673,002	1,712,190	1,735,371	1,844,764	1,955,721
18-24	2,002,927	2,190,354	2,251,166	2,259,439	2,346,013
25-64	10,943,398	11,953,378	12,649,222	13,357,490	13,938,874
65+	2,664,064	3,087,911	3,750,669	4,395,453	5,086,522
Grand Total	**20,450,966**	**22,340,024**	**23,966,982**	**25,616,545**	**27,236,650**

The ABS released final rebased population estimates for 2001-2012 on 30 August 2013[125]. These incorporate the 2011 census data. However, the corresponding revision of the forward -going estimates[126] was not available in time to include in the NMHSPF Estimator Tool. We decided to replace the older estimates from 2006 to 2012 with the new ones. The "Source" is thus given as "ABS 3222and3235".

The figure shows the estimates for census years, which can be compared with other sources. Note that the NMHSPF data files contain estimates for the five financial years between the census years.

The figures for 2011 are highlighted since these are also the standard populations used (in more detailed form) in the epidemiological modelling that produces the overall rates for the NMHSPF age groups.

27.6 NSW POPULATION PROJECTIONS

For health services in NSW the population projections[127] are a variation on the general population projections prepared by the NSW Department of Planning and Infrastructure[128]. Specifically:

The NSW Health Population Projection Series 1, 2009 has applied the current total fertility rate (1.95) to the population projections, whereas the NSW Department of Planning has applied a fertility rate of 1.85. The NSW Health Population Projection Series 1, 2009 has been developed with the approval and assistance of the NSW Department of Planning specifically for health service planning.

These provide estimated resident populations for SLA's, SD's, SSD's, LGA's, and Local Hospital Districts in NSW, by sex and 5-year age group from 0-4 to 80-84, with the remainder pooled as 85+, for the years 2006, 2011, 2016, 2021, 2026, 2031 and 2036.

[125] ABS Cat No 3235.0 - Population by Age and Sex, Regions of Australia, 2012.
[126] ABS Cat No 3222.0 - Population Projections, Australia, 2006 to 2101
[127] NSW Health Population Projection Series 1, 2009 URL: http://www.health.nsw.gov.au/reports/population_projections.asp
[128] URL: http://www.planning.nsw.gov.au/StrategicPlanning/Populationandhousingprojections/tabid/124/language/en-AU/Default.aspx

State	NSW				
LHD	(All)				
LGA	(All)				
LGA Name	(All)				
Row Labels	**Sum of 2006**	**Sum of 2011**	**Sum of 2016**	**Sum of 2021**	**Sum of 2026**
Total					
DOHA 2008	**6,816,087**	**7,201,613**	**7,603,799**	**8,004,698**	**8,395,056**
00-04	436,181	448,410	462,823	479,776	492,503
05-11	623,631	621,328	639,908	657,905	681,356
12-17	547,991	549,682	545,354	561,203	576,776
18-24	655,217	694,379	708,367	701,803	712,883
25-64	3,632,455	3,839,383	4,012,444	4,180,801	4,306,414
65+	920,612	1,048,431	1,234,903	1,423,210	1,625,124
MoH2009	**6,816,087**	**7,207,641**	**7,603,502**	**8,008,299**	**8,415,186**
00-04	436,181	476,936	496,034	515,870	530,630
05-11	623,631	627,698	669,528	704,208	731,590
12-17	547,991	556,740	559,833	587,153	621,340
18-24	655,217	688,128	705,105	709,716	733,467
25-64	3,632,455	3,815,166	3,953,841	4,091,601	4,200,137
65+	920,612	1,042,973	1,219,160	1,399,751	1,598,023

In the figure above, the code MoH2009 refers to these NSW Health population projections. The code DOHA 2008 refers to the DoHA projections for SLAs in NSW[129] after conversion of SLAs and mapping to NSW LHDs. Since there was no DoHA projection for 2006 but the projections had been re-based to the 2006 census, we used the NSW MoH estimates for 2006, which are also census-based. Note the relatively small differences between the totals, but the higher MoH 2009 inumbers in younger age groups arising from the assumption of continuing high fertility rates.
Note that neither of these sources incorporates 2011 census information.

Mapping from SLA's to Local Health Districts (LHD's) in NSW was available in the MoH 2009 source, and this was readily emulated in the DoHA source, with the results shown in the figure below. These agree with the original LHD pivots in the MoH 2009 source.

[129] Commonwealth department of Health and Ageing. The Australian Population: Statistical Local Area Population Projections, 2007 to 2027, Revised. URL: http://www.health.gov.au/internet/main/publishing.nsf/Content/ageing-stats-lapp.htm

State	NSW				
LHD	(All)				
LGA	(All)				
LGA Name	(All)				
Age_Gp_NMHSPF	(All)				
Row Labels	**Sum of 2006**	**Sum of 2011**	**Sum of 2016**	**Sum of 2021**	**Sum of 2026**
Total					
DOHA 2008	6,816,087	7,201,613	7,603,799	8,004,698	8,395,056
MoH2009	6,816,087	7,207,641	7,603,502	8,008,299	8,415,186
Central Coast					
DOHA 2008	304,744	319,115	340,219	361,803	382,885
MoH2009	304,744	318,369	332,304	355,402	379,567
Far West					
DOHA 2008	32,534	32,023	31,402	30,658	29,774
MoH2009	32,534	31,163	29,783	28,329	26,812
Hunter New England					
DOHA 2008	844,209	883,978	924,027	962,102	996,663
MoH2009	844,209	880,257	915,385	950,056	983,105
Illawarra Shoalhaven					
DOHA 2008	370,330	385,701	400,169	413,378	425,144
MoH2009	370,330	388,424	406,873	425,136	442,791
Mid North Coast					
DOHA 2008	199,392	213,168	227,438	241,078	253,638
MoH2009	199,392	213,810	228,291	242,397	255,820
Murrumbidgee					
DOHA 2008	238,083	242,506	246,813	250,379	253,009
MoH2009	238,083	241,517	244,560	247,244	249,306
Nepean Blue Mountains					
DOHA 2008	335,939	346,942	362,615	377,871	391,961
MoH2009	335,939	345,628	364,200	383,381	402,144
Network with Vic					
DOHA 2008	48,545	52,338	56,307	60,253	64,107
MoH2009	48,545	50,617	52,430	54,120	55,583
Northern NSW					
DOHA 2008	280,708	299,883	319,592	338,755	356,869
MoH2009	280,708	297,892	314,958	331,839	348,197
Northern Sydney					
DOHA 2008	799,880	832,071	860,790	889,282	916,956
MoH2009	799,880	839,699	871,113	903,644	930,145
South Eastern Sydney					
DOHA 2008	794,945	834,763	871,724	909,081	946,160
MoH2009	794,945	838,416	863,966	887,289	906,601
South Western Sydney					
DOHA 2008	819,010	876,839	947,805	1,020,136	1,092,479
MoH2009	819,010	879,674	958,397	1,058,238	1,174,160
Southern NSW					
DOHA 2008	188,809	202,579	217,245	231,653	245,443
MoH2009	188,809	202,648	216,995	231,286	245,211
Sydney					
DOHA 2008	531,624	572,215	606,920	641,884	677,035
MoH2009	531,624	578,162	612,914	642,009	668,090
Western NSW					
DOHA 2008	266,135	268,031	269,588	269,824	268,462
MoH2009	266,135	268,600	270,822	272,461	273,144
Western Sydney					
DOHA 2008	761,200	839,461	921,145	1,006,561	1,094,471
MoH2009	761,200	832,766	920,510	995,468	1,074,511

27.7 VICTORIA POPULATION PROJECTIONS

For Victoria the official state population projections are produced by the Department of Planning and Community Development and are found at "Victoria in Future 2012" (VIF 2012)[130]. The website states: *"the projections are based on the 2011 ABS population estimates and supersede the projections published by DPCD in 2008".* This seems NOT to mean that they are based on the 2011 Census data, because the background brochure states: *"Previously, DPCD published projections after each national Census, based on that Census year (e.g. VIF 2008 used 2006 as its base year). VIF 2012 improves on this process by providing inter-Censal projections based on the latest available Australian Bureau of Statistics (ABS) population estimates at 30 June 2011."*

The brochure also states: *"DPCD and ABS projections for Victoria Both the ABS and DPCD produce population projections for Victoria, and for the Capital City and Balance of State (referred to in this document as Melbourne and regional Victoria). When projections are produced and released at similar times (i.e. immediately after a Census), DPCD adopts the ABS assumptions, leading to state projections for the year 2051 which differ by less than half of one per cent. Below state level, ABS and DPCD have different methods of projecting migration however, leading DPCD to project a higher population for regional Victoria.*

In the case of Victoria in Future 2012, there has been a four-year period since the most recent Census results, during which time ABS has not produced new projections or updated assumptions.
Both ABS's and DPCD's projected populations have been exceeded during a period of exceptional population change for Victoria. Accordingly, DPCD has updated its assumptions to reflect the latest ABS published statistics in the short term – most importantly by bringing the base population up to date as of June 30th 2011, but also taking into account the variation of actual births, deaths and migration figures from those previously projected."

In other words the Victorian projections only include 2011 census data to the extent that it had been incorporated into ABS intercensal estimates, and the VIF 2012 data for 30 June 2011 may not agree with the ABS final result for Victoria at that date, ie the result published on 30 August 2013..

The latest Victorian population bulletin (2012) says that estimates will be updated in the light of the 2011 census on 31 July 2013[131], but it is not clear if the whole range of VIF 2012 projections will be updated.

The most relevant data series is for SLAs and LGA's and larger statistical aggregates, by sex and 5-year age group from 0-4 to 80-84, with the remainder pooled as 85+, for the years 2011, 2016, 2021, 2026 and 2031. There are other summaries and supporting documentation, such as sex by single year of age (to 85+) for Victoria as a whole at 30 June 2011, 2016, ... , 2061.

[130] URL: http://www.dpcd.vic.gov.au/home/publications-and-research/urban-and-regional-research/census-2011/victoria-in-future-2012
[131] URL: http://www.dpcd.vic.gov.au/__data/assets/pdf_file/0006/99348/Vic-Pop-Bulletin-2012-FINAL.pdf

State	VIC				
LHD	(All)				
LGA	(All)				
	Values				
Row Labels	Sum of 2006	Sum of 2011	Sum of 2016	Sum of 2021	Sum of 2026
Total					
Total					
DOHA 2008	**5,128,310**	**5,515,848**	**5,900,761**	**6,285,383**	**6,662,217**
00-04	316,130	351,284	365,592	380,483	392,178
05-11	458,147	462,018	501,063	527,190	547,824
12-17	402,817	412,840	413,203	441,016	468,167
18-24	513,726	545,740	557,315	555,983	577,377
25-64	2,753,435	2,960,196	3,132,855	3,298,542	3,431,151
65+	684,054	783,770	930,733	1,082,169	1,245,520
VIF 2012	**5,128,310**	**5,621,210**	**6,067,702**	**6,500,653**	**6,924,141**
00-04	316,130	357,924	376,187	394,221	404,921
05-11	458,147	466,899	512,644	542,684	568,680
12-17	402,817	414,853	417,989	452,209	482,816
18-24	513,726	573,288	581,952	582,353	608,655
25-64	2,753,435	3,026,319	3,244,389	3,439,627	3,601,630
65+	684,054	781,927	934,540	1,089,558	1,257,439

In the figure above, the code VIF 2012 refers to these Victorian government population projections. The code DOHA 2008 refers to the DoHA projections for SLAs in Victoria[132] after conversion of SLAs. Since there was no DoHA projection for 2006, we used the VIF 2012 estimates for 2006.

Mapping to administrative regions in Victoria was complicated by the variety of structures used. That is, there is a different regional structure for Child and Adolescent Mental health Services, Adult Mental health Services, Older people's mental health Services, and Psychiatric Disability Rehabilitation and Support Services (PDRSS). To complicate matters further, these regions divide SLA's in some cases, and population overlaps are allowed (eg people aged 16 and 17 are counted for both CAMHS and adult service populations). Although we were able to produce SLA-level mappings and population estimates for all of these structures, for reasons of space we could not incorporate all the different Victorian structures and populations in the Estimator Tool.

As a compromise we drew on the new catchments proposed for 16 Mental Health Community Support Services[133], which fit inside the 8 Department of Health regions (See Appendix 1 of the document). For the NMHSPF Estimator Tool population data, we defined the LHD's in Victoria as Department of Health regions, as indicated in the figure below..

