Strategies for adopting and strengthening e-mental health

The Sax Institute

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Strategies for adopting and strengthening e-mental health

A review of the evidence

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Whether you are a 60-year-old man in rural New South Wales living with depression, a 16-year-old woman with an eating disorder, the parent of a 14-year-old son in Sydney trying to access a mental health service for the first time, or a young Indigenous Australian struggling with employment and drug and alcohol problems, one of the challenges facing Australians and those who care for them is how to access the right information and the right services at the right time.

Technology is key to developing a solution that provides seamless and continuous support and care across online and offline services, offering a more targeted approach that guarantees high quality care, the most efficient use of government resources and reduces the economic burden on individuals, families, workplaces and the community.

The Young and Well Cooperative Research Centre (Young and Well CRC) is an Australia-based, international research centre that unites young people with researchers, practitioners, innovators and policy-makers from over 75 partner organisations across the non-profit, academic, government and corporate sectors. The Young and Well CRC is established under the Australian Government’s Cooperative Research Centres Program.

The purpose of the Young and Well CRC is to explore the role of technology in young people’s lives, and to determine how those technologies can be used to improve the mental health and wellbeing of young people aged 12 to 25.
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Executive summary

BACKGROUND

• Around 20% of Australians experience mild to severe mental illness in any given year. In NSW less than 8% of the overall health care budget is allocated to mental health expenditure. This lack of parity places an unsustainable and unnecessary burden on the public health system, families and communities.

• Innovations in technology have moved so quickly that the concept of applying new and emerging technologies to the mental health system (from prevention through to treatment and recovery) in a fully integrated manner is now a reality, providing an unprecedented opportunity to reduce this burden.

• The rationale for providing online services is simple: services can be tailored to suit the individual’s needs, and access can be provided at any time, in any location without geographical constraints.

• Significant progress has been made in the development of e-mental health services and Australia is recognised as a world leader.

KEY MESSAGES/FINDINGS

HIGHEST LEVELS AND MOST SOPHISTICATED USE OF TECHNOLOGY SEEN TO DATE

• 86% of Australians access the internet, with 44% of Australians using the internet more than five times a day.

• Young people are the fastest adopters of new and emerging technologies, with 99% of young people using the internet, and 95% using the internet daily.

• Technology use has changed dramatically with the growth of online social networks. The internet has developed to become a dynamic ecosystem where people participate, contribute, build communities and connect socially.

• With the advent of broadband, the introduction of smart devices, and an increasing focus on digital content creation that relies on creativity rather than literacy, the concept of the ‘digital disconnect’ is becoming less prevalent.

MOVING WITH THE TIMES, TO WHERE PEOPLE ARE

• Almost everyone is using technology daily in every aspect of their lives, therefore making the use of technology in monitoring health a logical step. Significant evidence exists that technologies can be used to improve mental health and wellbeing. For example:
  o Online interventions for a range of disorders, such as depression, anxiety and problematic health behaviours (e.g. smoking, alcohol and other drug misuse), have demonstrated efficacy and the number of programs available is growing rapidly.
  o A review of 26 randomised controlled trials found the internet to be an effective medium for the delivery of interventions designed to reduce the symptoms of depression and anxiety.
  o There is a growing body of literature suggesting that mobile apps, gaming and social networking can be used to improve the mental health and wellbeing of young people.

THE MENTAL HEALTH SECTOR IS LAGGING BEHIND: INTEGRATION IS REQUIRED

• Both face-to-face and online service models have been developed independently and operate in parallel rather than in an integrated manner.

• E-mental health services are run programmatically, largely through the Commonwealth Department of Health’s Teleweb funding, with additional support from the corporate, philanthropic and research sectors. E-mental health services do not attract sustainable funds through Medicare or other insurance schemes, although many are directed by clinical services.

• Despite the proliferation of e-mental health services, the integration with face-to-face services has been slow, which is at odds with what has occurred in the commercial sector – the banking and retail sectors, for example, have made successful transitions to online/offline integration.
THE FINAL HURDLE TO INTEGRATION: INTEROPERABILITY

- The mental health sector is yet to embrace commercial tools that allow interoperability across and between services.
- Potential reasons for a lack of integration include: cost barriers, a workforce that lacks the skills to use new and emerging technologies, increasing concern that the loss of face-to-face contact will reduce the therapeutic relationship and issues relating to privacy and medico/legal risks.

IMPLICATIONS FOR CHANGE

INTEGRATION

- The most common rationale for online support has been an economic justification - that it is cheaper to deliver services online. This review argues for a reframing of that rationale and purports that an integrated service is optimal for mental health outcomes. While there will always be a need for face-to-face services for the most severely unwell, best practice would dictate this approach is supplemented by around-the-clock support.
- NSW has some excellent case studies that clearly demonstrate integration between face-to-face services and online support, for example; the clinic at the Brain and Mind Research Institute at the University of Sydney, headspace Western Sydney, headspace Central Coast and The Black Dog Institute. However, overall, face-to-face services in both primary and secondary care are not using online interventions or new and emerging technologies. The online clinician-assisted treatment program for anxiety and depression THIS WAY UP has strong connections with general practitioners, however, most of the users of these services approach the virtual clinic directly rather than through GPs.

