Counting the Cost: The Impact of Young Men's Mental Health on the Australian Economy

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Acknowledgements

The 'Counting the Cost – The Impact of Young Men's Mental Health on the Australian Economy' report is the result of a collaboration between the Inspire Foundation (Inspire) and Ernst & Young to demonstrate the impact of costs associated with poor mental health amongst young men on the Australian economy. The project was undertaken as an initiative of the Young and Well Cooperative Research Centre (YAW-CRC).

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Contents

Executive Summary

The human and economic costs of mental illness in Australia can no longer be ignored.

The Australian Institute of Health and Welfare reports that 26.5% of adolescents (one in four young people in this age group) will experience a mental health problem. In spite of this, rates of help-seeking among young Australians, and particularly among young men, remain low. Tragically, suicide continues to be the leading cause of death for young men in Australia, accounting for 22% of all deaths; with male youth suicide rates in rural areas double those of metropolitan areas[1].

This report analyses the resultant cost and impact on the Australian economy, highlighting the threat to productivity from poor mental health among young men. In presenting this new evidence, this report provides a call-to-action, demonstrating the importance of a community-wide response to raising awareness, prevention and treatment of young men's mental illness.

The cost of mental illness on the Australian economy

Our research identifies costs and impacts to the Australian economy and productivity which are borne across a range of sectors and institutions.

The findings of our research and modelling reveal the broader costs to individuals and employers:

- **Mental illness in young men aged 12-25 costs the Australian economy $3.27 billion per annum or $387,000 per hour across a year in lost productivity**
- **The Federal Government bears 31% of this cost via direct health costs, disability welfare payments, unemployment benefits and the direct costs of imprisonment**
- **Australia loses over 9 million working days per annum to young men with mental illness. On average they have an additional 9.5 days out of role per year**
- **Young men with mental illness have much lower rates of educational attainment compared to their peers, further limiting their skills development and long term reduced earning potential by $559 million per year**

Government incurs significant costs associated with the provision of mental health services:

- In 2008, the overall cost of spending on mental health care was $5.32 billion, with the Australian government spending $1.92 billion and the states and territories spending $3.22 billion
- In addition to the costs associated directly with specialist mental health care, the government also bears a broad range of costs required to support people with mental illness - including income support, housing services, domiciliary care and employment and training opportunities
- The 2010 National Health Report estimated that with government costs alone, for every dollar spent on specialised mental health care, an extra $2.30 is spent on other services to support people with mental illness – equating to $4.4 billion (2008 prices)

Mental illness in young men aged 12-25 costs the Australian economy $3.27 billion per annum or $387,000 per hour across a year in lost productivity

Our recommendations

The reality is that the costs of young men's poor mental health are already being felt throughout Australia's economy. In uncovering these costs, this report provides new insights that can be used to guide further reforms and investment decisions. Failure to act presents a serious threat to Australia's future productivity and to the individual prosperity of young men affected with poor mental health. Coordinated activity from all sectors – business, government, and communities – holds the promise of considerable economic and individual benefits.

The findings of this study point to both the productivity opportunities and risks associated with the mental health of young men.

Recommendation 1: **Efforts should be made by all sectors of the community to support the engagement of young men to achieve higher levels of education.**

- 1.1 Improve secondary, tertiary and vocational educators' levels of understanding of mental health, including the identification of disorders and awareness of support and referral services available. This should include professional development and tools for teachers and other educators
- 1.2 Increase awareness and access for young men to educational alternatives such as apprenticeships
- 1.3 Strengthen cross sector partnerships between employers and education providers to create stronger pathways from school to work for young men with mental illness. This should include focus on key transition points such as moving from school to further studies or employment

Recommendation 2: **Efforts should be made by all sectors of the community to support young men with mental illness to engage in more productive employment.**

- 2.1 Improve employers' level of understanding of mental health, including the identification of disorders and awareness of support and referral services available
- 2.2 Initiate new partnership models between government, mental health service providers, NGOs, employers and business groups to create strategies that proactively support employees' good mental health and ongoing engagement in the workforce
- 2.3 Identify new partnership models between employers, business groups, government and NGOs to drive a whole of community response. This includes creating new collaborative funding and service delivery models

Recommendation 3: **Efforts should be made by all sectors of the community to evaluate the effectiveness of current policy responses and investments in mental health.**

- 3.1 Undertake further targeted research to evaluate the efficacy of existing mental health programs and interventions with a particular emphasis on prevention and early intervention
- 3.2 Undertake return on investment analysis to inform future investment in young men's mental health with a particular emphasis on prevention and early intervention
- 3.3 Enhance reporting of government funded initiatives targeted at supporting young men with mental illness to achieve full benefits of investment. Key objectives of these enhancements are to drive greater accountability of public spend and to provide better transparency and access to program performance and evaluation

Report Aims

In 2010, the Inspire Foundation embarked on an ARC Linkage Research project with the Brain and Mind Research Institute (BMRI)[2] to better understand the help-seeking attitudes and experiences of young men. This initial research was triggered by a desire to better understand the 'why' behind young men's significantly lower rates of help seeking, a phenomenon that was evident in the under representation of young men using Inspire's ReachOut.com service.

In sharing the preliminary findings of this research, the Inspire Foundation received feedback from business leaders in particular who said that whilst the personal cost of such low levels of help seeking was clear, there was a need to better understand and explain the economic impacts - if any - of young men's poor mental health and help seeking. It was apparent that until such impacts were made clear, the poor mental health of young men would continue to be seen as primarily a health issue for the attention of the government and community sectors.

Based on the insights gathered from this research and in collaboration with a community of supporters, Inspire developed a strategy with the aim of building community awareness of the impacts of young men's poor mental health and increasing levels of help-seeking in young men and reducing male youth suicide.

Three primary initiatives were identified:

1. **National Awareness Campaign.** In partnership with the communications sector, develop a national awareness campaign that challenges young men's ideas of masculinity and reframe what it means to be a fit and healthy man

2. **Innovative Service Design.** Through the ReachOut.com platform, trial new and innovative services to provide information, support and community to young men (including an online self help tool 'WorkOut Mental Fitness Tool')

3. **Demonstrated Impact.** Enlist the support of key corporate and academic partners, to undertake economic modelling focused on revealing the costs associated with poor mental health amongst young men

The aim of this report is to address the third initiative of demonstrating the impact to the broader community on the real costs of mental illness in young men. The outcomes of the economic analysis are intended to be used as a foundation stone for the mental health sector - including the Young and Well CRC, Inspire and BMRI – to assist the focus on building strategies to improve the mental health and wellbeing of Australian young men.

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Young Men's Mental Health

Globally, strong evidence demonstrates that the prevalence of mental health problems results in widespread economic and societal burdens. Findings from the World Health Organisation, World Mental Health Surveys (WMH) show that mental disorders occur commonly within the general population and frequently begin in adolescence[3]. Merikangas et al, found in a review of recent international community surveys that approximately one in four young people had experienced a mental disorder a year prior to the survey. Evidence from these surveys shows that much of the burden caused by mental illness could be averted with best-practice treatment, yet fewer than half of the young people with current disorders captured in those surveys had received any specific treatment.

In Australia, the prevalence of mental illness is also high, particularly amongst young people, with one in four young Australians experiencing a mental health disorder. The majority of mental illnesses, including depression, have their onset in adolescence and early adulthood[4].

While the impact of poor mental health is significant across the whole population, it is particularly visible among men. Suicide is the largest single cause of death in young Australian males aged 15–24 years. It accounts for 22% of deaths; with male youth suicide rates in rural areas double those of metropolitan areas[1]. In addition, mortality rates in young men with mental illness are significantly higher than those without mental illness.

While both young men and women suffer from anxiety and depression, young men have higher rates of completed suicide, antisocial behaviour and drug and alcohol problems than young women. Findings from the 2007 Australian National Survey of Mental Health and Wellbeing found that while young people (aged 16-24 years) had the highest prevalence of mental disorders, they also had the lowest rates of receiving services in the 12-month period prior to the survey. The rate of service use was especially low for young men, with only 13.2% accessing help and support services, in spite of a 12 month prevalence rate of 22.8%[5].