[132] Commonwealth department of Health and Ageing. The Australian Population: Statistical Local Area Population Projections, 2007 to 2027, Revised. URL: http://www.health.gov.au/internet/main/publishing.nsf/Content/ageing-stats-lapp.htm

[133] State of Victoria, Department of Health, 2013. Reforming community support services for people with a mental illness: Reform framework for Psychiatric Disability Rehabilitation and Support Services URL: http://docs.health.vic.gov.au/docs/doc/Reforming-community-support-services-for-people-with-a-mental-illness:-Reform-framework-for-Psychiatric-Disability-Rehabilitation-and-Support-Services

State	VIC				
LHD	(All)				
LGA	(All)				
LGA Name	(All)				
Age_Gp_NMHSPF	(All)				

Values Row Labels	Sum of 2006	Sum of 2011	Sum of 2016	Sum of 2021	Sum of 2026
Total					
DOHA 2008	5,128,310	5,515,848	5,900,761	6,285,383	6,662,217
VIF 2012	5,128,310	5,621,210	6,067,702	6,500,653	6,924,141
Barwon-South Coast Region					
DOHA 2008	355,297	374,439	391,502	407,847	422,821
VIF 2012	355,297	382,549	409,787	439,279	469,770
Eastern Melbourne Region					
DOHA 2008	998,908	1,032,315	1,068,928	1,104,022	1,136,506
VIF 2012	998,908	1,041,317	1,074,263	1,104,013	1,133,668
Gippsland Region					
DOHA 2008	247,710	261,403	272,786	283,199	292,062
VIF 2012	247,710	269,791	286,267	305,356	325,697
Grampians Region					
DOHA 2008	214,638	224,348	232,976	241,050	248,212
VIF 2012	214,638	230,890	246,730	261,679	276,581
Hume Region					
DOHA 2008	260,405	272,505	283,333	293,186	301,657
VIF 2012	260,405	276,878	298,432	324,812	354,878
Loddon-Mallee Region					
DOHA 2008	304,511	319,505	333,243	346,320	358,052
VIF 2012	304,511	322,283	341,439	359,206	377,227
Northern and Western Metropolitan Region					
DOHA 2008	1,525,119	1,700,618	1,876,603	2,055,974	2,237,152
VIF 2012	1,525,119	1,750,064	1,964,064	2,160,376	2,346,827
Southern Metropolitan Region					
DOHA 2008	1,220,955	1,329,945	1,440,620	1,553,015	1,664,985
VIF 2012	1,220,955	1,346,667	1,445,902	1,545,077	1,638,589
Unincorporated Region					
DOHA 2008	767	770	770	770	770
VIF 2012	767	770	816	855	903

27.8 QUEENSLAND POPULATION PROJECTIONS

Official state population projections for Queensland are held by the Office of Economic and Statistical Research in Queensland Treasury[134]. The most recent are the 2011 series, which give total state population of persons (only) by single year of age from 0 to 99 and the remainder pooled as 100+, for high medium and low series, for each year from 2006 to 2056. A parallel series subdivide this by Statistical District.

The most relevant is for ASGC 2008 LGA's by sex by 5 year age groups from 0-4 through 80-84, with the remainder pooled as age 85+, for 2006, 2011, 2016, 2121, 2026 and 2031.

For NMHSPF purposes we needed the mapping to the LHD (Hospital and Health Services) in Queensland, which was supplied by Queensland Health[135]. Unfortunately there was a major revision of

[134] URL: http://www.oesr.qld.gov.au/subjects/demography/population-projections/index.php
[135] Population Projections (Medium Series) by Age and Sex, for Hospital and Health Services (HHS) 2012, Queensland (based on 2006 census figures; ASGC 2011, released April 2012. Source: (Projections) Queensland Government population projections, 2012 edition (medium series), Office of Economic and Statistical Research, Queensland Treasury and Trade. (ERP) Australian Bureau of Statistics, Regional Population Growth, Australia, 2010–11, cat. no. 3218.0, and unpublished data. (District groupings added by Health Statistics Centre) Apr 30, 2012.

statistical geography in Queensland between the 2007 SLA's used in the DoHA estimates and those used in the HHS mapping. In addition, some SLA's were divided between districts, and in other cases LGAs were divided.

State	QLD				
LHD	(All)				
LGA	(All)				
LGA Name	(All)				
	Values				
Row Labels	Sum of 2006	Sum of 2011	Sum of 2016	Sum of 2021	Sum of 2026
Total					
DOHA 2008	**4,090,909**	**4,562,153**	**5,052,437**	**5,546,459**	**6,037,991**
00-04	268,425	306,002	330,501	351,111	370,329
05-11	391,850	414,951	462,728	501,208	531,329
12-17	341,992	368,097	384,379	422,048	460,664
18-24	411,015	447,670	482,173	497,746	531,005
25-64	2,183,230	2,428,434	2,646,514	2,874,178	3,075,627
65+	494,397	596,999	746,142	900,168	1,069,037
DOHQ 2012	**4,090,909**	**4,611,029**	**5,091,887**	**5,587,203**	**6,088,689**
00-04	268,425	318,357	335,466	359,898	380,892
05-11	391,850	412,990	466,887	502,347	533,175
12-17	341,992	365,791	375,271	414,756	455,183
18-24	411,015	455,182	477,941	489,569	523,000
25-64	2,183,230	2,454,706	2,674,346	2,896,548	3,092,018
65+	494,397	604,003	761,975	924,085	1,104,421

In the figure above, the code DOHQ 2012 refers to the population projections supplied by Queensland Health. The code DOHA 2008 refers to the DoHA projections for SLAs in Queensland[136] after conversion of SLAs. Since there was no DoHA projection for 2006, we used the DOHQ 2012 estimates for 2006.

The figure below shows the regional (HandHS) estimates from both sources, for census years. For DOHQ 2012 these agree with the data from Queensland Health.

[136] Commonwealth department of Health and Ageing. The Australian Population: Statistical Local Area Population Projections, 2007 to 2027, Revised. URL: http://www.health.gov.au/internet/main/publishing.nsf/Content/ageing-stats-lapp.htm

State	QLD				
LHD	(All)				
LGA	(All)				
Age_Gp_NMHSPF	(All)				
	Values				
Row Labels	Sum of 2006	Sum of 2011	Sum of 2016	Sum of 2021	Sum of 2026
Total					
DOHA 2008	4,090,909	4,562,153	5,052,437	5,546,459	6,037,991
DOHQ 2012	4,090,909	4,611,029	5,091,887	5,587,203	6,088,689
Cairns and Hinterland					
DOHA 2008	222,386	248,505	273,402	298,223	322,652
DOHQ 2012	222,386	253,695	275,642	296,679	317,415
Cape York					
DOHA 2008	12,529	14,186	15,836	17,572	19,384
DOHQ 2012	12,529	13,977	15,130	16,054	16,932
Central Queensland					
DOHA 2008	199,969	218,192	238,273	258,582	278,817
DOHQ 2012	199,969	221,978	248,341	274,436	302,496
Central West					
DOHA 2008	12,535	12,075	11,800	11,481	11,117
DOHQ 2012	12,535	12,143	12,591	13,010	13,378
Darling Downs					
DOHA 2008	258,588	275,599	293,226	310,169	326,091
DOHQ 2012	258,588	279,661	302,705	328,344	357,554
Gold Coast					
DOHA 2008	479,264	555,972	634,685	714,492	794,492
DOHQ 2012	479,264	558,144	628,210	693,343	754,905
Mackay					
DOHA 2008	159,800	177,181	196,250	215,610	234,967
DOHQ 2012	159,800	180,424	207,229	233,541	257,807
Metro North					
DOHA 2008	789,289	874,615	957,083	1,040,033	1,122,550
DOHQ 2012	789,289	887,997	958,455	1,022,854	1,074,998
Metro South					
DOHA 2008	935,321	1,023,323	1,114,659	1,206,724	1,298,681
DOHQ 2012	935,321	1,034,012	1,126,304	1,213,650	1,295,498
North West					
DOHA 2008	30,333	31,392	32,484	33,530	34,478
DOHQ 2012	30,333	31,912	33,595	35,177	36,397
South West					
DOHA 2008	26,366	25,935	25,845	25,619	25,282
DOHQ 2012	26,366	26,183	27,039	28,498	29,601
Sunshine Coast					
DOHA 2008	339,261	384,875	435,915	486,559	535,866
DOHQ 2012	339,261	387,714	429,957	478,119	526,996
Torres Strait-Northern Peninsula					
DOHA 2008	10,347	10,843	11,195	11,543	11,907
DOHQ 2012	10,347	10,635	10,766	10,885	11,044
Townsville					
DOHA 2008	214,815	236,259	257,073	277,937	298,677
DOHQ 2012	214,815	242,362	269,139	295,389	323,123
West Moreton					
DOHA 2008	206,747	251,451	306,827	364,910	425,050
DOHQ 2012	206,747	249,576	304,459	379,660	474,608
Wide Bay					
DOHA 2008	193,359	221,743	247,877	273,468	297,973
DOHQ 2012	193,359	220,616	242,325	267,564	295,937
Unincorporated QLD					
DOHA 2008	-	7	7	7	7

27.9 WESTERN AUSTRALIA POPULATION PROJECTIONS

Official population projections in WA are prepared by the Department of Planning and the WA Planning Commission[137]. The most recent estimates were produced in February 2012 and do not incorporate 2011 census data[138]. They are available for WA as a whole, for WA planning regions, and for LGAs. We used the LGA file by age by sex[139], which provides 5 bands of projections under different assumptions (labelled A-E with band C being the median), for single years from 2006-2026, for 5-year age groups 0-4 to 80-84 and then 85+.

A key feature of these projections was to emphasis the fact that population projections are forecasts based on demographic models, so that there is no "right" or "wrong" band to choose. One consequence is that different regions of WA chose to work with different bands of projections. Information on the details of this and how the LGA's mapped onto the LHDs in Western Australia were supplied by WA Health and the WA Mental Health Commission.

To create the NMHSPF age groups we assumed equal numbers at each year of age within a 5-year age group. For the particular band of estimates chosen for each LGA, we calculated the number of persons in each NMHSPF age group for each year, and these were mapped to the LHD's. Mapping the 2007 SLAs in the DoHA projections was simple in WA because the SLA's were largely stable.

State	WA				
LHD	(All)				
LGA	(All)				
LGA Name	(All)				
	Values				
Row Labels	Sum of 2006	Sum of 2011	Sum of 2016	Sum of 2021	Sum of 2026
Total					
DOHA 2008	**2,065,500**	**2,292,008**	**2,526,995**	**2,764,557**	**3,000,489**
00-04	130,700	151,592	163,079	173,860	182,739
05-11	193,960	201,636	226,697	245,400	260,884
12-17	174,840	181,961	187,294	205,562	223,783
18-24	207,200	225,346	235,519	241,821	257,394
25-64	1,116,400	1,241,246	1,351,004	1,457,391	1,553,774
65+	242,400	290,227	363,402	440,523	521,915
WA Tomorrow 2012	**2,066,425**	**2,393,445**	**2,649,640**	**2,872,535**	**3,106,635**
00-04	130,810	159,560	173,415	183,485	191,755
05-11	194,216	205,811	232,473	252,098	268,326
12-17	174,786	186,162	189,717	204,768	226,092
18-24	207,373	237,942	240,510	238,549	251,737
25-64	1,117,070	1,304,830	1,440,545	1,537,970	1,625,685
65+	242,170	299,140	372,980	455,665	543,040

In the figure above, the code WA Tomorrow 2012 refers to the official population projections population projections supplemented by information from the WA MH Commission. The code DOHA 2008 refers to the DoHA projections for SLAs in WA[140] after conversion of SLAs. Since there was no DoHA projection for 2006, we used the WA Tomorrow 2012 Band C estimates.

The figure below shows the regional (Health Service) estimates from both sources, for census years. For WA Tomorrow 2012 these agree with the data from WA Health and the WA mental health Commission.