EARLY INTERVENTION TO REDUCE LONG-TERM BURDEN

- There are excellent examples of the impact and efficacy of public health campaigns, most notably around skin cancer and motor vehicle accidents. The evidence in this report contends that equivalent efforts in mental health prevention and promotion would reap similar rewards.
- Evidence shows that early interventions are effective in preventing the development of disorders in the first place and that online intervention can, in many cases, result in the same patient outcomes that face-to-face services deliver. The case is clear for a more targeted approach: diverting greater resource to prevention tools will lead to a more mentally healthy population, freeing up mental health resources to ensure that a better quality of care is provided to those requiring it most, relieving unnecessary burden to the mental health sector more generally.

WORKFORCE AND RESOURCES

- There is a pressing need to up-skill professionals in the use of technologies in their day-to-day practice, including through up-to-date best practice guidelines as to how these technologies can be implemented.
- To ensure success, strong support from senior leaders will be required in order to shift some ingrained attitudes within the sector relating to technology use.
- Minimal technology infrastructure standards should be introduced to ensure equity of service access.
- Budget may need to be redirected towards the integration of online and face-to-face services, for professional training, some technology infrastructure needs and educational campaigns.

VULNERABLE POPULATIONS

- Evidence clearly suggests that technologies can be empowering for vulnerable populations, particularly in reducing stigma and providing access to online support, i.e. for young people who are same sex attracted, people living with a disability and people with a chronic illness.
- Equity of service access has always been an issue for those living in regional, rural and remote locations with issues such as cost, continuity of care and quality service provision being problematic. The advantage of technology is that it allows a mental health professional to live in Sydney for example, but provide treatment to a patient in Broken Hill.
- The use of new and emerging technologies, such as digital content production, provides an opportunity to create service models that are appealing, simple and easy to use – this is critical for vulnerable populations, including people living with a disability, indigenous Australians and the culturally and linguistically diverse (CALD) community.
- New and emerging technologies empower people by allowing them to tailor services to support their individual needs, for example choices about mobile apps, biometric devices and the online support they access.
RECOMMENDATIONS/STRATEGIC DIRECTIONS

- A long-term objective for mental health reform should be ensuring that people can access the right care at the right time, and that support can be provided universally and around-the-clock. This is not feasible within the existing framework of service provision, but if technologies were integrated into a seamless system of mental health care, this would be achievable.

- The following recommendations are made for the short and medium term, covering structural, programmatic, training and research responses required to move to a seamless system of mental health care:

**Structural**

  - **Recommendation One:** Develop a common protocol for e-mental health services (i.e. online interventions, mobile apps, campaigns, online clinics, web based services), which makes evaluation for impact mandatory.

  - **Recommendation Two:** Quarantine a budget segment for provision and continual improvement of technology infrastructure for the mental health sector, with an initial start point of piloting in rural, regional and indigenous communities.

  - **Recommendation Three:** Map current e-mental health policies across mental health services and develop one standard that promotes the integration of e-mental health into clinical care.

  - **Recommendation Four:** Work to develop funding models that support institutions delivering e-mental health interventions – through private insurers or Public Private Partnerships.

**Programmatic**

  - **Recommendation Five:** Trial the provision of an iPad to NSW GPs pre-loaded with a variety of e-mental health services and apps to be used in a consultation to advise the patient of available online support;

  - **Recommendation Six:** Make available the products being developed by the Young and Well CRC, including:
    
    i. Provision of the ‘Online Wellbeing Centre’ and ‘Link’ to every NSW secondary school. With both programs accessible via school intranets, the Wellbeing Centre will host a suite of apps that promote the wellbeing of young people, while ‘Link’ will provide a triage pathway to care;

    ii. Provision of online clinics developed in partnership with Brain and Mind Research Institute, Orygen Youth Health Research Centre, headspace, The Black Dog Institute and the Australian National University to every secondary school and University in NSW;

    iii. Share and promote the ‘Better Practice Guide for Services about using technologies safely and effectively to promote young people’s wellbeing.’ Published in 2013 by the NSW Centre for the Advancement of Adolescent Health and the University of Sydney, this resource can be used as the backbone for the education and training of healthcare professionals.

  - **Recommendation Seven:** Leveraging off the successful National E-smart Libraries Digital Literacy and Cybersafety Program, incorporate a training module for older people to become e-mental health literate.