Findings from a number of studies suggest that even when young men are able to identify sources of help, there is frequently a reluctance to use this help[6]. Both structural and individual factors provide barriers to men's help-seeking, with young men's reluctance influenced by a fear of stigma, embarrassment, an over-emphasis on being self-reliant[7] and internalised gender norms. Social norms encourage young men to hide their vulnerabilities and to strive for independence.

Consequently, perceptions around masculinity mean that many young men equate masculinity with self-reliance. Seeking help is perceived as the opposite to being independent[8] and, by extension, masculine, resulting in young men being unlikely to seek help during their formative adult years[5].

This is concerning considering that evidence suggests intervening in the first episode of depression is possibly crucial in preventing recurring episodes of depression. 75% of all serious mental health conditions start before the age of 25, and preventatively focused interventions targeted to young people aged 12-25 have the potential to create significant personal, social and economic benefits.

National expenditure on men's mental health increases significantly from 15-25 years ($205m) to 25-34 years ($306m) and again for 35-44 years ($268m), before declining until the 75+ group[9]. This pattern of expenditure may suggest that the flow on impacts of mental illness, including drug and alcohol disorders, antisocial behaviour, loss of employment and relationship breakdown become increasingly evident the longer mental illness is untreated.

Young men with mental illness also experience higher incarceration rates than young men without mental illness[5]. In the NSW 2009 Inmate health survey of a random sample of 996 prisoners, a majority of participants were assessed as having a mental illness (commonly mild depression) and yet had not had any contact with a mental health service in the three months prior to their incarceration[10].

The cost of mental health

In 2008, the overall cost of spending on mental health care was $5.32 billion, with the Australian government spending $1.92 billion and the states and territories spending $3.22 billion[11].

In addition to the costs associated directly with specialist mental health care, the government also bears a broad range of costs required to support people with mental illness - including income support, housing services, domiciliary care and employment and training opportunities.

The 2010 National Health Report estimated that with government costs alone, for every dollar spent on specialised mental health care, an extra $2.30 is spent on other services to support people with mental illness – equating to $4.4 billion[11] (2008 prices).

The economic impacts of poor mental health

In Australia, the 2010 'Suicide and Suicide Prevention in Australia: Breaking the Silence'[12] report put the financial cost to Australia as a result of suicide and suicidal behaviour at $17.5 billion. At the time of publication this represented 1.5% of Gross Domestic Product, or $795 per person, per year. While not all of this cost is attributable to mental illness, mental health is a key contributing factor to this cost.

The presence of mental illness has a significant influence on an individual's productivity, with a close association between productivity and the presence of mental illness in adolescence[13].

A recent Foresight Mental Capital and Wellbeing Project (2008), commissioned by the Government Office for Science, London highlighted the strong link between mental health and wellbeing and the production of capital, the role of mental health in national prosperity, and the development of mental wealth[14].

Such findings are especially pertinent in Australia which has seen deterioration in national productivity over the last decade[15]. Whereas Australian labour productivity growth was in line with OECD averages in the 1990's, in the 2000's, it has been 0.5% below the OECD average.

This reduction in growth has seen Australia fall from ranking 11th out of 25 OECD countries in the 1990's to 17th out of 34 countries in the 2000's[15]. Growth in productivity is important as it accounts for the main source of improvement in living standards over time[16]. As such, labour productivity serves as a very important measure of a country's economic and social wellbeing offering a measure of economic growth, competitiveness and living standards within a country[16].

Mental illness and work

The psychological impact of being excluded from the workforce is greater for young people than older adults.

Research has shown that education and training opportunities can act as a protective factor against mental health issues[17], whilst secure and good employment outcomes provide young people with the possibility of financial independence, a sense of control, self-confidence and social contact[18].

However, unemployment, insecure employment and 'bad' working conditions are associated with poor self-esteem and poor physical health, with unemployment in particular being associated with anxiety, depression, higher rates of smoking and higher suicide rates among young people[19].

Some studies suggest work that is both stressful and insecure can increase the risk of depression up to 14 times relative to jobs in which individuals feel a sense of control and are securely employed[20], potentially compounding the difficulties faced by a person with a pre-existing mental illness.

Education plays a significant role in the employment outcomes of young men who experience mental illness. 'Men not at Work[21] an analysis of Australian men outside the labour force' found that individuals who have a degree or a higher qualification have wages 30 to 45% higher than people with otherwise similar characteristics who have not completed Year 12. A university education increases men's wages by approximately 38% and also increases the probability of employment by 15-20%. Education levels were also found to influence the types of employment men are able to obtain.

It is significant that mental illness typically begins in adolescence/early adulthood - a time when individuals are completing their education and pursuing employment options[22]. The impact of youth mental illness on schooling through factors such as increased absenteeism, dropout rates and difficulty learning can compound the potential negative impacts on employment outcomes[23].

75% of all serious mental health conditions start before the age of 25, and preventatively focused interventions targeted to young people aged 12-25 have the potential to create significant personal, social and economic benefits.

Many young people with mental illness have lower levels of educational qualifications, and when they do gain employment, they tend to obtain lower skilled poorly paid roles. Individuals also accumulate skills – both job specific and those broader in nature - through education that makes them more productive in the workplace. And whilst higher education is positively linked to wages and productivity, higher wages in turn also have an impact on health and education through providing the resources to access educational and health services[24].

A number of international and Australian studies provide support for the assertion that untreated mental illness impairs employment functioning[11].

In an Australian study, Butterworth et al[25] used five waves of Australia's nationally representative Hilda survey for 5,846 respondents to analyse the role of mental illness in influencing future employment status. The researchers followed a sample of respondents who were not unemployed at the start of the study to explore whether baseline mental health was linked to further unemployment.

They found that for both men and women, their baseline mental health was significant in determining overall time spent unemployed. Men and women who experienced common mental disorders spent more time unemployed over the next four years than their more mentally healthy counterparts[25].

For people who are employed with mental illness, their condition can negatively impact on their work performance through increased absenteeism and/or their ability to function productively at work. This loss can be characterised as the value of the production 'lost', including any premium that must be subsequently paid to get someone else to carry out that work, as well as staff turnover and costs that are expended in training another person to carry out the role of the individual if they are away for an extended period of time[23].

While presenteeism is more difficult to measure than absenteeism, it is estimated to be much higher. The negative impact of labour productivity losses due to presenteeism spills into the wider economy, resulting in a reduction in levels of exports, imports and investments[26].

Presenteeism not only reduces the productivity of the affected person but can also have an impact on co-workers. For many workplaces, a significant form of work organisation is teamwork[27]. Studies have shown that workers who suffer from depression are more likely to experience difficulties in focusing on work tasks and the levels of work required of them. The negative impact that poor mental health has on the individual may extend to co-workers who may experience increased stress through having to carry out additional work tasks.

Imprisonment further compounds the barriers that young men who experience mental illness face with regard to employment opportunities. Not only do young people who are incarcerated have lower rates of education, but many do not have the social capital to facilitate transition into employment as they reach their adult years[29].

It is clear from the existing research that mental illness in young men can have a far reaching impact, affecting every aspect of their lives. Significantly, these impacts radiate beyond the individual and into society, with implications for government service provision and economic productivity.

Case Study – Jeff

“Jeff” is a young man in his early thirties. Jeff grew up in a violent household and was abused by both his parental and step-fathers during his childhood.

He left school after repeated difficulties with teachers and school authorities before he completed Year 10. Jeff believes his mental health problems were developing at school. The only response from schools was ‘behaviour management’ including suspensions. Within three years of leaving school, Jeff had a criminal record.

He has been in and out of jail for the past fourteen years.

Jeff has four children from previous relationships, and with “Theresa” (his present partner) he has two children and another soon to be born.

Jeff has developed several serious mental illnesses, including substance abuse disorder. He has had several periods of homelessness and very little sustained employment.

Jeff has no formal qualifications. His experience with his employment service provider has resulted in him being directed to undertake courses that do not align with his interests, and to apply for jobs for which he does not have suitable skills. Jeff and Theresa believe that his criminal history and lack of qualifications are significant barriers to his employment.