[137] URL: http://www.planning.wa.gov.au/Publications/723.aspx. Note 14 July 2011 – These projections no longer exist on the WAPS website, but there were no new ones there.
[138] Western Australia Tomorrow, Population Report No.7, 2006 to 2026, February 2012.
[139] URL: http://www.planning.wa.gov.au/dop_pub_doc/Local_Government_Areas_by_Age_by_Sex.xls
[140] Commonwealth department of Health and Ageing. The Australian Population: Statistical Local Area Population Projections, 2007 to 2027, Revised. URL: http://www.health.gov.au/internet/main/publishing.nsf/Content/ageing-stats-lapp.htm

State	WA				
LHD	(All)				
LGA	(All)				
LGA Name	(All)				
Age_Gp_NMHSPF	(All)				
Values					
Row Labels	Sum of 2006	Sum of 2011	Sum of 2016	Sum of 2021	Sum of 2026
Total					
DOHA 2008	2,065,500	2,292,008	2,526,995	2,764,557	3,000,489
WA Tomorrow 2012	2,066,425	2,393,445	2,649,640	2,872,535	3,106,635
North Metropolitan Health Service					
DOHA 2008	853,110	950,968	1,052,323	1,155,773	1,259,372
WA Tomorrow 2012	853,110	979,385	1,079,850	1,168,835	1,262,345
Northern and Remote Country Health Service					
DOHA 2008	192,675	206,378	219,418	232,202	244,649
WA Tomorrow 2012	194,045	224,620	238,785	244,405	252,145
South Metropolitan Health Service					
DOHA 2008	744,415	836,121	933,298	1,031,910	1,130,297
WA Tomorrow 2012	744,415	868,870	977,065	1,075,770	1,178,325
Southern Country Health Service					
DOHA 2008	274,535	298,541	321,956	344,672	366,171
WA Tomorrow 2012	274,855	320,570	353,940	383,525	413,820

27.10 SOUTH AUSTRALIA POPULATION PROJECTIONS

SA population projections are prepared by the Department of Planning and Local Government and the current series are based on the 2006 census[141]. We used the small area population projections 2006-2026 for the 68 local government areas. These are medium band projections aggregated by five-year age groups for five-year intervals over the period 2006-2026. In a few cases where a LGA was divided between LHDs we used the SLAs in the DOHA 2008 projections to determine the proportions in which the LGA population should be divided. To create the NMHSPF age groups we assumed equal numbers at each year of age within a 5-year age group.

[141] URL: http://www.sa.gov.au/subject/Housing%2C+property+and+land/Building+and+development/South+Australia's+land+supply+and+planning+system/Planning+data+for+research+and+mapping/Population+and+demographics/Population+projections#Small_area_population_projections_2006-2026

State	SA				
LHD	(All)				
LGA	(All)				
LGA Name	(All)				
	Values				
Row Labels	Sum of 2006	Sum of 2011	Sum of 2016	Sum of 2021	Sum of 2026
Total					
DOHA 2008	**1,567,888**	**1,649,362**	**1,729,745**	**1,808,912**	**1,884,360**
00-04	89,878	98,673	102,081	104,681	105,905
05-11	135,977	133,629	142,342	148,984	152,739
12-17	124,068	123,521	120,982	125,799	132,689
18-24	150,588	155,470	156,652	153,416	155,764
25-64	830,816	873,045	897,646	921,453	935,784
65+	236,561	265,024	310,042	354,579	401,479
DPLGSA 2010	**1,567,888**	**1,667,444**	**1,770,644**	**1,856,436**	**1,935,161**
00-04	89,878	101,833	107,545	110,273	111,144
05-11	135,977	135,121	147,785	156,285	159,666
12-17	124,068	124,484	122,725	128,486	136,957
18-24	150,588	160,197	163,104	157,101	158,449
25-64	830,816	879,867	918,492	948,231	963,490
65+	236,561	265,942	310,992	356,060	405,454

In the figure above, the code DPLGSA 2010 refers to the official population projections from the SA Government. The code DOHA 2008 refers to the DoHA projections for SLAs in SA[142] after conversion of SLAs. Since there was no DoHA projection for 2006, we used the DPLGSA 2012 estimates.

The figure below shows LHN populations in SA from both sources. We did not have official LHN population data for SA for validation.

[142] Commonwealth department of Health and Ageing. The Australian Population: Statistical Local Area Population Projections, 2007 to 2027, Revised. URL: http://www.health.gov.au/internet/main/publishing.nsf/Content/ageing-stats-lapp.htm

State	SA				
LHD	(All)				
LGA	(All)				
LGA Name	(All)				
Age_Gp_NMHSPF	(All)				

Values Row Labels	Sum of 2006	Sum of 2011	Sum of 2016	Sum of 2021	Sum of 2026
Total					
DOHA 2008	1,567,888	1,649,362	1,729,745	1,808,912	1,884,360
DPLGSA 2010	1,567,888	1,667,444	1,770,644	1,856,436	1,935,161
Central Adelaide LHN					
DOHA 2008	401,654	416,826	431,089	445,450	459,256
DPLGSA 2010	401,654	421,724	440,470	454,806	467,081
Country Health SA LHN					
DOHA 2008	464,997	488,676	511,593	533,179	552,704
DPLGSA 2010	464,997	490,635	517,292	543,236	571,443
North Adelaide LHN					
DOHA 2008	366,392	393,454	420,643	447,890	474,653
DPLGSA 2010	366,392	398,661	434,215	465,430	492,921
South Adelaide LHN					
DOHA 2008	334,845	350,406	366,420	382,393	397,747
DPLGSA 2010	334,845	356,424	378,667	392,964	403,716

27.11 TASMANIA POPULATION PROJECTIONS

Official projections in Tasmania are prepared by the Demographic Change Advisory Council[143] and by the Department of Treasury and Finance[144]. LGA level estimates are available in an Excel application that provides data for High, Low and Medium projections for Tasmania and LGA's in selected age groups. This includes:

- Tasmania Persons by single year of age from 0-84 with the remainder pooled as 85+, for single years from 2007-2057
- Tasmania Persons by user-defined age groups within ages 0-84 and 85+, for single years from 2007-2057
- Tasmania and LGAs, persons, by single year of age from 0-84 with the remainder pooled as 85+, for single years from 2007-2032.
- Tasmania and LGAs, Persons by user-defined age groups within ages 0-84 and 85+, for single years from 2007-2032

These projections do not include the census year of 2006, since they start in 2007. The Department of Treasury and Finance states that it expected to update the LGA level estimates following the ABS release of final rebased estimates on 30 august 2013. As at the date of preparing the NMHSPF files, the 2008 LGA projections were the latest available.

[143] URL: http://www.dcac.tas.gov.au/pages/pop-projections.html
[144] URL: http://www.treasury.tas.gov.au/domino/dtf/dtf.nsf/85069fc0572051bbca257488007edd54/8fc289071851901cca257b8f001d2666?OpenDocument

State	TAS				
LHD	(All)				
LGA	(All)				
LGA Name	(All)				
	Values				
Row Labels	Sum of 2006	Sum of 2011	Sum of 2016	Sum of 2021	Sum of 2026
Total					
DOHA 2008	**489,922**	**508,658**	**525,126**	**539,983**	**552,275**
00-04	30,231	33,627	33,516	33,321	32,802
05-11	45,726	43,748	47,046	47,702	47,469
12-17	40,904	40,643	38,306	40,091	41,440
18-24	44,644	44,550	43,807	41,638	41,892
25-64	257,079	264,364	265,159	264,653	260,915
65+	71,338	81,726	97,292	112,578	127,757
TASDCAC 2008	**489,922**	**507,111**	**522,579**	**537,247**	**550,452**
00-04	30,231	32,646	31,049	30,873	30,593
05-11	45,726	43,756	46,425	45,074	44,552
12-17	40,904	40,628	38,392	40,280	40,006
18-24	44,644	44,772	44,396	42,258	42,752
25-64	257,079	264,666	266,790	267,540	264,500
65+	71,338	80,643	95,527	111,222	128,049

In the figure above, the code TASDCAC 2008 refers to the official population projections from the Tasmanian Government. The code DOHA 2008 refers to the DoHA projections for SLAs in Tasmania[145] after conversion of SLAs. Since there were no TASDCAC nor DoHA projections for 2006, we used the ABS estimate of Tasmanian population for 2006.

The figure below shows the populations for the three LHDs in Tasmania (Tasmanian Health organisations, or THOs).

[145] Commonwealth department of Health and Ageing. The Australian Population: Statistical Local Area Population Projections, 2007 to 2027, Revised. URL: http://www.health.gov.au/internet/main/publishing.nsf/Content/ageing-stats-lapp.htm

State	TAS				
LHD	(All)				
LGA	(All)				
LGA Name	(All)				
Age_Gp_NMHSPF	(All)				
Row Labels	Values Sum of 2006	Sum of 2011	Sum of 2016	Sum of 2021	Sum of 2026
Total					
DOHA 2008	489,922	508,658	525,126	539,983	552,275
TASDCAC 2008	489,922	507,111	522,579	537,247	550,452
North THO					
DOHA 2008	138,702	143,056	146,621	149,655	151,947
TASDCAC 2008	138,702	143,371	147,780	152,050	155,982
North West THO					
DOHA 2008	109,570	111,997	113,618	114,776	115,239
TASDCAC 2008	109,570	112,082	114,160	115,989	117,322
South THO					
DOHA 2008	241,650	253,605	264,887	275,552	285,089
TASDCAC 2008	241,650	251,671	260,634	269,223	277,153

27.12 ACT POPULATION PROJECTIONS[146]

These are produced by the Chief Minister's Department. The latest series 2009-2059 shows estimated resident population by sex by single year of age 0-99 with the remainder pooled as 100+, for single years 1971-2059.

All SLA's in the ACT map to the LGA of "Unincorporated ACT", and there is only one LHN.

In the figure above, the code ACT 2011 refers to the official population projections from the ACT Government. The code DOHA 2008 refers to the DoHA projections for SLAs in the ACT[147] after conversion of SLAs. Since there was no DoHA projections for 2006, we used the ACT 2011 estimate of ACT population for 2006.

[146] URL: http://www.cmd.act.gov.au/policystrategic/actstats/projections
[147] Commonwealth department of Health and Ageing. The Australian Population: Statistical Local Area Population Projections, 2007 to 2027, Revised. URL: http://www.health.gov.au/internet/main/publishing.nsf/Content/ageing-stats-lapp.htm

State	ACT				
LHD	ACT LHN				
LGA	(All)				
LGA Name	Unincorporated ACT				
Values					
Row Labels	Sum of 2006	Sum of 2011	Sum of 2016	Sum of 2021	Sum of 2026
ACT LHN					
ACT 2011	**322,387**	**354,237**	**390,522**	**414,367**	**436,748**
00-04	20,349	22,486	26,379	27,192	27,039
05-11	30,334	30,032	33,631	36,844	38,263
12-17	30,025	30,376	26,117	28,778	31,878
18-24	40,520	46,509	39,797	38,891	40,632
25-64	175,552	194,110	214,825	223,249	229,979
65+	25,607	30,723	49,773	59,413	68,957
DOHA 2008	**322,387**	**356,225**	**376,983**	**397,194**	**416,524**
00-04	20,349	23,108	23,726	24,197	24,586
05-11	30,334	29,559	32,114	33,316	34,065
12-17	30,025	26,006	25,816	27,778	29,132
18-24	40,520	40,944	40,790	40,240	41,758
25-64	175,552	197,419	204,860	212,500	218,709
65+	25,607	39,189	49,677	59,163	68,274

27.13 NT POPULATION PROJECTIONS[148]

Official projections for the NT are produced for NT Department of Treasury and Finance[149]. The most recent projections only distinguish two areas within the NT, namely Darwin versus the remainder. Unfortunately, the Top End and Central Australian Health Networks in the Northern Territory use a different geography, which is described as follows in their charters of operations:

TEHN hospitals will be located within the Northern Territory north of the township of Elliot, west to the Western Australian border and east to the Queensland border[150].

The area covered by the CAHN will include the area north of the South Australian border to and including the township of Elliot, west to the South Australian border and east to the Queensland border[151].

With some difficulty it was possible to assign the 2007 SLAs in the DoHA projection series with the TEHN and CAHN boundaries, which allowed the DOHA projections to be mapped to the regional structure. The NT Government projections were mapped to the regional structure by a process of apportioning the NT Government projected population between the corresponding SLA's in the proportions in which this was done in the DoHA projections. This left the NT totals unchanged, but allowed the populations to be rearranged into the regional health geography. The results appear below:

[148] URL: http://www.nt.gov.au/ntt/economics/nt_population.shtml
[149] URL: http://www.treasury.nt.gov.au/Economy/populationprojections/Pages/default.aspx
[150] http://health.nt.gov.au/library/scripts/objectifyMedia.aspx?file=pdf/76/35.pdfandsiteID=1andstr_title=TEHN%20Charter%20of%20Operations.pdf
[151] http://health.nt.gov.au/library/scripts/objectifyMedia.aspx?file=pdf/76/34.pdfandsiteID=1andstr_title=CAHN%20Charter%20of%20Operations.pdf

State	NT
LHD	(All)
LGA	(All)
LGA Name	(All)

Row Labels	Values Sum of 2006	Sum of 2011	Sum of 2016	Sum of 2021	Sum of 2026
Total					
DOHA 2008	**228,316**	**242,352**	**254,045**	**265,380**	**276,828**
00-04	17,689	18,654	19,780	20,411	21,033
05-11	41,620	42,896	44,558	46,229	48,259
12-17	19,330	19,775	19,604	19,935	20,295
18-24	23,170	24,907	25,777	26,197	26,208
25-64	116,768	124,231	129,869	135,401	141,029
65+	9,739	11,889	14,457	17,207	20,004
DTFNT 2012	**210,627**	**231,331**	**248,624**	**266,588**	**285,164**
00-04	17,689	18,537	20,286	21,359	22,508
05-11	23,931	24,156	26,540	28,314	30,092
12-17	19,330	19,578	20,386	22,300	23,384
18-24	23,170	25,682	26,185	27,224	29,159
25-64	116,768	130,565	138,581	147,388	156,679
65+	9,739	12,812	16,646	20,003	23,341

Note that DTFNT 2012 refers to the official projections of the NT department of Treasury and Finance, and the totals are as projected by them. Note that they are not very different from the DOHA projections.