**Professional Training**

  - **Recommendation Eight:** Train healthcare leaders in NSW on the use of emerging technologies in e-mental health, and develop a Digital Roadshow, using a hub-and-spoke model, which can be delivered face-to-face in a community forum as well as online;

**Further Research**

  - **Recommendation Nine:** Review the evidence supporting e-mental health annually and maintain an up-to-date analysis relevant to NSW, to ensure it remains innovative.
MEASUREMENT AND MONITORING OF OUTCOMES

- In order to measure the impact of these services, create standards that ensure consistent data is collected and shared across services.
- Continue to improve our understanding of how people use technologies and the impact on their mental health and wellbeing through specially designed research programs.
- Conduct a community controlled trial and state-wide survey to determine if there are differences between the hub and spoke regions that are targeted with the above recommendations, and those that have not.
Introduction

- 20% of Australians experience a mental disorder within a 12-month period (ABS, 2008) (see Appendix 2).
- In NSW, less than 8% of the health care budget is allocated to mental health expenditure (NSW Government, 2013).
- The proportion of Australians seeking help for a mental disorder did not increase over a decade; 38% in 1997 versus 35% in 2007 (ABS, 2008). This is despite high profile public campaigns targeting depression (Highet et al., 2006, Burns et al., 2010b) and a significant increase in access to psychological services through the Department of Health’s Better Access initiative (Hickie, 2004).
- It is predicted that by 2030 depression will carry the highest disease burden in high-income countries (Mathers and Loncar, 2006).
- Australia spends in excess of $28.6 billion per year to support people with a mental illness, equating to 2.2% of Australia’s Gross Domestic Product (GDP) (Medibank Health Solutions and Nous Group, 2013).
- At present, Australia lacks an “end-to-end” system design, with the mental healthcare landscape highly populated by government and not-for-profit organisations, but not appropriately integrated to provide a streamlined pathway of care for the user (Medibank Health Solutions and Nous Group, 2013).
- Online service delivery provides immediate access to care, regardless of geographical location and proximity to physical services (Medibank Health Solutions and Nous Group, 2013, Burns et al., 2010b).

Australia is at the forefront in the development of e-mental health initiatives with the establishment of online programs. This includes NGO sector-led services such as ReachOut.com, headspace, The Black Dog Institute, Lifeline, kidshelpline, Mindspot and beyondblue, and scaled-up University-led services such as MoodGYM, eCouch, Beacon 2.0, Mindspot Clinic, THIS WAY UP Clinic, and Anxiety and Depression online (see Appendix 1a, 1b and 1c). With increasing access to online modalities, mobile devices and apps, the Australian population have greater capacity to access and utilise e-mental health resources than at any time previously. A significant challenge remains in identifying the most appropriate approaches to ensure integration of e-mental health into the current service systems, including primary health care and youth-friendly services. This review will focus on the benefits, issues and obstacles for the provision of online e-mental health services. It will examine the strengths and challenges of e-mental health services for different population groups in NSW and how those services that have been established can link with more traditional health services that are widely utilised by the community.

AUSTRALIANS AND THE INTERNET

- 86% of Australians access the internet and 44% of Australians use the internet more than five times a day (Sensis and AIMIA, 2013) (see Appendix 3a and 3b).
- Young people are the faster adopters of new and emerging technologies, with 99% of young people using the internet, and 95% using the internet daily (Burns et al., 2013).
- A total of 3.9 million Australians aged over 14 years accessed the internet via their mobiles in June 2011 alone, while 8.6 million Australians aged over 14 years accessed social networking sites from home in the same time period (Australian Communications and Media Authority, 2011).
- 90% of young people aged 16-29 years use the internet daily (Nielson, 2010).
- 92% of homes have access to an internet connection and it is almost universal across all demographics (Nielsen, 2012).
- Young people are both comfortable and frequently engaged with online means of communication, with social networking services (SNS) such as Facebook serving as the hub for social planning, activity and interaction (Walker et al., 2011).

THE NEED TO FOCUS ON YOUNG PEOPLE

- In Australia, poor mental health accounts for 50% of the total disease burden for young people aged 12-25 years (Australian Institute of Health and Welfare, 2007).
- When experiencing mental health difficulties, only 13% of young men, and 31% of young women seek professional assistance (Slade et al., 2009).
- As 50% of adult mental disorders have their onset before age 15 and 75% by age 25, the teenage period offers the greatest opportunity for providing interventions early in the course of these disorders (Kendler and Kessler, 2002).
• Although knowledge about depression was good, young people preferred to seek help from family or friends (61-65%) and to use non-pharmacological treatments (Hickie, 2007).
• 38.5% of young males and 48.7% of young females indicated a preference of receiving mental health assistance via an online clinic (Cyber Safe Kids, 2013).
• Widespread internet access serves as the ideal platform to “rapidly engage young people” (McGorry, 2007), and form genuine connections that can facilitate mental health treatment online.
• Young people are using technologies to access information and assistance in relation to mental health concerns, which provide a potential alternative to traditional forms of clinical engagement, enabling professionals to interact via the internet (Burns et al., 2010b).
• Technologically-driven interventions can help encourage the accessing of face-to-face services, “allowing young people who need intensive services to readily access them whilst also supporting the large number of young people with mild or moderate mental health concerns.” (Kauer et al., 2013).
• There is a major disconnect between young people’s use of technologies and the understanding of those working to improve young people’s mental health (Blanchard, 2011).