Jeff and Theresa receive tens of thousands of dollars in various government support payments, rental assistance, and service providers in employment, housing, child safety and family and community services. Yet none of these are able to assist effectively and enable Jeff to gain and sustain employment.

Through support provided by a Federally funded wrap-round service, progress is being made for the first time with Jeff. He is now enrolled in a course that interests him and aligns with his existing abilities in auto mechanics. He is looking forward to undertaking this program.

Jeff and Theresa believe that in fourteen years, this is the first time that Jeff has received respectful, non-judgmental assistance that is tailored to his needs. Jeff is working extremely hard to not reoffend and both are extremely thankful and relieved to be receiving support from the wrap-round service team.

Jeff believes that he and his family will have a more positive and financially independent future as a result.

Methodology and Results

This section describes the model methodology in detail, and is broken into two parts:

- An outline of the model design including the approach, key components and general assumptions made
- The detailed methodology outlining the assumptions and calculation for each cost category. The result for each cost category is also provided

Model Design

Approach

Cost of illness studies are conducted in order to measure the economic burden of a disease or diseases. While they do not provide any information regarding the cost-effectiveness or return on investment of particular approaches or policies, they do provide a useful body of evidence about the magnitude of costs associated with a particular disease or condition and by extension, an estimate of the amount of savings that could be achieved by interventions or policies which impact the costs included in the model.

Accordingly, the objective of this cost of illness economic model is to provide a quantification of the costs for the 2011 calendar year relating to mental illness in young males aged 12 to 25, as incurred by different sections of society.

The model is not intended to be a comprehensive study of all the costs and impacts of mental illness on the general economy and as a result contains a number of limitations and assumptions and tends to represent a conservative estimate only. As with any economic model, a number of limitations exist with availability and quality of data and assumptions need to be made (these are described later in this section). This results in the model tending to understate the actual cost of mental illness.

The first decision which needs to be made with regards to the development of any economic cost of illness model is to determine the economic perspective to be adopted by the model[30]. We have largely adopted a societal perspective for this model as it was desired that as broad a range of costs as possible be included.

A societal perspective essentially means that all costs associated with the disease/disorder in question is included in the estimates, to ensure any important effects are not missed. Before discussing precisely which costs are included in the model it is worth mentioning how costs are categorised more generally in the health economics literature.

For this model we adopted the four cost categories defined by Drummond et al[30]:

- C^1 costs refer to government health sectors such as medical, pharmaceutical, hospitalisation etc. costs
- C^2 costs refer to costs in other sectors such as welfare organisations, forensic services, educational services etc.
- C^3 costs refer to any out of pocket expenses incurred by patients and their families such as travel, co-payments (e.g. for medical services or drugs) expenditure in the home and time
- C^4 costs refer to productivity costs[a]. These are defined as the ability to participate in the paid workforce as well as productivity impacts while at work

We have developed this model to address all four categories.

In the current context a human capital approach was used as it best represents the total costs (from an individual and employer perspective). This approach is based on estimated output losses due to cessation or reduction of production due to morbidity and mortality. This is estimated from employee earnings (which involves various assumptions about the relationship between employee wages and production) in the case of the paid workforce[31].

The values of other nonmarket activities such as leisure, study etc. are also indirect costs, however, such costs are usually excluded in the calculation of indirect costs due to the difficulty of measuring and defining them. This method also excludes other psychosocial costs of illness such as pain, suffering, and stress etc., which impact on quality of life. Such impacts are picked up in the outcome measure of economic evaluations are sometimes included as costs in cost of illness studies.

The procedure in this study involved the determination of three sets of costs:

- Mortality costs due to premature death
- Morbidity costs due to work absence (including sick days and unemployment benefits to government if the person is unemployed)
- Morbidity costs due to presenteeism (being present at work but not performing tasks at a maximum capacity)

Notably the mortality costs (in terms of the lifetime stream of income are mostly an individual cost – with a cost to government as well in terms of less taxes), whereas the costs due to absenteeism and presenteeism are an employer cost. The resources (within each of the cost categories identified above) and their associated costs used by young men with mental illness, are added together to produce a total cost.

For the purpose of this study, a ‘bottom up’ as opposed to a ‘top down’ method to calculate costs was preferred as it provides a more detailed and potentially more accurate depiction of the cost drivers. In the current context, bottom up costing refers to an aggregation of costs.

Bottom-up costing usually involves the specification of an event pathway, the probability of different events occurring for the population of interest and a cost associated with the event. In contrast, top-down costing takes an aggregated total (usually health expenditure as identified in government accounts) and divides this into categories. The biggest disadvantage with top down approaches is that important costs are often missed or misallocated. Importantly, some of the unit costs used in the current model (such as health costs) were derived using a top-down approach, resulting in a hybrid model.

A key concept underlying the model is that the costs are only applied to the marginal number of people affected by a certain cost categories in the focus cohort. In the unemployment category, as an example, if the focus cohort did not have mental illness, whilst they would have lower unemployment rates, they would still experience the unemployment rate applicable to people without mental illness. The difference in the number of unemployed people represents the marginal number of unemployed and it is to this group that the cost due to mental illness is quantified.

Based on the ABS Survey of Mental Health, it was found that mentally ill people experience higher rates for all cost categories (e.g. unemployment or disability) relative to people without mental illness. It is assumed that the difference between the mentally ill and non-mentally ill rate represents the impact due to mental illness. Therefore costs have been derived by multiplying the marginal people who incur the cost by the monetary value of the cost (sometimes referred to as the unit cost).

[a] Productivity costs tend to be used to describe the impact of absence from work, related to premature mortality and/or morbidity. The impacts can be on individuals (e.g. they do not realise their earning potential), employers (the productivity of their firm is not as good as it can be or they need to replace (either permanently or temporarily) workers who cannot perform their duties), and government (in terms of welfare payments). This definition is consistent with the Productivity Commission’s (Productivity Commission 2006) use of the term ‘human capital stream’. The human capital stream in this report is concerned with “workforce participation and productivity”. Therefore in the current context productivity gains/refers to the effect of mental illness on a young man’s ability to participate in the paid work force, as well as productivity impacts while at work.

Explanations of the scope of the marginal cohort affected by each cost category - as well as the unit costs used for each cost category - are further described in the detailed methodology section that follows.

A mental health advisory committee comprising mental health specialists, health economists and health and financial modelling experts was convened to test and validate the model for comprehensiveness and validity. A series of quality review checks were conducted on the model and underlying data to ensure the model met the desired level of accuracy.

Model Scope

The outcome of this process is the cost categories as detailed in Table 1. Intangible costs or the traditional clinical impacts of mental illness are not included in the current model, due to the contentious nature of placing a monetary value of such impacts[30].

The focus cohort consists of males aged 12 to 25 who suffer from mental illness. The size of this group as at December 2011 (496,000) was derived by applying general population growth factors[32] to an equivalent cohort published by Access Economics in 2009[23].

Access Economics quantified the size of this cohort in 2009 by combining ABS and Australian Institute of Health and Welfare (AIHW) data. The ABS and AIHW definitions of mental illness vary in scope which prompted the two datasets to be combined to develop an expanded definition of mental Illness[b].

According to the ABS Survey of Mental Health 22.8% of males aged 16 to 24 suffer from a form of mental illness.

We have further split the cohort group into each cost category, and calculated the applicable costs for the specific cohort in the model.