In the figure below, which divides the population between the Top End Health Network and the Central Australian Health Network, it is important to note that the division is direct for the DoHA projections since they contain estimated populations for individual SLAs, but the data labelled DTFNT 2012 was created for the NMHSPF by dividing the projected NT Government totals for Darwin versus the remainder of the NT across SLA's in the DoHA proportions, and then rearranging them into the Health networks. The total is an official NT Government figure, but the subdivision is not.

LGA Name	(All)
Age_Gp_NMHSPF	(All)

Row Labels	Values Sum of 2006	Sum of 2011	Sum of 2016	Sum of 2021	Sum of 2026
Total					
DOHA 2008	228,316	242,352	254,045	265,380	276,828
DTFNT 2012	210,627	231,331	248,624	266,588	285,164
Central Australian HN					
DOHA 2008	45,797	48,293	49,383	50,464	51,554
DTFNT 2012	45,797	46,243	49,819	51,920	54,188
Top End HN					
DOHA 2008	164,830	175,405	184,882	194,505	204,241
DTFNT 2012	164,830	185,088	198,805	214,668	230,976

28 NSW SACS Reclassification Guide

http://www.lcsansw.org.au/documents/item/469

Reclassification Fact Sheet No.3

ASU
AUSTRALIAN SERVICES UNION

The Classification Guide

The Classification Guide is a guide only. It is based on where indicative jobs, used as evidence in the Queensland Equal Pay Case, are classified under the SCHADS Classification structure. You should use the classification guide to point you in the right direction. It will help you form a view of where approximately you should be classified. Once you have used the guide to form a preliminary view of where you should be classified, you should read that classifications criteria and check that it is the grade that best suits you and your job.

NSW SACS Reclassification Guide

SACS NSW		SCHADS	
Service Delivery Workers			
Grade 1	*People working at this level do not supervise the work of others; they work under the direction of others and apply their skills to meet established targets or outputs.*	SACS Level 1	• **Trainee with direct supervision.** At this level employers are expected to offer substantial internal and/or external training. • This level applies only to employees carrying out basic clerical duties, domestic duties and/or personal care. It does not apply to employees who carry out work of a social and/or welfare nature.
Grade 2		SACS Level 2	• **Administrative assistant** • **Disability Support Worker.** At this level employees may implement client activities and programs and may assist in but are not responsible for the development of client plans. • This is the mandatory entry level for an employee who has completed an appropriate certificate and is required to undertake work related to that certificate. • A new employee who performs work of this grade and holds a certificate 4 qualification will commence at point 2.
Grade 3	*People working at this level have well developed skills; they may take limited responsibility for the work of others*	SACS Level 3 Crisis Accommodation Level 1	• **Disability support worker.** Experienced Disability Support Worker with qualifications, supervisor in disability service. May have relevant experience or qualifications. • **Administration and finance worker** • **Entry level case worker** • A new employee who performs work at this grade and has a relevant three year degree will commence at pay point 3. • A new employee who performs work at this grade and has a relevant four year degree will commence at pay point 4.
		SACS Level 4 Crisis Accommodation Level 2	• **Administrative and finance officer.** Provides administrative support of a complex nature. • **Case worker with experience** • **Supervisor of a small team, outlet or specific project** • **Youth Worker** • **Outreach Worker** • **Family Support Worker** • Sole employees may commence at this level. • Employees undertaking specialised services will be promoted to this level once they have had the appropriate experience and undertake work related to the responsibilities under this level. • Prerequisite could include relevant four year degree with one year's relevant experience, three year degree with two years relevant experience, associate diploma with relevant experience, or equivalent level of expertise and experience.
Grade 4	*People working at this level take a leadership role they may supervise the work of others and/or provide leadership through their technical or specialist skills.*	SACS Level 5 Crisis Accommodation Level 3	• **Counsellor** • **Domestic and Family Violence Counsellor** • **Tenancy Advice Worker** • **Advocacy Worker** • **Experienced Family support worker** • **Experienced Outreach worker** • **Court support advocate** • **Case Worker with significant experience** • Supervise or provide expert advice to a small team • Specialist employee in a relevant discipline. • **Senior administrative officer** • **Complex case management** requiring substantial professional experience such as: *Intensive family support Worker *Counsellor *Court support advocate • Supervise or provide expert advice to a small team in a social welfare setting.
Management/Advanced Specialist Workers			
Grade 5		SACS Level 6 Crisis Accommodation Level 4	• **Coordinator of small service** • **Project manager** • **Program manager** • **Team Leader** (in a complex social welfare setting) • **Program coordinator** • Employees at this grade may exercise managerial responsibility, work independently as specialists or may be a senior member of a single discipline project team or provide specialist support to a range of programs or activities. • Advanced specialist in a professional discipline
		SACS Level 7	• **Senior Specialist Employee** • **Manager** corporate services specialist, senior finance officer, senior program manager, branch manager in a large multi-site organisation. • **Director** • **Coordinator** of a large service with a range of programs. • Employees at this grade may be the manager of a small service or part of the management team of a large organisation. • The management of staff is normally a feature at this level. • An employee at this level will operate under limited direction and exercise managerial responsibility for various functions within a section and/or organization or operate as a specialist, a member of a specialised professional team or independently.
Grade 6	*People at this level will guide and steer the organisation and take responsibility for a range of programs and services.*	SACS Level 8	• **Chief Executive Officer** • **Service Manager** • Employees at this grade may be the manager of a larger organisation and/or an employee who exercises managerial responsibility for an organisation. • An employee at this level will be subject to broad direction from management/the employer and will exercise managerial responsibility for an organisation. • An employee at this level may operate as a senior specialist providing multi-functional advice to other employees, the employer, committee or board of management.

Note – this is for guidance only. The indicative jobs listed are those that were used as evidence in the Queensland Equal Pay Case in establishing an understanding of the work undertaken at each Award Level. The related Job Descriptions and Witness statements are on the public record as part of those proceedings.

29 Factors of Implementation

29.1 PART ONE - BACKGROUND:

This paper was developed following the Modeling Group meeting (teleconference on 12 March 2013) regarding implementation factors. The minutes show:

> ***Re Implementation Factors*** *– This would be a very large project if it were to be undertaken in a comprehensive manner nationally. NSW has developed and used a resource distribution formula (RDF) specific to NSW. Project team recommended that as a proxy, the NMHSPF Project could use the principles in the NSW RDF and apply them to the national population as a guide to a national RDF.*
>
> *A recommendation could be made in the final report to commission additional specialised work to determine modelling for special populations. Members agreed to the recommendation on the basis that the statistical validity in transferring the formula from a NSW to national focus was maintained."*

To understand what "statistical validity" means in this particular context, we need to understand the fundamental difference between the NMHSPF model and a Resource Distribution Model that is being used at the jurisdictional level (that is, for the whole of a state or territory) to divide resources "equitably" between local administrations such as Local Health Districts.

The NMHSPF is a model that aims to estimate the total demand for mental health services by the whole Australian standard population of more than 22 million people as at June 2011, and the absolute need for the mental health resources (by type) that would allow that demand to be adequately met. For the NMHSPF model, the average resource needs of 100,000 people in each of its age groupings are exactly the same wherever they live in Australia, though they can and do vary between one age group and another. Within age groups the NMHSPF uses what is called an "Equal per Capita" (EPC) model as far as resources (beds, staff) are concerned. When national average costs for those resources are used, it is also an EPC model in terms of funding, within each age group.

It is worth noting that the National Mental Health Reports for the last 20 years have all compared jurisdictions on simple rates of expenditure per 100,000 population, or beds or ambulatory care staff or other indicators, and not much attention has been given to considering whether this "Equal per Capita" approach is equitable. Instead, the indicators for jurisdictions were usually considered in relation to a "national average", without any adjustment for the possibility that demands or costs or both might be higher or lower than the average in a particular jurisdiction. Similarly, allocations of National Mental Health Strategy funding to jurisdictions have been largely on an EPC basis.

In other words, there is nothing very new about the EPC approach in the NMHSPF – it has been the approach in the National Mental Health Strategy for 20 years. It is also worth mentioning that the MH-CCP model in NSW, which is also an EPC model, was applied to the populations of the regional Area Health Services in NSW from 2001-2010 without any calculated adjustments. This was possible because it was never used as a prescriptive model for allocating resources, but only as a guide. Use of the model in planning was permitted and encouraged, but there was ample room for common sense to be applied where (for example) the application of NSW-average parameters to a small rural population might be doubtful.

However, between 2009 and 2012 work was commissioned in NSW to provide a stronger connection between the MH-CCP model and the general Resources Distribution Formula (RDF). The RDF in NSW has been developed over many years to guide the allocation of NSW Health funding between the (then) eight geographically defined Area Health Services. The RDF is not a single formula, but rather an integrated set of formulae, at least one per funding program and sometimes one for each sub-stream of activity in a funding program, whose relative costs are then aggregated and expressed as an overall

funding index based on the NSW average = 100 by definition. In this form of RDF, it is entirely possible that a Local Health District might have an index above 100 for some health programs, and an index below 100 for others. In the past, one of the problems for mental health was that the District considered to be over-funded under the general formula were not necessarily so for mental health. Thus mental health enhancement funding was allocated via different processes, notably the use of the MH-CCP model. By 2009, the different districts had been brought up to similar per capita levels of the main resources, and it seemed feasible to develop a MH-RDF that would allow for a more subtle approach.

It was not a simple matter to blend these approaches, for two very basic reasons:

- MH-CCP is a model to meet 100% of demand
- MH-RDF is a model to divide an existing and likely future budget in an equitable manner, even if it is only adequate to meet (say) 65% of the demand.

It will be apparent that dividing a budget "equitably" can have adverse effects if it is inadequate. As a simple example, if the available budget is only adequate to meet 50% of the demand, then (by definition) the State Average only meets 50% of the need. If half the population of the state lived in regions that had enough funding to meet 75% of the demand (relative index = 75%/50% =150) while the other half lived in regions that only had funding to meet 25% of the demand (relative index = 25%/50% =50), what is "equitable"? Do we run down the richer services to fund the poorer ones, when none of them have enough funding?

In blending the two approaches in NSW, we used MH-CCP to determine the proportions in which the to-be-allocated pool of mental health funding would be deployed between age groups and types of resources (eg, acute versus non-acute hospital beds versus ambulatory care). Then, within each of these streams, data sources that might be a guide to relative demand between geographical regions was identified and analysed to develop the distribution formulae.

As a simple example, we obtained data on the number of "psychiatric" DSP recipients by geographical region from Centrelink, and used this as part of an index representing the relative demand for ambulatory care services.

It is not within the scope of this initial NMHSPF project to develop a tool that addresses all the implementation issues that arise in planning mental health services for a specific geographic sub-populations within Australia. However, it may be feasible to identify some of the factors and principles that will be involved in making suitable adjustments.

29.2 FINAL AGREEMENT – RE FACTORS OF IMPLEMENTATION

At the Modelling Group meeting of 20 May 2013, Members agreed that applying the NSW RDF model was not going to be an effective tool for application against the NMHSPF nationally. Therefore, members agreed to provide the following information to inform users of this approach, but to otherwise leave the implementation issues to each jurisdiction's current methodology.

29.2.1 METHODS FOR LOCALISATION OF THE NMHSPF MODEL:

The NSW approach will perhaps seem more reasonable if we consider the theoretical "best practice" way to localize the NMHSPF model, and then note its impossibility.

- In principle, any parameter in the NMHSPF might be different in a local region of Australia, and these parameters include but are not limited to:
    - The age-sex distribution of the population
    - Any other demographic feature of the population
    - The age-sex-specific rates of mental illnesses in the population
    - The distribution of severity of illness within any of the above
    - The distribution of demand for care within any of the above
    - The care packages appropriate to each level and type of illness in any age group

  - The staffing profiles, labour costs, output productivity and other parameters of any service element that provides components of a care package
- Many parameters in the NMHSPF are difficult to establish even for Australia as a whole. Most are not known directly at the level of States/ Territories. Hardly any would be known at the level of health administrative regions within States and Territories.

Thus we cannot simply adopt the brute force approach of (say) replacing the Australian Burden of Disease epidemiology with the specific epidemiology even though we might be able to do this for the larger State jurisdictions, the statistical uncertainty in these sub-sample estimates would make the value of the adaptation doubtful. This is easily illustrated. For the high prevalence disorders of Mood and/or Anxiety Disorders, the Australian Burden of Disease study used (mainly) the 1997 Survey of Mental Health and Wellbeing s raw input, which, after further Disease Modelling, yields consistent prevalence estimates. The ABS has published this sort of material for each of the larger jurisdictions.

	MA only	MAS	MAP	MASP	Any M or A	Index
NSW	5.0%	1.2%	4.8%	1.6%	12.6%	101
VIC	5.6%	1.2%	4.2%	0.9%	11.9%	95
QLD	4.7%	0.9%	4.7%	1.4%	11.7%	94
WA	6.2%	1.7%	4.2%	0.9%	13.0%	104
SA	6.3%	1.1%	4.1%	1.1%	12.6%	101
TAS	np	np	np	np	np	
ACT	np	np	np	np	np	
NT	np	np	np	np	np	
AUST	5.4%	1.2%	4.6%	1.3%	12.5%	100

In the table above,
MA =Mood Disorder and/or Anxiety Disorder only,
MAS = Mood and/or Anxiety with Substance Use ,
MAP = Mood and./or Anxiety with a Physical health condition,
MASP = Mood and/or Anxiety with Substance Use and a physical health condition.
When the prevalence of all of these non-overlapping subgroups is added, we have the prevalence of mood and/or anxiety disorder with or without the other conditions. (Any M or A).

We see that where the estimates are given for the more populous states the estimated prevalence varies about 0.5% either side of the Australian figure of 12.5%. If we construct an index as the ratio of the jurisdiction figure to the Australian one, set at 100, then we might conclude that Victoria has only 95% of the average Australian need, and so on for others. Would this be an acceptable basis for distribution of mental health funding between jurisdictions? Probably not. If we take Queensland as a typical medium-sized jurisdiction, then an estimate of 11.7% of the sample of Queenslanders in the SMHWB 1997 has a relative standard error of about 4%, or an absolute standard error of about 4% x 11.7% =0.5%. On this basis we could not reasonably conclude that the Queensland prevalence estimate differed from the Australian estimate, and thus it would be statistically unjustifiable to give Queensland only 94% of average Australian funding, as the Queensland Government would no doubt explain.

In fact the same conclusion was arrived at by a US Task force chaired by professor Ron Kessler, which was tasked by the Substance Abuse and Mental Health Services Administration (SAMHSA) with the job of estimating State-specific “Serious Mental Illness” (SMI) prevalences from his National Comorbidity Survey of 1992-93, with a view to incorporating this in a resource allocation formula for SAMHSA’s

Community Mental Health Block Grants.. Despite the most sophisticated techniques, all the state-specific estimates fell within the confidence interval surrounding the US national estimate, so there was no basis for concluding that prevalence differed between States. A summary of this work can be readily found in Appendix J of the NSW MH-CCP model of 2000, on the NSW Health website.

The take home message from this is that the most obvious "brute force" methods for localization of the NMHSPF model fail for want of specific and reliable data in the most critical areas. However, there are certain areas of the model where local data can quite legitimately and easily be used. A simple example is the estimated demand for consultation-liaison services to the Emergency Department (ED), for which Australian attendance data was used. Local ED attendances for mental health conditions might be used instead. In other cases the NMHSPF model uses nationally reported data to estimate relative proportions, and in these cases a local proportion based on local data might be used.

Nevertheless, it remains true that acceptable local data is unlikely to be available for most parameters of the model.

29.2.2 PROXY METHODS

In the absence of acceptable direct estimates, the standard approach is to estimate relativities between different groups that can be used to develop synthetic (proxy) estimates of parameters of interest. We illustrate this approach with an example of obtaining proxy estimates of diagnostic prevalence data in the Australian Burden of Disease studies.

Example. Estimating the population rates of Schizophrenia and of Mood and/or Anxiety Disorders for the Australian Burden of Disease study[152] and for the Aboriginal and Torres Strait Islander Burden of Disease study[153].

The general epidemiology in the NMHSPF is based directly on the (general population) Australian Burden of Disease (AusBOD) study. For Mood and/or Anxiety disorders as a combined group, the main source of prevalence and other data was the Survey of Mental Health and Wellbeing (1997). However, no equivalent nationally representative survey data existed (then or now) for Aboriginal and Torres Strait Islander people. The authors developed proxy estimates by using relativities between hosp[ital admission rates, or related measures in community surveys[154], as follows:

Schizophrenia

In the absence of survey data for schizophrenia using ICD-10 or DSM-IV-defined criteria, we used adjusted relativities from Australian hospital data. For schizophrenia, in keeping with findings for New Zealand Maoris, we halved the excess risk suggested by hospital data by remoteness (Wheeler et al. 2005). We also assumed that the rate ratio for females was the same as males (as a higher risk did not appear plausible).

Anxiety and depression

We used indicators of psychological distress from the Western Australian Aboriginal Child Health Survey (Goodman's Strengths and Difficulties Questionnaire[152]) and the 1997–98 New South Wales Health Surveys (Kessler 10 questionnaire) as proxies for anxiety and depression. To estimate the prevalence of anxiety and depression in Indigenous Australians, we applied derived rate ratios of psychological distress from published data, between the Indigenous and non-Indigenous population, to the national model (NSW Health Department Public Health Division 2000, Zubrick et al. 2005). For 4–17 year-olds, the rate ratio of

[152] Begg S, Vos T, Barker B, Stevenson C, Stanley L, Lopez AD, 2007. The burden of disease and injury in Australia 2003. PHE 82. Canberra: AIHW.

[153] Vos T, Barker B, Stanley L, Lopez AD 2007. The burden of disease and injury in Aboriginal and Torres Strait Islander peoples 2003. Brisbane: School of Population Health, The University of Queensland.

[154] Jorm AF, Cvetoversuski S, Bourchier S, Stewart G, Mental health of Indigenous Australians: a review of findings from community surveys. Medical Journal of Australia, 2012; 196 (2): 118-121.

psychological distress in Indigenous children and young adults was 1.6 times that of the non-Indigenous population. For male and female Indigenous adults, the rate ratios of psychological distress were in the order of 1.9 and 1.5 respectively. We estimated the prevalence of anxiety and depression for Indigenous children residing in non-remote and remote areas using published data (odds ratio=0.7) from the Western Australian Aboriginal Child Health Survey, which showed that children residing in more remote areas fared better in terms of significant emotional difficulties. We estimated the prevalence of anxiety and depression for Indigenous adults residing in non-remote and remote areas using rate ratios derived from published data from the 'Social and Emotional Wellbeing module' in the 2004–05 National Health Survey (ABS 2006a). Averaging rate ratios based on published proportions of responses of 'all the time/most of the time' for selected items in this wellbeing module indicated that Indigenous adults residing in non-remote areas were at slightly higher risk (RR 1.3) of psychological distress than Indigenous adults residing in remote areas.[155]

Clearly, these adjustment processes are small "models" in their own right, and their appropriateness might be disputed. Moreover, a technique which is considered appropriate for estimating relativities on one dimension might not be appropriate for another dimension. For example, the higher hospitalization rate for schizophrenia amongst Aboriginal people might not reflect a difference in prevalence at all, but simply a relative lack of services that would prevent admission, or a higher rate of other conditions that increase the admission rate. Thus, if we were developing an Aboriginal NMHSPF model, we might choose to model the increased admission rate directly, without assuming any increase in prevalence. Or we might divert the excess admission rate into a demand for admission-preventing ambulatory care services.

On the other hand, it is harder to think of reasons why distress levels would be high unless they were accompanied by a higher rate of mood and anxiety disorders, and in any case, high levels of distress warrant attention in their own right. Many jurisdictions in Australia collect the Kessler 10 or an equivalent measure in large regular community surveys, and in addition the periodic National Health Surveys obtain national samples with State/Territory samples of moderate size. Thus, for the Mood and/or Anxiety Disorders in the NMHSPF model, it would be feasible to use the ratio of the State/Territory data to Australian data to determine a local adjustment to the prevalence. In fact NSW adopted this approach from 1997, following recommendations of the US Task Force chaired by Kessler, and by 2009 there was sufficient K10+ data to support a very detailed geographical analysis for the RDF development.

Unique client counts and proxies

In jurisdictions like Victoria and Western Australia that have maintained psychiatric case registers or the equivalent, the geographical distribution of registered clients may provide a reasonable proxy estimate of the geographical distribution of people with SEVERE illnesses in the NMHSPF model. That is, even though the NMHSPF model provides services for more than twice as many people as are seen in State specialist services, it might be reasonable to assume that the distribution of this total across geography is the same for those not seen as for those seen. In the absence of such a register in NSW, the RDF development relied on Centrelink data on the geographical distribution of people receiving the DSP for "psychiatric" reasons. This index showed a very large range of variation, and was a very plausible guide to the demand for ambulatory care services.

Hospitalisation utilization data as a proxy for hospitalization need.

Since the NMHSPF uses Australian admission data as a guide to the overall admission rate in the model, it might seem appropriate to "localize" a model by using a local admission rate. However, this is not the

[155] Vos T, Barker B, Stanley L, Lopez AD 2007. The burden of disease and injury in Aboriginal and Torres Strait Islander peoples 2003. Brisbane: School of Population Health, The University of Queensland. P 116.

standard approach in RDF modeling. Instead, there is an attempt to reduce the effect of "supply factors" (that is, the probability that admissions will be more common where there are more beds, and the certainty that they will be less common where there are few or no beds).

What is done is to calculate an age-sex-standardised admission rate by local area of residence (using LGA's or a similar small unit of geography), and then try to find predictors of this rate (either general indexes for the geographic area, such as socioeconomic indexes, or individual patient variables). If it is possible to find a meaningful regression equation that predicts the standardized separation rate (or standardized bed-day consumption) across geographical subdivisions, then one might choose to interpret the predicted rate for a region as its index of "need", while variation around the predicted rate is treated as under/over servicing.

29.2.3 A Summary of Part One.

Within age groups the NMHSPF uses what is called an "Equal per Capita" (EPC) model as far as resources (beds, staff) are concerned. When national average costs for those resources are used, it is also an EPC model in terms of funding, within each age group.

In other words, there is nothing very new about the EPC approach in the NMHSPF – it has been the approach in the National Mental Health Strategy for 20 years. It is also worth mentioning that the MH-CCP model in NSW, which is also an EPC model, was applied to the populations of the regional Area Health Services in NSW from 2001-2010 without any calculated adjustments.

To localise the model any one or all of the following parameters or inputs into the model may be adjusted by a jurisdiction.

- In principle, any parameter in the NMHSPF might be different in a local region of Australia, and these parameters include but are not limited to:
    - The age-sex distribution of the population
    - Any other demographic feature of the population
    - The age-sex-specific rates of mental illnesses in the population
    - The distribution of severity of illness within any of the above
    - The distribution of demand for care within any of the above
    - The care packages appropriate to each level and type of illness in any age group
    - The staffing profiles, labour costs, output productivity and other parameters of any service element that provides components of a care package.

  Note that if any one of the above inputs is changed, then it follows that the "bottom, line" estimates predicted by the model would also change.

- Many parameters in the NMHSPF are difficult to establish even for Australia as a whole. Most are not known directly at the level of States/ Territories. Hardly any would be known at the level of health administrative regions within States and Territories.
- The take home message from this is that the most obvious "brute force" methods for localization of the NMHSPF model fail for want of specific and reliable data in the most critical areas. However, there are certain areas of the model where local data can quite legitimately and easily be used. A simple example is the estimated demand for consultation-liaison services to the Emergency Department (ED), for which Australian attendance data was used. Local ED attendances for mental health conditions might be used instead. In other cases the NMHSPF model uses nationally reported data to estimate relative proportions, and in these cases a local proportion based on local data might be used.
- Nevertheless, it remains true that acceptable local data is unlikely to be available for most parameters of the model.