Table 1: Model cost categories

Cost category	Sub category	Drummond et al (2005) [30] classification	Description	Cohort size
1 Health	1.1 Health costs	C1, C3	Recurring and non-capital health cost expenditure (includes out of pocket costs).	496,000
2 Employment	2.1 Personal leave	C4	Cost of additional personal leave taken by the mentally ill cohort	294,000
	2.2 Reduced personal income	C4	Reduced personal income reflected in reduced wages at the same education level	
	2.3 Reduced education	C4	Reduced earnings due to lower education level	
3 Unemployment	3.1 Lost income	C4	Lost income during the period of unemployment	24,000
	3.2 Welfare benefits	C2	Unemployment welfare benefits paid by the government to the unemployed	
4 Imprisonment	4.1 Direct cost	C2	Prison operational costs	3,000
	4.2 Lost income	C4	Lost income during the period of imprisonment	
5 Disability	5.1 Welfare benefits[c]	C2	Welfare benefits paid by the government to the disabled	139,000
6 Mortality	6.1 Mortality	C4	Lost income over the life of an individual due to mental illness related mortality	400

[b] Mental illness: is a clinically diagnosable disorder that significantly interferes with an individual's cognitive, emotion, and social abilities. Mental illness encompasses short and longer term conditions, including Anxiety disorders, Affective or mood disorders (e.g. depression) and Substance Use disorders (e.g. Alcohol Dependence). Depending on the disorder and its severity, people may require specialist management, treatment with medicine and/or intermittent use of health care services [b]. It should be noted that the ABS and AIHW definitions of mental illness vary in scope. This prompted the two data sets used in the economic model to be combined to develop an expanded definition of mental illness. The definition includes the ABS definition (anxiety, affective and substance use disorders) and AIHW definition (childhood, eating, personality and psychotic disorders).

[c] Welfare payments are often excluded in cost estimates from a societal perspective since they represent a transfer of income rather than an opportunity cost of resources. However, from a more limited government economic perspective transfer payments do have an opportunity cost and have been included in this model.

Assumptions and Limitations

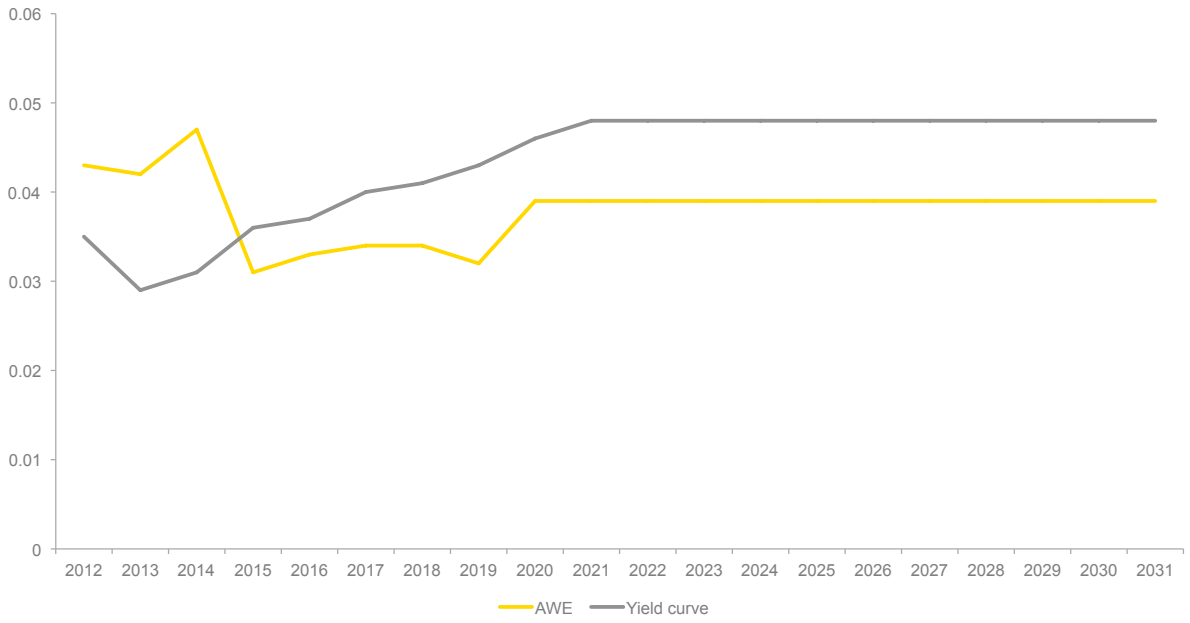
As with any economic model, a number of limitations exist with availability and quality of data and assumptions need to be made.

Where possible primary data sources have been used as a basis for analysis. This was not always the case due to factors such as reliability, availability and/or quality of data. Extensive use of the ABS 2007 National Survey of Mental Health and Wellbeing and findings from the Access Economics report were made in populating the model parameters.

The following assumptions are general assumptions that apply to all aspects of the model. Additional assumptions specific to components of the model are described in the appropriate section.

- All costs in the model are expressed in 2011 dollars
- If a particular statistic (e.g. unemployment or disability) for a mentally ill cohort is different to a non-mentally ill cohort, the difference was assumed to be caused by mental illness
- The number of young men with mental illness as a proportion of the general population has not changed since 2009 (most recent available data)
- Adopted future inflation and discount rates as shown in the following figure. Inflation rates were based on Access Economics[23] forecasts and future discount rates based on no arbitrage forward rates implied by the market prices of Commonwealth Government bonds as at 31 December 2011. This is detailed in Figure 1.

Figure 1: Adopted inflation rates as at 30 December 2011



Detailed Methodology and Results

1.0 Health Cost Category

1.1 Health costs

A top down approach was used to calculate the mental health care costs of young men. Total cost per person was derived based on Access Economics[23] data. This was adjusted for age and gender to align with the cohort in the study. ABS Health CPI inflation[33] was applied to inflate costs to 31 December 2011.

The cost categories included in these derived unit costs are:

- High level residential care
- Hospital expenditures
- Out of hospital expenditure
- Pharmaceutical costs

Cost categories excluded are:

- Expenditure on non-mental health related community care
- Capital expenditure
- Public health programs
- Health administration; and
- Health aids and appliances

The model does not quantify any additional non-mental health related health expenditure that may be incurred by young men with mental illness.

Result

The method of allocating costs to the focus cohort and inflating the costs to 31 December 2011 is shown in Table 2. Note that the costs in Access Economics are a cost per person in the general population. As the current report is focused on young people with mental illness this cost was divided by the proportion of young people with mental illness so that a cost per person with mental illness applicable to the cohort is defined.

The total direct health costs have been calculated to be $555.8m per annum.

67.8% of this cost is born by government, with the remaining 32.2% out-of-pocket payments by individuals[23]. Individual costs comprise claims paid by health insurance companies and payments by injury compensation insurers.

Table 2: Direct health costs

		2004-05		31 December 2011	
Age range	**Focus cohort ('000)**	**Mental Health expenditure per all males ($/person/year)**	**Health expenditure per mentally ill male ($/person/year)[d]**	**Health expenditure per mentally ill male ($/person/year)**	**Direct health costs ($m)**
12-14	38.1	30	132	176	6.7
15-19	222.0	205	899	1200	266.4
20-25	235.6	205	899	1200	282.7
Total	**495.7**				**555.8**

[d] 22.8% of males 16-24 suffer from mental illness (ABS National Survey of Mental Health and Wellbeing 2007)

2.0 Employment Cost Category

2.1 Personal Leave

According to the ABS National Survey of Mental Health and Wellbeing, people with mental illness are 2.3 times more likely to be out of role[e] compared to those without mental illness. The assumption is made that a mentally ill person is more likely to take personal leave if they are in employment. As personal leave is paid by employers - with no associated productivity benefit - this results in a cost burden to the employer.

Table 3: ABS 'Days out of Role' by mental health status[34]

Days out of role	Ave. Days	Males - no mental illness	Males - mentally ill
0 days	0	76%	59%
1 to 7 days	4	18%	24%
More than 7 days	19	6%	16%
Ave days out of role (30 day period)		1.8	4.1
Ratio			2.3

These calculations show that those in the mentally ill cohort take an additional 9.5 days of personal leave per year over the general population.

Table 4: Annual days out of role taken by mental illness status

	General population	No Mental illness	Mental illness
% of employable males[34]		79.7%	20.3%
Average personal leave (days per year)	9.3 [35]	7.4	16.9
Marginal number of personal leave (days per year)			9.5

Result

The cost associated with additional personal leave was calculated by multiplying the marginal number of personal leave days to the earnings applicable for those within the focus cohort (Table 5).

This cost represents a $236.6m annual cost to employers.