29.3 PART TWO - BACKGROUND- EXPLANATION OF THE POSSIBLE APPLICATION OF FACTORS FROM THE NSW MH RDF TO THE NMHSPF

The material in the remainder of this chapter is included for information only, as the Modelling Group meeting of 20 May 2013, Members agreed that applying the NSW RDF model was not going to be an effective tool for application against the NMHSPF nationally. Therefore, members agreed to provide the following information to inform users of this approach, but to otherwise leave the implementation issues to each jurisdiction's current methodology.

The NMHSPF is a planning tool and is based on age specific standard populations of 100,000. Thus it is assumed that one group of 100,000 people aged 18-64 are exactly the same as the next group of 100,000 people aged 18-64 years. The planning tool does not account for any differences between these two groups, that is, all people in the model have a weighting of 1 for a given factor of interest. E.g. if looking at examining ATSI versus. non ATSI for the NMHSPF, then it is given that ATSI=1 and non ATSI =1.

In 2012 consultants provide NSW Health with a report "*Incorporation of mental health in the NSW Resource Distribution formula"*. Final report (version 7.2). The purpose of this report was to "Identify the most appropriate model of incorporating mental health in the general resource distribution formula consistent with RDF principles, and develop this model". This is the first time that mental health has been incorporated in the NSW RDF, and it is considered a starting point from which to build.

A few things to note about the NSW RDF

- The RDF does not allocate ALL monies. It plays a role in "identifying how new resources should be distributed across regional boundaries. The RDF is used to guide and inform decisions about recurrent and capital allocations" (NSW Health , Resource Distribution Formula Technical Paper 2005 Revision-, 01 August 2005., http://www0.health.nsw.gov.au/pubs/2005/rdf_paper.html)
- The RDF is not a single formula, but rather an integrated set of formulae, at least one per funding program and sometimes one for each sub-stream of activity in a funding program, whose relative costs are then aggregated and expressed as an overall funding index based on the NSW average = 100 by definition.
- In this form of RDF, it is entirely possible that a Local Health District might have an index above 100 for some health programs, and an index below 100 for others. In the past, one of the problems for mental health was that the District considered to be over-funded under the general formula were not necessarily so for mental health. Thus mental health enhancement funding was allocated via different processes, notably the use of the MH-CCP model. By 2009, the different districts had been brought up to similar per capita levels of the main resources, and it seemed feasible to develop a MH-RDF that would allow for a more subtle approach.

It was not a simple matter to blend the NMHSPF and the RDF, for two very basic reasons:

- MH-CCP is a model to meet 100% of demand
- MH-RDF is a model to divide an existing and likely future budget in an equitable manner, even if it is only adequate to meet (say) 65% of the demand.

So, what is "equitable"? Do we run down the richer services to fund the poorer ones, when none of them have enough funding?

In blending the two approaches in NSW, we used MH-CCP to determine the proportions in which the to-be-allocated pool of mental health funding would be deployed between age groups and types of resources (eg, acute versus non-acute hospital beds versus ambulatory care). Then, within each of these streams, data sources that might be a guide to relative demand between geographical regions was identified and analysed to develop the distribution formulae.

Table A - Structure of the NSW MH RDF

loes not include prisoners.

cute admitted

	Prevention Stream	Child and Adolescent Services	Adult Services			Older Persons Services			Forensic Services
			Amb-ulatory	Acute Admitted	Non-Acute Admitted	Amb-ulatory	Acute Admitted	Non-Acute	
Statewide' services									✓
Need Factors:									
Age Sex Weights	None	✓	✓	✓	✓	✓	✓	✓	NA
ATSI Weighting	✓	✓	✓	✓	✓	✓	✓	✓	NA
Need Index	✓	x	✓	✓	✓	✓	✓	✓	NA
Substitutable Private Sector Activity	x	x	✓	✓	✓	✓	✓	✓	NA
Cost Factors	✓	✓	✓	✓	✓	✓	✓	✓	NA
Cross Area Flows	None	✓	✓	✓	✓	✓	✓	✓	NA

The 5 arrows point to the 5 major factors (the rows) included in the NSW MH RDF.

Table B – Major factors in the NSW MH RDF and their application to the NMHSPF

Major Factor	Description from NSW MH RDF	Comment re: NMHSPF	Include or exclude for NMHSPF
State wide service	State wide services was limited to forensic inpatients treated by an Area Health Service.	NA	Exclude
Need factor - age / sex weights	For prevention, and child and adolescent - age weights applied only, but not sex weights. For adults and older people - age / sex weights applied	The NMHSPF already has an age structure. Relative age weights are implicit in the model, for example, per capita costs can be calculated. NMHSPF with the exception of post natal depression treats patients, does not specify male versus. female.	Exclude
Need factor - ATSI weighting	This accounted for service utilisation and under reporting of Indigenous status in data. Recommended a weighting of 2.5	Weighting of 2.5 applied to prevention, child and adolescent, adults and older people.	**Include**
Need factor - need index	This was calculated for both admitted patients, and then for community mental health services for 18+ years only. The need index was not applied to prevention or child and adolescent.		Exclude
Substitutable private sector activity (SPSA)	This was calculated separately for community SPSA , and then for for admitted patient SPSA.	NA. The NMHSPF is driven by Australian population of approx 23 million and specifies the need for an envelope of both public and private mental health services	Exclude
Cost Factors – dispersion	This included a dispersion cost factor for ambulatory services only based on the principle in the general RDF, which is 1.5, CALD not included in the MH RDF. The dispersion cost factor represents the higher cost of delivering services to rural and remote areas. Recommended that an additional weighting of 1.5 be included in the MH RDF to address the additional costs associated with providing mental health services for Aboriginal people.	The dispersion index for community health services in the general RDF is 1.5. An additional weighting of 1.5 applied to prevention, child and adolescent, adults and older people.	**Include**
Cross Area Flows	This adjustment made for admitted patients calculated at $580 per bed day, not calculated	NA	Exclude

	for ambulatory services		

29.3.1 The Statement of Advice

Based on table C – "*The major factors in the NSW MH RDF and their application to the NMHSPF*", it is recommended that weightings for two major factors be applied. Both of these major factors are applicable across the spectrum of the model and include prevention, child and adolescent, adults, and older persons. These two factors are i) the ATSI weighting of 2.5, and ii), the need index regarding dispersion costs. The dispersion index for community health services in the general RDF is 1.5. An additional weighting of 1.5 is applied to prevention, child and adolescent, adults and older people.

29.3.2 ISSUES WITH USING THE NSW RDF:

- Only two factors of the NSW mental health RDF is recommended for application to the NMHSPF. This leaves many other population groups with no specific modelling.
- The two factors recommended are based on MH-CCP version 1.11 which was released in 2001. This version does not include the range of services covered in the scope of the NMHSPF. It is possible that the introduction of the new service elements could significantly impact on the application of the two factors from the NSW mental health RDF to the NMHSPF.
- These implementation factors are not a new issue for jurisdictions and each will have some existing method of modelling across their diverse populations.

30 Frequently Asked Questions

NMHSPF Project FAQ's

30.1 WHAT IS THE PURPOSE AND OBJECTIVE OF THE NMHSPF PROJECT?

The purpose of the Project is to develop a National Mental Health Service Planning Framework (NMHSPF) based on the depth of experience of both NSW and Queensland in the development of population-based planning models for mental health, and enhanced by expert input from the various Groups established under the Project governance structure. Modelling for the NMHSPF has considered clinical developments (standards, guidelines, care packages, pathways, patient flow, outcomes); service developments (facilities guidelines; taxonomies for staff, patients, etc); and costing developments (cost benchmarking; cost weights; activity based funding models). Noting that none of these are static over time, each has specialist knowledge required, each is influenced by the others, and in the longer term (post Project) should be recognised as separate yet integrated work streams within the NMHSPF.

30.2 WHAT ARE THE EXPECTED BENEFITS OF THE NMHSPF PROJECT?

The expected benefits of the national service planning framework are:

(a) the development a national Clinical Care and Prevention type model that can be adapted for use within each Australian jurisdiction;

(b) the provision of transparency and consistency across all jurisdictions for estimating the need and demand for mental health services - across the spectrum from prevention and early intervention to the most intensive treatment; and

(c) the provision of the same basis for all jurisdictions to estimate the gap between current need being met, and the resources required to fill that gap.

30.3 WHAT ARE THE NMHSPF PROJECT'S OUTPUTS?

a) The development of a NMHSPF model that can be adapted for use within each Australian jurisdiction that will provide transparency and consistency across all jurisdictions for estimating the need and demand for mental health services - across the continuum of care from prevention and early intervention to the most intensive treatment;

b) Standardised "Australian average" estimates of need and demand for a range of agreed mental health services per 100,000 people across the whole age range, and across the continuum of care;

c) Estimates of the staffing, beds, and treatment places per 100,000 age-specific population to meet the estimated demand;

d) Estimates of the outputs to be expected from the resources; and

e) A high-level estimate of the gap between current need being met for all jurisdictions, and the resources required to fill that gap.

30.4 WHAT IS THE SCOPE OF THE NMHSPF PROJECT?

The NMHSPF Project builds on the existing planning work by both NSW and Queensland over the last 10 years. This work significantly informs the specialist community mental health and inpatient service aspects of the Framework and forms a solid foundation for further definition of other programs and service environments. A staged process to develop the NMHSPF was outlined in the Project Proposal and is replicated in the Figure below.

Figure 22 - Staged Development of a NMHSPF

	Model Components				
	Executive	Modelling Group	Services Group	Clinical Group	Costing
Stage 1	Nominal list of products/ core service elements for which targets are to be set.	Group formation: Model V0	This group will not form for Step 1. NSW & QLD existing service elements will be used to develop V 0.	This group will not form for Step 1. NSW & QLD existing service elements will be used to develop V 0.	NSW & QLD existing service elements will be used to develop V 0.
Stage 2		Summary of existing Model; Add national population to AUS V0 to get AUS V1	Group formation: All jurisdiction's service elements. Take the AUS V0 service elements – identify gaps and problems – develop potential solutions for the Australian context (AUS V1).	Group formation: All jurisdiction's care packages. Take the AUS V0 care packages – identify gaps and problems – develop potential solutions for the Australian context (AUS V1)	Out of scope
AUS V1 models to Expert Working Groups for continuous improvement process					
Stage 3	Review and prioritise	AUS V2. Once data received remodel	Upgrade and rationalise service elements with nationally agreed numeric attributes	Upgrade and rationalise care packages with nationally agreed clinical standards with outcome basis where possible	Out of scope
Stage 4	Define products/service elements for target setting	AUS V3	New service elements based on improved care models and research	New care packages resulting from clinical advances and research	Out of scope

The Scope of this Project is limited to Stage 1 and 2 only:

- The development of NMHSPF Version 0 (V0: NSW and Queensland existing service elements applied to National and State/Territory Populations) and associated deliverables; and
- The development of NMHSPF Version 1 (AUS V1: All jurisdictions' service elements applied to National and State/Territory Populations) and associated deliverables.

Costing Component of the Framework is considered in scope in so far as the generic costs can be applied to the Framework and consideration made for jurisdiction-specific Resource Distribution Formulae; however, specific costing work is largely dependent upon availability of data and progress toward the implementation of Activity Based Funding for (in scope) mental health services.

The Project considered the specific mental health components of health promotion/prevention; General Practice provided services; private psychology and psychiatry services; specialist community mental health services; psychiatric disability support services; rehabilitation and recovery services; specialist inpatient and hospital-based mental health services (public and private); mental health services provided in general hospital wards; and mental health services provided in/for residential aged care facilities.

In the case of physical health screening, only those items that specifically inform and are a requirement for mental health care (e.g. physical health status relevant to ECT or haematology related to clozapine treatment) were included.

The Project addresses all ages, from child and adolescent mental health services, to adult services and mental health services for older people.

The Project addresses 'what should be'; not necessarily 'what is'.

The Project determines Full Time Equivalent (FTE) by Profession Type at a high level (e.g. medical, nursing, allied health, Cert IV) for delivery of particular components of care packages.

30.5 WHAT IS 'OUT OF SCOPE'?

Stages 3 and 4 as outlined in the Figure (above) are considered out of scope for this Project.

It should be noted that the Project does not include specific modelling for components of the service system that are not mental health specific. For example, the general physical health needs of mental health consumers are not modelled but are identified by the Framework as a service provided by another sector. Another example is a consumer who is in a residential aged care facility (RACF) and receiving mental health care. In this case the mental health care provided to the consumer is modelled, but the daily care needs of the consumer that are met by the RACF are not modelled. Whilst these components may be acknowledged in the Framework, their inputs and outputs are not specifically modelled.