Table 5: Cost of personal leave

Age Range	Number employed ('000)	AWE – Mentally ill males ($/week)	Cost – Personal leave
12-14	0.0	0	0.0
15-19	109.6	333	49.7
20-25	184.0	745	186.8
Total	**293.6**		**236.6**

[e] Days out of role: The number of days that a person was unable to work or carry out normal activities or had to cut down what they did because of their health (ABS National Survey of Mental Health and Wellbeing 2007)

2.2 Reduced Personal Income

A 2010 Productivity Commission study[24] found that on average young men with mental illness have 4.7% lower hourly wages relative to males without mental illness, controlling for factors including:

- Demographic variables (e.g. age and level of education)
- Employment
- Experience
- Physical health
- Unemployment history

By considering hourly wages this methodology allows for the differences in unemployment and underemployment rates between mentally ill people and non-mentally ill people.

The proportion of young men who are actively participating in the work force (participation rate) by either being employed or looking for employment (termed unemployed) was also determined.

To achieve this, the general male population labour force participation rates by age[36] were applied to the focus cohort to split the group between those in the labour force and those who are not participating. This is detailed in Table 6.

Table 6: Focus cohort by labour force status

Age range	Focus cohort ('000)	Participation rate (%)[36]	Labour force ('000)	Non-labour force ('000)
12-14	38.1	0%	0.0	38.1
15-19	222.0	53%	118.5	103.5
20-25	235.6	84%	198.8	36.7
Total	**495.7**		**317.4**	**178.4**

General population participation rates were applied to the model rather than mentally ill participation rates due to two key reasons:

- The publicly available ABS Survey of Mental Health did not contain mentally ill specific labour force participation rates by age. Labour force participation rates specific to a mentally ill cohort were available only as an average over all ages
- Given the large variation in participation rates across the age bands, it was necessary to select age specific rates

However, the participation rates for a mentally ill cohort averaged over all ages is not dissimilar to a non-mentally ill cohort (Table 7). The assumption was made that this applies to the 15 to 25 age bands.

Table 7: Labour force participation rates[34,36]

Gender – Age	Participation rate
Males 12-14	0%
Males 15-19	53%
Males 20-25	84%
Males 15-19 General population	53%
Males 15-64 General population	83%
All Persons 16-85 Mental illness	70%
All persons 16-85 No mental illness	67%

The actual costs associated with lost personal income were derived using ABS average weekly earnings (AWEs). AWEs at December 2011 were derived based on 2010 ABS AWEs by age[37], inflated to December 2011 using:

- ABS AWE inflation[38] to August 2011
- An assumed AWE inflation rate of 4.3% between August 2011 and December 2011 (detailed in Table 8).

Table 8: Average Weekly earnings by age as at December 2011 (Males only)

Age range	AWE Males December 2011 ($/week)
15–19	349
20–24	782
25–29	1,156
30–34	1,358
35–39	1,593
40–44	1,612
45–49	1,592
50–54	1,531
55–59	1,486
60–64	1,335
65 and over	1,094

Result

This reduction in earnings of the employed group within the focus cohort is $445.2m per annum, as shown in Table 9.

Table 9: Cost of reduced earnings

Age range	Number employed ('000)	AWE General males 2011 ($/week)	AWE – Mentally ill males ($/week)	Cost – Reduced productivity ($m)
12-14	0.0	0	0	0.0
15-19	109.6	349	333	93.6
20-25	184.0	782	745	351.6
Total	**293.6**			**445.2**

2.3 Reduced Education

The ABS Survey of Mental Health[34] identified that people with mental illness have lower levels of education. According to a Productivity Commission study[24], average hourly wages are correlated with the level of education, adjusting for demographic and other employment related factors.

To quantify this cost the following approach was adopted:

- Step 1: The employed cohort was divided into groups differentiated by age and education
- Step 2: Earnings by education levels were derived
- Step 3: Total yearly earnings of the cohort with educational attainment levels applicable to mentally ill and non-mentally ill people were determined

The difference in earnings represents the cost of reduced education.

Step 1: Table 10 illustrates the employment levels within the focus cohort classified by education levels, using both mentally ill and non-mentally ill education levels. An assumption was made that the earnings growth as an individual ages is the same at all education levels.

Table 10: Education level mix by mental health status (ABS Survey of Mental Health)

	Education levels		Number employed in focus cohort aged 15-19 ('000)		Number employed in focus cohort aged 20-25 ('000)	
Education level [34]	**Mental illness**	**No mental illness**	**Mentally ill rates**	**Non-mentally ill rates**	**Mentally ill rates**	**Non-mentally ill rates**
Bachelor degree or above	16.9%	20.7%	18.6	22.7	31.2	38.1
Advanced diploma/Diploma	9.3%	8.3%	10.2	9.1	17.2	15.3
Certificate	25.6%	25.3%	28.1	27.8	47.1	46.6
No non-school qualification	48.1%	45.6%	52.7	50.0	88.5	83.9
Total	**100%**	**100%**	**109.6**	**109.6**	**184.0**	**184.0**

Step 2: Earnings by education level by age were derived via three steps:

1. 2003 hourly wages by education level as published in a Productivity Commission study[24] were inflated to 31 December 2011 using general male AWE inflation

2. Hourly wages by education level were scaled to reflect the ages within our focus cohort based on the earnings relativities by age of the general population[37], as shown in Table 11

Table 11: General population average weekly earnings by age (full time only)

Age range	AWE (2010 $)[37]	Relativity against all ages
AWE 15-19 gen pop	555	44%
AWE '20-24 gen pop	866	69%
AWE all ages	1263	

3. Hourly wages were converted to male average weekly earnings allowing for the following factors:

    - Males aged 15-19 and males aged 20-24 have 1.1% and 3.2% higher full time average weekly earnings relative to the general population at the same age level respectively[37]
    - Average full time hours worked per week: 45.9[39]
    - Average part time hours worked per week: 14.8 (15-19 age band), 19.7 (20-25 age band)
    - The proportions of workers working part time, by age
    - 55% part time for Males 15-19
    - 30% part time for Males 20-24

Step 3: The resultant average weekly earnings applicable to the focus cohort by age are presented in Table 12 and Table 13.

Table 12: Average weekly earnings by education level (aged 15-19)

Education level	General population earnings (inflated to 2011 $/hr) [24]	General population Age 15-19 earnings (2011 $/hr)	Male Age 15-19 earnings (2011 $/hr)	Male Age 15-19 AWE (2011 $/week)
Bachelor degree or above	38.0	12.8	13.0	373
Advanced diploma/Diploma	29.2	12.8	13.0	373
Certificate	27.7	12.2	12.3	355
No non-school qualification	25.9	11.4	11.5	331
Overall				349

Table 13:Average weekly earnings by education level (aged 20-24)

Education level	General population earnings (inflated to 2011 $/hr) [24]	General population Age 20-24 earnings (2011 $/hr)	Male Age 20-24 earnings (2011 $/hr)	Male Age 20-24 AWE (2011 $/week)
Bachelor degree or above	38.0	26.0	26.9	1,021
Advanced diploma/Diploma	29.2	20.0	20.7	786
Certificate	27.7	19.0	19.6	746
No non-school qualification	25.9	17.8	18.3	697
Overall				782

Result

The difference in earnings represents the cost of reduced education for the cohort, calculated at $113.7m per annum of reduced earnings (Table 14).

Table 14: Cost due to reduced education

	Male AWE		Total yearly earnings ($m)		
	AWE 15-19	AWE 20-24	Mentally ill rates	Non-mentally ill rates	Cost - reduced education levels ($m)
Bachelor degree or above	373	1,021	2,016.3	2,466.6	450.3
Advanced diploma/Diploma	373	786	901.6	804.4	(97.2)
Certificate	355	746	2,347.8	2,320.4	(27.3)
No non-school qualification	331	697	4,116.7	3,904.7	(212.0)
Total	**349**	**782**	**9,382.4**	**9,496.1**	**113.7**

3.0 Unemployment Cost Category

Two annual lost income costs are calculated:

- Where an individual is unemployed
- Unemployment benefits paid from the government to the individual

These costs are applied to the marginal number of unemployed, i.e. the additional number of unemployed people in the focus cohort due to mental illness.