It should be well noted that when looking at the service elements and the care packages, the Framework is silent on who should deliver the services (public versus private versus NGO).

The Project does not include specific modelling for specific population sub-groups including, but not limited to:

- Aboriginal and Torres Strait Islander communities
- Other culturally and linguistically diverse communities
- Rural and remote communities
- Forensic patients
- Serving defence personnel
- Humanitarian entrants

Note although the specific modelling for the population sub-groups mentioned above are out of scope for the model, the people within these sub-groups are included, as this is an 'all peoples' model that covers the whole Australian population. For instance, the model still counts people within rural and remote communities, even though there are no specific care packages or epidemiology for rural and remote communities.

General Modelling FAQ's

30.6 WHERE DID THE MODEL ORIGINATE FROM? WHAT IS IT?

The NMHSPF Model was initially based on the expertise from both the NSW Ministry of Health and Qld Department of Health and was then further developed with the input of diverse stakeholders across Australia.

The NSW Ministry of Health, developed an estimator tool, the Mental Health Clinical Care and Prevention model (MH-CCP) that used population data to estimate the demand for acute mental health care specific to the NSW model of mental health services. Although the MH-CCP focus was focused on the NSW service structure, the mechanism of the estimator tool was readily transferrable to the NMHSPF Project. The NSW Ministry of Health also developed the Drug and Alcohol Clinical Care and Prevention Model (DA-CCP) that became the first trial of applying the MH-CCP model to other areas of health. Much learning was gained from that process that assisted in streamlining the NMHSPF Project.

Qld Health has extensive experience in modelling services across a comprehensive classification of mental health care and have developed comprehensive descriptions of their models of care. This experience informed the NMHSPF model significantly in the development of the taxonomy, development of the staffing profiles and many service element descriptions.

Early in the project, many stakeholders were engaged as regular members throughout the project or as sporadic advisors to review the modelling work. A representative from all aspects of mental health care and planning were involved, including membership across all jurisdictions in Australia.

30.7 HOW FLEXIBLE IS THE MODELLING APPROACH DEVELOPED FOR THE NMHSPF?

The modelling approach is not just a "NSW" approach, but a particular example of an approach that is recommended by the World Health Organisation and which has been applied in other countries with very different systems (eg, South Africa).

In addition, the particular MH-CCP 2010 model developed for NSW specialist services is only one example of applying the approach, and should not be seen as limiting the scope of the NMHSPF work. MH-CCP 2010 meets the objectives that were in its own scope, which was for planning a State-funded specialist mental health service. The same approach has been applied to a different scope in the national Drug and Alcohol services planning model (DA-CCP). Many of the services modelled in DA-CCP model are supplied by NGOs and raised new issues in modelling that have been addressed.

It is well-established that there are many socioeconomic and demographic inequities in health status and all the other factors that go together under the heading of Quality of Life. In 21st century Australia, the public/ private division of responsibility for addressing these inequities is the subject of ongoing political debates and choices, and reflects the values of all the parties involved. In particular, there is a debate on whether the term "equity" should be interpreted to mean equal opportunity or equal outcome, and the personal versus social responsibility for the current state of health of the Australian public.

In the modelling process, the best we can do to represent this mixture of contending views is to have at a definition of "adequate" services that has been developed by experts familiar with the particular issues faced by people with mental illnesses in 21st century Australia, and experts who are familiar with what is considered to be good and effective practice here and elsewhere in the world. In addition, by developing a model that makes no reference to funders, or the economic sectors in which providers operate, we aim to concentrate on areas where diverse providers can agree, while leaving it to the general public debate to decide if, how, when, and by whom these "adequate" services may be funded and provided.

If we take that view, there may well be a specific role for "brokerage" models in areas where generally available access to existing services is inadequate, of which dental care is a prime example. However, there would need to be strong "gatekeeping" provisions to ensure that the program was targeted to those for whom it was planned, and stayed on target. If that were not done – for example, if all that was needed to access it was a diagnosis of a "mental illness" by a GP – then presenting symptoms of mental illness would rapidly become known as a vehicle for obtaining free or subsidised health care.

Even if those services were to be agreed, it does not follow that "brokerage" (modelled as Flexible Funding Pool) is the only or even the best way of providing access to them. Where there is sufficient demand, it might be best to provide the service within the specialist mental health sector. Where there is not, and where there is spare capacity in the private provider sector, other alternatives might be suitable.

30.8 WHAT IS A SERVICE PLANNING FRAMEWORK?

The objective of a planning framework for mental health services is to advise governments and other users about how to best plan, coordinate and resource mental health services to meet the mental health needs of the population.

A mental health service planning framework takes into account prevalence and distribution of various disorders in a population and, based on their treatment and management requirements, maps an agreed range of treatment and innovative service delivery options across primary mental health, specialist mental health and also relevant community managed support services. Such frameworks must be based on sound national epidemiological data and informed consensus about clinical and nonclinical care pathways.

30.9 WHAT IS THE DIFFERENCE BETWEEN THE MODEL AND THE FRAMEWORK?

The Model refers specifically to the Estimator Tool that is fundamentally the calculator that quantifies the resources required against a range and quantum of services for a population. This is just one part of the Framework.

The Framework is made up of various parts that contribute to the modelling process (eg. taxonomy, gap analysis, Estimator Tool) and is further supported by a compendium of documents (a final report Framework document, technical manual, user guide, service element and activity descriptions etc).

It is important to note that the outputs of the modelling should be considered in the context of the entirety of the Framework.

30.10 NMHSPF – WHAT IS IT?

The NMHSPF is a comprehensive framework that uses epidemiological, clinical and financial information to estimate the need for mental health care. The model's "bottom line" calculates staffing, beds or

treatment places required for services from prevention to tertiary treatment averaged for the national population.

- Provides a standardised measure for estimating the need for MH services, across the spectrum from prevention and early intervention to the most intensive treatment.
- Provide a basis for all users to estimate of the gap in a consistent manner between current need being met, and the resources required to fill that gap.
- The model has six age groups for mental health : 0-4 years, 5-11 years, 12-17 years, 18 -64 years, and 65+ years and 65+ yrs BPSD.

30.11 WHAT CAPACITY IS THERE IN THE MODELLING TO INTEGRATE OR RECOGNISE THE EPISODIC NATURE OF MENTAL HEALTH?

The approach to NMHSPF modelling has ample capacity to integrate or recognise the episodic nature of mental health. Although for simplicity we present it as if we are talking about individual people spending a whole twelve month period in a particular "need group" and receiving a particular "care package", technically we are modelling "person-years" of care, not people. The model represents the total volume of care over a year, and builds up an estimate of that total by dividing it across "index examples" of people who (for example) have a SEVERE illness requiring an acute inpatient admission in a year, and others who do not, and assigning the average amount of ambulatory and other care to each. By ensuring that the total numbers are consistent with the prevalence data and with utilisation data moderated by the judgements of EWG's, we use this as a way of making sure we have covered the total volume of services. This should not be confused with how that volume of services would be spread over actual consumers on a case-by-case basis.

For example, on average a person with Schizophrenia has an inpatient admission every three years. For two of those three years they are part of the volume in some Care Package that does not involve a hospital admission. For the other year they are part of the volume who received the Care Package associated with an inpatient admission. In effect we model this as 1/3 of a person-year spent in the "inpatient" stream, and 2/3 of a person-year spent in the "other" stream.

It is important users understand how this "averaging" of person-years of care works, because it is the only feasible way to model the complexities of the system. For example, an "Average Length of Stay" of 14 days adequately represents the volume of stays between 1 and 90 days in inpatient care in Australia. It should never be interpreted as meaning that every individual person stays exactly 14 days.

The particular issue of concern seems to be based on the idea that whatever is defined in the model is a particular type of service that would be funded for a particular individual. An example is the four or five levels of HASI in NSW. While it is true that individuals (and funded places) were contracted for specific levels of support, it was soon recognised that NGO's needed the flexibility to allocate resources more flexibly in relation to people's changing needs. That does not alter the fact that we need to estimate to total demand across all levels of support. It is generally more convenient for all concerned to divide this into sub-tasks where multiple levels of support are each designed separately, and we estimate the numbers needing each separately, as a device for calculating the total demand. Again, how it is allocated to individuals in practice is an implementation and operational issue.

30.12 WHY IS THE MODEL BASED ON STANDARD POPULATIONS OF 100,000?

The model uses populations of 100,000 for convenience because some mental illness conditions are very rare, and some services are required only rarely. It is simply easier (and less error-prone) to work with whole numbers rather than the fractions that would result if we used percentages (that is, a base population of 100).

The model uses the Standard Australian Population data from the 2011 census as a reference point because these numbers are fixed. Each jurisdiction will typically have its own way of producing local population projections for other years, but will base them on the census data for census years. For more information, see **Population Data in the NMHSPF.**

30.13 WHAT ABOUT RURAL AND REMOTE COMMUNITIES, DIFFERENT SOCIOECONOMIC STATUSES, INDIGENOUS POPULATIONS?

The model itself does not take into account other factors such a rurality, remoteness or socio economic status, all of which may affect the relative need and demand for services, the relative cost of delivering the same quality of service, or both. Instead we are modelling the "Australian average", where one standard notional "group " of 100,000 people is exactly the same as the next standard notional "group" of 100,000 people.

There is a whole other field of modelling for the relativities in demand and/or cost for all sorts of services, including health services, such as the work of the Commonwealth Grants Commission in distributing GST revenue, or the Resources Distribution Formulae used in some jurisdictions for allocations of health funding. Similarly, there are pricing mechanisms (or models) for health service activity, which are used in Activity Based Funding or to determine the Medical Benefits Schedule. Each of these has its own rationale and its own development processes and methods. However, none of them address the issue addressed in DA-CCP, namely the actual level of services that is judged to be clinically adequate.

The NMHSPF model is not a prescriptive mechanism for setting targets, nor does it aim to replace distribution formulae of this type. The model may be adapted by users in many ways to deal with the particular needs of particular groups within that standard Australian population. For example, specific indigenous care packages can be developed, evidence about the effects of socioeconomic factors on prevalence of different conditions can be applied to adjust the standard Australian average prevalence, allowances for travel or other factors may be included to reflect the fact that staff in rural areas may not be able to deliver as many hours of care to a dispersed client population. These are not, however, included in the base model.

30.14 HOW WERE THE CATEGORIES OF MILD, MODERATE AND SEVERE DETERMINED? AND WHAT KINDS OF SERVICES ARE INCLUDED IN EACH OF THESE CATEGORIES?

The division of MILD, MODERATE and SEVERE are based on disability weightings (extent of functional impairment) which will provide parity with other international approaches. At the mild end of clinical care spectrum this may include treatment e.g. assessment and counselling in a community setting. At the severe end of the clinical care spectrum it may represent attendances at emergency departments, a bed or a place in a treatment facility/program.

30.15 DOES THE NATIONAL NMHSPF PROJECT USE 'EPISODES OF CARE' IN ITS MODELLING?

The epidemiology in the model is people, not episodes. The model shows the number of people per 100,000 of a certain age, e.g. 100,000 people who are aged between 18-64 years, who receive care over the course of a year.

A basic principle in the NMHSPF model is that existing levels and types of service use reflect a history of demand that should not be ignored unless there is clear evidence (including consensus of expert opinion) that it is not appropriate.

30.16 WHAT OF DIFFERENCES BETWEEN SERVICE MODELS IN ADULT MENTAL HEALTH (IN ACUTE CARE TEAMS)?

The NMHSPF model is based on averages and so the care packages can be implemented to target specific subpopulations relevant to that care package with their own criteria to reflect local priorities, policy and service structure.

30.17 ARE THERE PSYCHIATRIC SUPPORT SERVICES TO GENERIC AGED CARE FACILITIES?

Consultation Liaison was modelled with ambulatory care into residential aged care as well as partnership in residential aged care.

30.18 WHAT ABOUT FACILITIES? (BUILDINGS)

Capital Works is not included in detail in the modelling, the detail below .gives a background to the considerations.

The term “facility” is a piece of health planning jargon that (in its limited technical sense, at least) makes a distinction between the architectural arrangements designed to support or facilitate the provision of a particular type of care, as distinct from the skilled clinical staff who actually provide it.

Curiously, the design of facilities has been organised and standardised to a high degree, whereas it is much harder – or impossible – to find definitions of the people who make the facility operate. In fact, the Service Element definitions we are seeking here are intended to fill just that gap.