The approach taken to quantify these costs is as follows:

- The labour force is multiplied by the difference in mentally ill and non-mentally ill unemployment rates to derive the marginal number of unemployed
- For the lost income component, the number of marginal unemployed is multiplied by average weekly earnings and the average duration unemployed[40]
- For the unemployment benefits component, the number of marginal unemployed[40] is multiplied by the average duration unemployed and the weekly unemployment benefits

Statistics from the ABS National Survey of Mental Health and Wellbeing[34] were used as a basis to identify unemployment rates by mental illness status. The 2007 rates were applied to the general population unemployment rate as at November 2011. This assumes that the relativities applied in 2007 still apply to 2011.

The unemployment rate for people with mental illness was found to be higher than the unemployment rate for people without mental illness[34].

Table 15: Unemployment rate

Year	General population	Mentally Ill	Non-mentally ill	Relativity	Gap
2007	3.8%[36]	5.4%[36]	3.4%	1.6	
2011	5.3%[42]	7.5%	4.7%	1.6	2.8%
Proportion		22.2%[34]	77.8%		

A geometric (proportional) rather than arithmetic (fixed) relativity was chosen to measure the relative risk of unemployment for this cohort so that the gap is proportional to the general population unemployment rate. A geometric relativity of 1.6 means the cohort has 1.6 times more prevalence of unemployment relative to a non-mentally ill population. For example, if the non-mentally ill unemployment rate was higher at 10%, the mentally ill unemployment rate would be 16%.

Table 16 depicts the number of unemployed within the focus cohort. The number of marginally unemployed was then calculated using the gap derived above. This value represents the additional number of unemployed people in the focus cohort due to higher unemployment rates relative to a non-mentally ill cohort.

Table 16: Marginal unemployment cohort

Age range	Focus cohort ('000)	Labour force ('000)	Unemployment rate Mentally ill	Marginal unemployed ('000)
12-14	38.1	0.0		0.0
15-19	222.0	118.5	7.5%	3.3
20-25	235.6	198.8	7.5%	5.6
Total	**495.7**	**317.4**		**8.9**

Result

The overall cost associated with unemployment is presented in Table 17:

- Lost income to individuals of $167.8m per annum
- Welfare benefits opportunity cost to the government of $62.1m per annum

Table 17:Cost of unemployment lost income and welfare benefits

Age	Marginal unemployed ('000)	Ave. weeks unemployed[40]	AWE Males ($/week)	Unemp. benefits ($/week)[41]	Unemp. lost income ($m)	Unemp. Welfare benefits ($m)
12-14	0.0	0	0	243	0.0	0.0
15-19	3.3	22	349	243	25.7	17.9
20-25	5.6	33	782	243	142.1	44.2
Total	**8.9**				**167.8**	**62.1**

4.0 Imprisonment Cost Category

The ABS National Survey of Mental Health and Wellbeing[34] shows people with mental illness experience higher imprisonment rates relative to people without mental illness. The model quantified the costs associated with imprisonment by considering:

- The lost income of the individual during the period of imprisonment
- The direct cost of imprisonment (operational costs)

These costs were applied to the marginal number imprisoned, i.e. the additional number of imprisoned people in the focus cohort due to higher imprisonment rates.

The ABS National Survey of Mental Health and Wellbeing[34] reports that 5% of all mentally ill people have ever been incarcerated in their lifetime, relative to 1.8% of the non-mentally ill. This reflects a relativity of 2.8 times the prevalence of all young men.

This relativity was applied to the general population male imprisonment rates to calculate the imprisonment rates applicable to the mentally ill cohort.

Table 18: Imprisonment rates by age

Age range	General population male imprisonment rates[43]	Mentally ill imprisonment rate	Non-mentally ill imprisonment rate
<18	0.024%	0.048%	0.017%
18	0.207%	0.411%	0.147%
19	0.349%	0.692%	0.247%
20-25	0.518%	1.029%	0.367%

Similar to the unemployment costs calculated in the previous section, a geometric (proportional) rather than arithmetic (fixed) relativity was chosen to measure the relative risk of this cohort so that the gap is proportional to the general population imprisonment rate.

The marginal number of people imprisoned relates to the additional number of imprisoned people in the focus cohort due to higher imprisonment rates. This was calculated as the difference in imprisonment rates between the mentally ill and non-mentally ill cohorts multiplied by the number of people in the focus cohort.

Table 19: Marginal number of focus cohort imprisoned

Age range	Focus cohort ('000)	Mentally ill imprisonment rate	Non-mentally ill imprisonment rate	Num imprisoned ('000)	Marginal num imprisoned ('000)
<18	171.2	0.05%	0.017%	0.08	0.05
18	44.5	0.41%	0.147%	0.18	0.12
19	44.5	0.69%	0.247%	0.31	0.20
20-25	235.6	1.03%	0.367%	2.42	1.56
Total	**495.7**	**0.56%**	**0.20%**	**3.00**	**1.93**

4.1 Direct costs

Direct costs relate to the operational costs associated with running a prison. According to a Corrective Services report on government services[44], total cost per prisoner (comprising net operating expenditure, depreciation, debt servicing fees and user cost of capital) was $275 per day, or $100,400 per year. This 2009-10 cost was inflated to December 2011 using CPI inflation[33] to arrive at a sum of $107,300.

The health costs of caring for mentally ill prisoners have not been included in the current study due to lack of available data.

Using ABS data[43], the average prison duration was then calculated by taking the weighted average by type of crime using the mix of prisoners by age and by sentence type, and the average expected time to serve. It was assumed that the length of prison sentences received by the mentally ill cohort is the same as the general population.

The average duration of imprisonment is greater than a year for all age groups.

The direct cost of imprisonment was capped at a 1 year for the model as the intention is to calculate yearly cost.

Result

The total direct cost for imprisonment for this cohort is $206.8m per annum.

Table 20: Imprisonment direct costs

Age range	Marginal number imprisoned ('000)	Direct imprisonment cost ($m)
<18	0.05	5.7
18	0.12	12.6
19	0.20	21.3
20-25	1.56	167.2
Total	**1.93**	**206.8**

4.2 Lost income

Lost income refers to the potential wages that would have otherwise been earned had the individual not been imprisoned. This was calculated by applying general male earnings to the marginal number of the focus cohort imprisoned, adjusting for the participation rate and employed rate.

Result

The total cost of lost income to individuals due to imprisonment for this cohort is $53.9m per annum.

Table 21: Imprisonment lost income

Age range	Marginal number imprisoned ('000)	AWE Males ($/week)	Participation rate (%)[36]	General population employment rate (%)[42]	Imprisonment lost income ($m)
<18	0.05	0	0%		0.0
18	0.12	349	53%	95.3%	1.1
19	0.20	349	53%	95.3%	1.8
20-25	1.56	782	84%	95.3%	51.0
Total	**1.93**				**53.9**

5.0 Disability Cost Category

5.1 Welfare Benefits

Welfare payments are often excluded in cost estimates from a societal perspective as they represent a transfer of income rather than an opportunity cost of resources. However, from a more limited government economic perspective transfer payments do have an opportunity cost and are of interest to the discussion of the impact of mental illness on the Australian economy.

According to the ABS Survey of Mental Health and Wellbeing[34], people with mental illness have significantly higher disability rates and are entitled to receive disability welfare payments. The costs associated with disability welfare payments due to mental illness were quantified by:

- Step 1: Determine the marginal number of disabled with mental illness
- Step 2: Categorise by disability severity
- Step 3: Apply relevant Centrelink welfare rates

Step 1: The marginal number of disabled was calculated by applying the difference in mentally ill and non-mentally ill disability rates to the focus cohort (Table 22). This represents the additional number of disabled people in the focus.

Table 22: Male disability rates by mental illness status

		% of Males[34]		Number in focus cohort	
Mental illness status	**All males**	**Mentally ill rate**	**Non-mentally ill rate**	**Disabled**	**Marginal number in cohort (000)**
Profound/Severe	2.4%	5.1%	1.8%	25.3	16.1
Moderate/Mild	6.1%	9.6%	5.4%	47.6	20.8
Schooling/Employment restriction only	5.6%	13.4%	3.9%	66.4	46.8
No disability/No specific limitations or restrictions	85.8%	71.9%	88.8%	356.5	
Total				**495.7**	**83.7**

Step 2: The marginal number of disabled in each disability severity category was then split into age bands reflecting the eligibility criteria and payment rates published by Centrelink.