The Australasian Health Facility Guidelines (AusHFG)[156]

As background to considering NMHSPF Service Element definitions, the AusHFG is worth looking at, if only because it shows why we have not dealt with Capital Works in detail in the modelling. What the model does indicate is how many beds of various types might be required, and the staffing associated with them.

Anyone aiming to build a facility to house new services can refer to specific AusHFG numbered guidelines for the design of:

132 Child and Adolescent Mental Health Unit

133 Psychiatric Emergency Care Centre (PECC)

134 Adult Acute Mental Health Inpatient Unit

250 Ambulatory Mental Health Unit

For other types of mental health facilities the AusHFG provides design modules or similar general health facilities that can guide design. But the most they say about the people who provide the service is, for example:

134.6.50 STAFFING LEVEL

Staffing levels and skill mix will vary depending on the size and configuration of the Unit, service profile, case mix and staff availability.

This HPU does not advise on staffing levels or skill mix but when planning the Unit, consideration should be given to the most cost effective number of beds and the need to safely manage psychiatric and other emergencies which can require six or more staff.

Unit design should also consider the use of staff areas by visiting staff including community case managers, support workers, students etc.

[156] URL: http://www.healthfacilityguidelines.com.au/default.aspx

Care Packages - FAQ

30.19 WHAT IS A SERVICE ELEMENT?

A 'Service Element' represents a discrete service function and is the basic building block used in modelling the care packages. Each element relates to one aspect of mental health care (eg. Acute inpatient service or crisis assessment). Given that each State and Territory structures their services differently and sometimes has unique service characteristics relevant only to their jurisdiction, early in the NMHSPF Project, a series of workshops were conducted in all States and Territories to review the range of current mental health care provided and develop a common language for each service function. This mapping process was valuable in determining the common service elements that are generally considered to make up a comprehensive mental health service system. Note that service elements describe only a general function of the service and do not determine who or where or how the service is delivered. This characteristic allows jurisdictions flexibility at the end of the Project to administer the services in the manner most appropriate to their capacity, service structure and priority.

This preliminary range of service elements formed the basis for discussion at the first meetings of the Modelling Group and Expert Working Groups, and was modified and refined over the course of the project. Service Elements are described in detail in the document : **Service Elements and Descriptions.**

30.20 WHAT IS A CARE PACKAGE?

The care package is specifies the average amount of care for a person with a specific need for a year.

The care package specifies service elements, frequency and duration.

There are many care packages in the model. There is a care package for prevention and promotion. There are care packages along the clinical care spectrum which reflect the people in the "town" with diagnosable illness that range from mild to most intense.

Some key features of care packages include.

That the level of care that is specified for "average" person is adequate, anything less would be unsatisfactory.

That in most cases the care may be specified in terms of frequency and duration, and includes both care in the community, and care requiring a bed or a place at a treatment facility. For example, care delivered in the community for an individual may include 1x 60 minute assessment, 6 x 30 minute consultations, 1 x 30 minute review etc. For example, care delivered in a hospital or a treatment facility with an average length of stay from days to weeks e.g. 1 x 14 day admission followed by care in the community for the remaining 50 weeks of the year.

Remember at the highest level the model's intent is to estimate the resources required e.g. FTE staff, beds or treatment places. The care packages have been developed to estimate these resource requirements, not to prescribe care to individuals. The care packages are where possible based on clinical guidelines, but they do not prescribe care to individuals.

30.21 WHY DOES A CARE PACKAGE COVER A 12 MONTH PERIOD?

The model itself, and hence the care packages, make up one big envelope of 'person-years of need'. Collectively, the care packages are designed to cover the treatment needs of the whole population for a year. It is important to note that the care package may show care in different areas over a number of weeks, and the weeks may not total to 52, however this is the required care for the person with a specific need for a year.

30.22 WHO PROVIDED THE SPECIFICATIONS FOR THE CARE PACKAGES?

In most cases the members of the project's Modelling Group and Expert Reference Groups provided the specifications for the care packages using best available evidence, but only in terms of the broad types and quantity of care to provide an adequate level of service for people based on their Need Group. When

required expertise was sought from additional clinicians e.g. some specifications regarding Child and Adolescent care packages. The care packages do not attempt to prescribe services or providers in detail.

30.23 WHAT ABOUT THE PHYSICAL HEALTH NEEDS OF AN INDIVIDUAL?

The care packages describe 12 months' mental health care for an individual, and generally do not cater for the physical health needs. A care package may, however, specify referral to another clinician regarding physical health needs. One care package specifies Clozapine medication, and includes physical assessments for managing the side effects of Clozapine. Other care packages specify amounts of care for Pharamcotherapy prescription and Pharamcotherapy review.

30.24 WHY DO TWO CARE PACKAGES HAVE THE SAME CARE SPECIFIED?

For modelling purposes, it is clearer to break down the age group populations according to the epidemiology and data available, into the different need groups, which are then separately modelled as care packages or standalone items Sprinkles.

Sometimes this results in two care packages that in reality would be combined, but for modelling purposes are shown separately on the flowchart.

One example is 18-64 age group for same day ECT which is modelled as two care packages, one delivered in a general hospital bed and one in a mental health specialist bed. The same care is delivered, and the two demands (epidemiology) are shown separately on the flowchart

30.25 DO THE STAFF COSTS REPRESENT WAGES?

The staff costs in the NMHSPF model do **not** represent wages, nor are they for use in a budgeting process.

In order to produce dollar value estimates from the NMHSPF Estimator Tool, the agreed notional national salaries for modelled Workforce Categories are used, based on the average national (AIHW) pricing data where it is available. Above mid point rates were selected to account for senior positions. The staff cost figures are further rounded up/down as appropriate to nearest $5000, to reinforce they are not exact, as this not a wage setting activity.

NOTE Users can modify/customise salary prices in the estimator tool.

Wages for individuals will reflect many other factors including variations of awards across jurisdictions, and the individual specifics: seniority of the position, if they are working as an Individual Practitioner, in a team, individual hours, overtime, on call, other penalty rates and allowances etc.

30.26 WHY DO WE INCLUDE NON-MENTAL HEALTH BEDS IN THE MODEL?

Q: The costs for these beds is not covered by MH so why is it in the NMHSPF model?

A: It was noted that one of the problems with the 'should be' model is that if you make an assumption that the 'should be' in another service system is actually there (but it might not be), therefore these are included in the model for counting purposes only, the bed cost are not included in the reports as they are not MH costs, however MH services provided to these beds are included, eg Clinical Liaison

30.27 WHAT OF 24 X 7 OR 365 CARE OR CONTINUOUS CARE ?

A number of care packages covering 24 x 7 care are modelled within the framework. These cater to people who need very long stay non acute residential care, 24 hr/day staffed, provided in various settings, often as co-locations with relevant hospital or generic services.
People may remain in these units for lengthy periods however opportunities are sought where possible to achieve discharge to a less restrictive environment such as a generic nursing home place.
Note NMHSPF is a recovery based model with the principle that people do get better.

30.28 WHAT IF A PERSON REQUIRES SEVERAL YEARS OF TREATMENT?

The National NMHSPF Model is a static model that shows the care required for an individual over 12 months. Ongoing care beyond 12 months is not included in the model (the model reflects a snapshot of a single year).

30.29 ARE THESE THE CARE PACKAGES THAT NATIONAL DISABILITY INSURANCE AGENCY WILL FUND?

No, the care packages are not care pathways or the Care Packages that National Disability Insurance Agency (NDIA) [previously known as DisabilityCare Australia and National Disability Insurance Scheme],

will be funding.

The Care Packages in the framework are based on averages 'person-years of need' for modelling and are not intended to detail the care for any particular individual.

30.30 HOW MANY CARE PACKAGES CAN A PERSON HAVE IN A YEAR?

The most frequent answer is only one. This is because each person is assigned into one of the care packages for one year. In most cases each care package includes all the typical services that the person would receive in that year, for example, a physical assessment, a mental assessment, counselling, case management and assertive follow up.

At a more technical level it is misleading to think of the numbers in the model as individual people. They are, technically speaking 'person-years of need' associated with a particular type of need group or care package. Collectively, the care packages are designed to cover the treatment needs of the whole population, and to do this the population is summarised as a set of non-overlapping "need groups" whose requirements are (on average) the same within groups, and different between them. If in fact an individual spent the whole year with the same need, they would only receive that care package. In a smaller number of cases, if a person moved between care packages, they would be contributing a fraction of time to the person-years in each care package, and could only contribute them to one package at a time. There are a small number of exceptions, however. Services that are sprinkles, such Emergency Department (ED) presentations may co-occur with any other care package.

30.31 HOW DO THE CARE PACKAGES ACCOUNT FOR INCIDENT CASES (NEW CASES) OF ILLNESS VERSUS PREVALENT CASES (ONGOING CASES) IN A 12 MONTHS PERIOD?

No distinction is made between incident cases and prevalent cases. The NMHSPF Model is a static 12 month model. The only exceptions to this are the Early Psychosis Services care packages in the child and adolescent, and adult age groups. These are modelled as year 1 and year 2 care packages as the care is different.

30.32 IF A CARE PACKAGE SPECIFIES A LEVEL OF CARE FOR A YEAR THAT IS ADEQUATE OR SATISFACTORY, DOES THIS MEAN THAT SERVICES IN THE FUTURE MAY BE AT RISK OF BEING RATIONED TO THE LEVELS PRESCRIBED IN A CARE PACKAGE?

The levels and types of care specified in a care package are not for any purpose other than estimating total resource requirements for a whole system of care for a year. Apart from that, they are the levels judged to be adequate in a context where any particular form of care is supported by adequate quantities

of all other forms of care specified in the model, and where all those in need are treated. In most cases these resources estimated by the model are substantially above those currently in place, and the proportion of the population treated is substantially below the population currently being treated. Thus if services were in fact "rationed" to the levels in the care packages, many more people would be receiving more care than at present.

30.33 ARE WEIGHTINGS APPLIED FOR SERIOUS AND COMPLEX CASES?

No, weightings are not applied for serious and complex cases. Instead, for some of the SEVERE care packages in the severe group we designed specific care packages for 'standard' and 'complex'.

Complex as used in this modelling project reflects that fact that persons may be designated as complex because of physical health needs (e.g. liver disease), drug or alcohol needs (e.g. comorbid diagnosis) or social circumstances (e.g. housing or welfare needs). This applies to SEVERE care packages only. The complex care packages have more counselling, and other interventions.

30.34 WHY IS THERE A REPORT FOR AGE 18-24 WHEN THIS IS NOT ONE OF THE AGE GROUPS IN THE NMHSPF?

The age groups in the NMHSPF are 0-4, 5-11, 12-17, 18-64 and 65+, which approximates the ages of pre-school, primary, secondary, adulthood and older adult. Some jurisdictions will require reports for services for 'youth'. The standard definition for WHO is the age range 12-24.

When reports for age range 12-17 are added to the 18-24 age report, it covers the age range 12-24.

30.35 WHY IS NOT THE HOUSING COUNTED IN INDIVIDUAL SUPPORT AND REHABILITATION SERVICES?

Mental health services provide the Support and Rehabilitation Services, so the NMHSPF model counts the hours of care provided, however the housing is not provided by mental health services so it is not included.

In contrast, for "Supported Group Residential < 24/7" the housing is provided by mental health services (eg a group home) and so it is counted, as the costs will accrue to MH.

30.36 WHY ARE THERE 'STANDALONE' ITEMS THAT ARE NOT 12 MONTH CARE PACKAGES?

Standalone items are NOT 12 month care packages. The standalone items include: presentations at emergency department (ED), consultation liaison to obstetrics, consultation liaison to residential aged care facility, consultation liaison to drug and alcohol beds, or consultation liaison to general beds, consultation liaison to paediatric beds, where person has a primary or secondary mental illness diagnosis. Standalone items specify an average amount of care provided by mental health staff, e.g. 1 x 30 minute assessment, 2 x 15 minute review etc.

For the standalone items, all that is described is the average amount of care that an individual would receive during their actual admission, because we do not know what they would require for the rest of the year. For example, the amount of care described for the ED presentations is shown in consultation liaison (CL) minutes, and the amount of care shown for the inpatient admission to a mental health or general bed is the hours of mental health care provided during the inpatient admission.

The ED presentations data is based on current usage rates : the number of presentations using NSW data 2006 These standalone items are completely separate to the AUSBoD epidemiology and the 12

month care packages. For example, the number of ED presentations is not subtracted from the demand for any group in the care packages. These ‘standalone’ items are thus ‘sprinkled’ across the model.

People can receive care under a care package and also a sprinkle or multiple sprinkles.

31 List of Tables

32 List of Figures