It was assumed all disability categories have the same age mix, with the rates applicable to severity levels extracted from the Youth Disability Supplement (for claimants under 16), and the Disability Support Pension (for claimants 16 or older).

Table 23: Marginal number of disabled by age

		Marginal number disabled ('000)		
Age range	**Number focus cohort ('000)**	**Profound/Severe**	**Moderate/Mild**	**Schooling/Employment restriction only**
under 16	82.4	2.7	3.5	7.8
16 to 18	88.7	2.9	3.7	8.4
18-20	136.0	4.4	5.7	12.8
>20	188.6	6.1	7.9	17.8
Total	**495.7**	**16.1**	**20.8**	**46.8**

Step 3: Centrelink disability payment rates were applied to the marginal number of disabled. Based on actual expenditure on the disability support pension to working age claimants, the following parameters were chosen:

- The profoundly disabled qualify for Centrelink's maximum rate
- The moderately disabled qualifies for 40% of the rate
- The schooling/employment restriction only category qualifies for 12.5% of the rate

Table 24: Centrelink Disability Support Pension and Youth Disability Supplement rates (2011)

		Maximum rate per year ($)		
Age range	**Maximum rate ($/fortnight)[g]**	**Profound/Severe**	**Moderate/Mild**	**Schooling/Employment restriction only**
under 16	114	2,964	1,186	371
16 to 18	411	10,678	4,271	1,335
18-20	432	11,239	4,495	1,405
>20	689	17,914	7,166	2,239

Result

The total cost of disability welfare payments is $372.5m per annum.

Table 25: Disability welfare payments

Age range	**Profound/Severe ($m)**	**Moderate/Mild ($m)**	**Schooling/Employment restriction only ($m)**	**Total annual cost ($m)**
under 16	7.9	4.1	2.9	14.9
16 to 18	30.8	15.9	11.2	57.9
18-20	49.7	25.6	18.0	93.4
>20	109.9	56.6	39.9	206.4
Total				**372.5**

[G] Centrelink maximum rates, averaged between the at home and independent rates

6.0 Mortality Cost Category

A major aspect of the human capital approach is the lifetime stream of costs attributable to premature mortality, normally presented as the stream of income.

In addition, there are also potential cost-offsets associated with premature mortality, such as future health care costs avoided. These costs were not included in the model.

The Access Economics study[23] reported that mortality rates in young men with mental illness were significantly higher than those without mental illness. The average cost per death was calculated by taking the net present value of all future earnings from the age at death to the retirement age (65) and offset this by pension costs.

The net present value approach is a process where future cash flows are discounted to the current time to account for the time value of money. The net present value has been converted to an annualised cost.

The following assumptions were made:

- General population male average weekly earnings by age were averaged to derive earnings for each 5 year age band
- For each age group (12-14, 15-19, 20-25), average age at death was the midpoint of the age band
- Current life expectancy is 80 years[33]

Result

This cost was applied to the number of people in the focus cohort that is expected to die annually due to mental illness related mortality, as summarised in Table 26.

Table 26: Mortality cost

Age range	Focus cohort ('000)	Mortality rate due to mental illness[23]	Marginal deaths	Average cost/death ($m)	Annual mortality cost ($m)
12-14	38.1	0.01%	4	2.6	10.0
15-19	222.0	0.08%	178	2.7	482.1
20-25	235.6	0.09%	212	2.7	564.6
Total	**495.7**		**393**		**1,056.7**

Findings and Conclusions

Summary of Findings

The results of our modelling and analysis estimate the cost of young men's mental illness in Australia to be $3.27 billion per year.

Table 27 summarises the costs for each cost category.

Table 27: Estimated cost of mental illness in 12 to 25 year old Australian males

Cost category	***Sub category***	***Annual cost by sub-category ($m)***	**Total cost by category ($m)**
Health	Health costs	556	556
Employment	Personal leave	237	796
	Reduced personal income	445	
	Reduced education	114	
Unemployment	Lost income	168	230
	Welfare benefits	62	
Imprisonment	Direct cost	207	261
	Lost income	54	
Disability	Welfare benefits	373	373
Mortality	Mortality	1,057	1,057
Total			**3,271**

The costs identified in the model were allocated by cost bearer to better understand how they are spread across the community. The study found three bearers of cost - individuals, employers and government.

It is important to note that both costs and impacts radiate beyond the primary cost bearer. For example, the impact of lower levels of education attainment is experienced directly by individuals through reduced earnings and also by employers through a corresponding reduction in the skilled labour force.

Cost and Impact: Individuals

Our analysis found that individuals bear costs of mental illness of **$2.016 billion** per annum.

Young men bear the cost of factors associated with health, reduced productivity and education, lost income and mortality.

Health

- The total direct health cost per year is $556 million, of which $179 million is incurred by individuals

Employment

- Young men with mental illness have on average 4.7% lower hourly wages relative to their peers with the same level of educational attainment[45]. The cost to individuals in reduced personal income due to lower wages is $445 million per annum
- 48.1% of young men within the cohort have no qualifications beyond high school. The cost to individuals in reduced personal income due to lower wages is $114 million per annum
- Young people with mental illness have lower levels of educational qualifications and when they do gain employment tend to obtain lower skilled poorly paid roles

Unemployment

- Young men with a mental illness are 1.6 times more likely to be unemployed relative to a person who does not have a mental illness
- Lost income in young men with mental illness who are actively looking for work but unemployed is $168 million per annum

Imprisonment

- The ABS National Survey of Mental Health and Wellbeing reports that 5% of all mentally ill people have ever been incarcerated in their lifetime, relative to 1.8% of the non-mentally ill. This reflects a relativity of 2.8 times the prevalence of non-mentally ill young men
- Lost income in young men with mental illness who are imprisoned is $54 million per annum

Disability

- The literature shows there are wider indirect costs to individuals with mental illness and their families such as carers' costs, psycho social costs such as stress, pain and suffering and other indirect costs such as reduced income for carers. These costs have not been quantified in this model

Mortality

- Mortality rates are significantly higher for young men with mental illness compared to young men who do not have mental illness
- Loss of lifetime earnings in young men due to mental illness related mortality – including from death by suicide – is $1.057 billion per annum

Cost and Impact: Employers

Our analysis found that employers bear direct costs of mental illness of **$237 million** per annum. This is primarily due to the costs associated with additional personal leave taken by the cohort.

There are, however, impacts from other cost categories that have an indirect impact on employer productivity.

Health

- Work that is both stressful and insecure can increase the risk of depression up to 14 times relative to jobs in which individuals feel a sense of control and are securely employed
- The negative impact that poor mental health has on the individual may extend to co-workers who may experience increased stress through having to carry out additional work tasks

Employment

- Young men with mental illness take an additional 9.5 days out of role per year over and above people without mental illness. This equates to a loss of over 9 million working days due to mental illness across Australia per year
- The marginal cost to employers due to additional days out of role is $237 million per annum

Cost and Impact: Government

Our analysis found that government bear costs of mental illness of **$1.019 billion** per annum.

Government bear the cost associated with health, welfare (unemployment and disability pensions) and imprisonment.

Health

- The total direct health cost per year is $556 million, of which $377 million is incurred by government
- Government spend on mental health increases significantly from 15-25 years ($205m) to 25-34 years ($306m) and again for 35-44 years ($268m), before declining until the 75+ group

Unemployment

- Young men with a mental illness are 1.6 times more likely to be unemployed relative to a person who does not have a mental illness
- Marginal unemployment payments disbursed to young men with a mental illness cost the government $62 million per annum
- This is an opportunity cost to government

Imprisonment

- The government incurs $207 million per annum in direct costs related to the higher rates of imprisonment experienced by young men with a mental illness
- The health costs of caring for mentally ill prisoners is not included in this study due to lack of data

Disability

- Disability welfare payments paid to young men who experience poor mental health cost the government $373 million per annum

Mortality

- Potential cost offsets to government associated with premature mortality (such as future health costs avoided) were not included in the model

Conclusions

We have identified the cost to Australia of young men's mental illness to be $3.27 billion per annum. We have brought together research that links this cost to the human impacts on young men through reduced employment opportunities when in work, higher risk of unemployment, higher levels of imprisonment and early mortality.

These findings represent the economic impact of the complex interplay of the challenges that young men with mental illness face, illustrating the link between good mental health and national productivity. This cost is being felt throughout the Australian economy.

Education is a significant contributing factor to the economic cost of mental illness. The improvement of education attainment levels would play a major role in delivering better employment opportunities for young men with mental illness, with subsequent improvements in productivity.

The complex interplay between cost bearers is not solely the remit of government to solve. Interconnected problems require interconnected solutions with coordinated effort across educators, government, mental health service providers, NGO's, employers and business groups.

This study has highlighted the opportunity at stake in young men's mental health. In Australia, spend on men's mental health increases significantly as the cohort ages. 75% of onset of mental illness occurs prior to the age of 25. Australian research shows interventions focused on the ages of 12-25 years have the potential for greater personal, social and economic benefit[23].

Deepening our understanding of the efficacy and return on investment of current policy responses and programs in mental health is critical to driving targeted investment. Our findings suggest that investing smarter and earlier in young men has the potential to reduce the cost and impacts on individuals and the Australian economy identified in this report.

Failure to act presents a threat to Australia's future productivity and individual prosperity. A coordinated response from all sectors of the community holds the promise of considerable economic and individual benefits.

Key Conclusion 1: Education plays a significant role in the employment outcomes of young men with mental illness.

Research shows that education and training opportunities can act as a protective factor against mental health issues[17], whilst secure and good employment outcomes provide young people with the possibility of financial independence, a sense of control, self-confidence and social contact.

Education plays a significant role in the employment outcomes of young men who experience mental illness. In Australia, individuals who have a degree or a higher qualification earn wages 30 to 45% higher than people with otherwise similar characteristics who have not completed Year 12. A university education increases men's wages by approximately 38% and also increases the probability of employment by 15-20%. Education levels also influence the types of employment men are able to obtain.

Of particular significance, mental illness typically begins in adolescence/early adulthood - a time when individuals are completing their education and pursuing employment options[22]. The impact of youth mental illness on schooling through factors such as increased absenteeism, dropout rates and difficulty learning can compound the potential negative impacts on employment outcomes[23].

The impact of reduced education is very real for young men with mental illness, earning 4.7% lower hourly wages compared to their peers, and almost half do not have a qualification beyond high school. As a consequence, young men with mental illness are often employed in lower skilled, poorly paid roles.

Higher education is positively linked to wages and productivity. Higher wages in turn also have an impact on health and education through providing the resources to access educational and health services[24].

Recommendation 1. **Efforts should be made by all sectors of the community to support the engagement of young men to achieve higher levels of education:**

- 1.1 Improve secondary, tertiary and vocational educators' levels of understanding of mental health, including the identification of disorders and awareness of support and referral services available. This should include professional development and tools for teachers and other educators
- 1.2 Increase awareness and access for young men to educational alternatives such as apprenticeships
- 1.3 Strengthen cross sector partnerships between employers and education providers to create stronger pathways from school to work for young men with mental illness. This should include focus on key transition points such as moving from school to further studies or employment

Key Conclusion 2: Employers bear a significant impact in direct costs of absenteeism and reduced productivity. Employers and business groups are crucial stakeholders

All indications show Australia will continue to face productivity challenges into the future, with an ageing population in particular expected to place increased pressure on Australia's labour supply. The 'Australia to 2050: future challenges' report highlights the need to improve labour participation rates, suggesting that 'policy responses need to reflect a sound understanding of the complex nature of mature age participation.'

The report goes on to acknowledge the importance of policies that target improvements in education and health – factors which are also crucial to the workforce participation of the 496,000 young men experiencing mental illness.

For men who are suffering from poor mental health in particular, research shows that treating or preventing mental illness can potentially improve their chances of participating in the workforce by up to 30%[46].

Addressing poor mental health in the workplace environment has the direct benefit of the avoiding costs of absenteeism and also has the potential to reduce flow-on effects to co-workers by not having to carry additional work-tasks.

Engaging employers and business groups in the development of and delivery of mental health initiatives will assist in cultivating a larger, higher skilled and more productive Australian labour force.

Recommendation 2. **Efforts should be made by all sectors of the community to support young men with mental illness to engage in more productive employment:**

- 2.1 Improve employers' levels of understanding of mental health, including the identification of disorders and awareness of support and referral services available
- 2.2 Initiate new partnership models between government, mental health service providers, NGOs, employers and business groups to create strategies that proactively support employees' good mental health and ongoing engagement in the workforce
- 2.3 Identify new partnership models between employers, business groups, government and NGOs to drive a whole of community response. This includes creating new collaborative funding and service delivery models

Key Conclusion 3: Deepening our understanding of the efficacy and return on investment of current policy responses and programs in mental health is critical to driving targeted investment

The cost impact identified in this report suggests that further analysis of current policy responses to young men's mental health be undertaken to determine the efficacy and impact of these interventions.

As our findings suggest, investing smarter and earlier in young men has the potential to reduce the mental health cost and impacts on individuals and the Australian economy. Further research on return on investment for existing mental health services targeted at young men is essential to inform investment decisions.

Smarter and targeted investments across the spectrum of mental health services will have the added benefit of improving national productivity. By increasing the capacity of young men with mental illness to meaningfully participate in work and community life the prosperity of the nation will be improved.

Recommendation 3. **Efforts should be made by all sectors of the community to evaluate the effectiveness of current policy responses and investments in mental health:**

- 3.1 Undertake further targeted research to evaluate the efficacy of existing mental health programs and interventions with a particular emphasis on prevention and early intervention
- 3.2 Undertake return on investment analysis to inform future investment in young men's mental health with a particular emphasis on prevention and early intervention
- 3.3 Enhance reporting of government funded initiatives targeted at supporting young men with mental illness to achieve full benefits of investment. Key objectives of these enhancements are to drive greater accountability of public spend and to provide better transparency and access to program performance and evaluation

The mental health of the young men employed by Active is critical to the success of our business. It is not only an indicator of their capacity to be productive employees, but also of their ability to be part of a safe and supportive work team.

Brendan Murphy, CEO, Active Tree Services

This report initiates a timely conversation with business leaders, highlighting the importance of mental health for both employees and the companies they work for.

Richard Murray, CFO, JB Hi Fi

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About Inspire

Tragically, the leading cause of death among young Australians (14-25) is suicide.

To tackle this issue the Inspire Foundation provides services which aim to improve young people's mental health and let them know that they don't have to go through tough times alone. Our flagship service ReachOut.com increases young people's knowledge of mental health and wellbeing, increases their help seeking skills and ensures that they feel less alone. We provide our services online because it offers young people anonymity; it offers help and support 24 hours a day; it is accessible to young Australians in remote regions and it allows us to help thousands at any one time.

We also recognise that although targeting young people is crucial to achieving our mission it is only one piece of a 'whole of community' approach. That's why, as well as providing a world class mental health service for young people through ReachOut.com, we also:

- Lead research on technology, young people and well-being;
- Support schools to foster resilience;
- Help deliver relevant, accessible and appropriate clinical services for young people; and
- Share our expertise within and across sectors through consultancies to help even more young people.

By 2020 we aim to make a global contribution to young people's mental health and wellbeing with every young Australian knowing, trusting and using ReachOut.com when they need to.

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About the Young and Well CRC

The Young and Well Cooperative Research Centre (youngandwellcrc.org.au) is an Australian-based, international research centre that unites young people with researchers, practitioners, innovators and policy-makers from over 70 partner organisations. Together, we explore the role of technology in young people's lives, and how it can be used to improve the mental health and wellbeing of young people aged 12 to 25. The Young and Well CRC is established under the Australian Government's Cooperative Research Centres Program.

Counting the Cost: **The Impact of Young Men's Mental Health on the Australian Economy**

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