THE EVOLUTION OF E-MENTAL HEALTH

While it can be largely agreed that e-mental health refers to the provision of mental health services online, this concept has evolved over time, from a notion of telehealth and online portals for storing data, to a point that e-mental health is now recognised as a holistic concept where technologies are used in an integrated manner for the improvement of mental health and wellbeing.

Often when discussing e-mental health, an assumption is made that e-mental health is simply ‘telemedicine’, a term coined in the 1970s literally meaning “healing at a distance”, with its purpose to overcome geographical barriers to provide clinical support using various types of technologies to improve health. Another common assumption is that e-mental health is the Commonwealth Government’s eHealth Record System, introduced in 2012 as a personally controlled, secure online summary of health information, allowing patients to share health information with healthcare providers.

While both telemedicine and e-Health Records are important elements of e-mental health, the first major policy document was written over a decade ago ‘e-Mental Health in Australia: Implications of the Internet and Related Technologies for Policy (2002)’ – where the term ‘e-mental health’ was used to refer to mental health services and information delivered or enhanced through the internet and related technologies. The focus in the report is on the use of the internet in mental health delivery, education and health promotion and illness prevention. In particular, it hone in on the use of World Wide Web technologies, the exchange of information via email, and the use of chat groups and data transfer.

In 2006, the Federal Government funded the Telephone Counselling, Self Help and Web-based Support Programme and in 2012 the e-Mental Health Strategy for Australia was announced with the mindhealthconnect portal aimed at improving access, through a single online gateway, to trusted mental health resources, support and services. The Government of the day noted that “e-mental health will complement the significant benefits that the broader e-health record will have for people with a mental illness.” (The Hon Mark Butler, 2011).
Method

In the brief for this rapid review the NSW Mental Health Commission asked for two specific questions to be addressed;

Review question one:

Taking into account the whole spectrum of the mental health care system, including primary care, public mental health services and non-government organisations:

a) Identify the benefits, issues and obstacles for the provision of online health services in the mental health care system?

Scope
- Focus on system level issues
- Include any evidence of how e-mental health promotes self-managed care and any potential benefits of significantly reducing burden on the health system

b) What benefits/challenges do online health services represent for different groups of the population for example, children and young people, people in rural and remote areas?

Scope
- Identify specific population groups that e-mental health may advantage/disadvantage and describe how this may occur.

c) How are online services linked with the wider health services available in the community, for example primary health care?

Scope
- Include an overview of e-mental health services in Australia and where possible identify linkages between identified services (see scope review question two) and the wider health service.

Review question two:

a) What investment and development, including infrastructure and processes, is required for improved integration of evidence based online mental health services into NSW?

Scope of question two:
- The review should identify structural changes would be required to extend programs identified in part 1c above
- Investment and development should focus on structural changes required to integrate evidence based online mental health services into NSW rather than the development of new interventions.
- Structural changes may include but should not be restricted to areas such as governance; workforce development; regulatory framework; privacy and infrastructure.
- Current major e-health programs such as but not restricted to: MoodGYM, ReachOut.com, Inspire, e-headspace, The Black Dog Institute’s myCompass should be identified and described. Where possible note the costs, benefits and savings of the services that are identified.
- Include the requirements for workforce development to integrate e-mental health into frontline service delivery. (Note the changing demographic of the workforce will be reflected in the changing needs of the workforce. Whilst initially training may be more intense this will reduce with a workforce that is more technologically literate).
- The reviewers are requested to make informed recommendations on next steps to build on the work already undertaken in the area of online mental health services nationally and in NSW.
OUR APPROACH

In the short timeframe available for this rapid review, an extensive and systematic review of the literature was not feasible. The first part of the method was therefore based on the core material already published by or known to the authors. This material used as a basis for searching other references relevant to the scope of the Review, employing a ‘snowball’ approach.

The second component of our method was to conduct a search of biomedical, psychological and social databases of English language peer reviewed papers from 2000 to 2013 from Australia, New Zealand, Canada, USA and Europe. Databases searched included Medline, Beacon, PsycINFO and Pubmed. Keyword searches included: e-mental health, internet, effectiveness, online counselling and online support.

The third element of the method was a search engine-based review using the same terms above to search for grey literature on current e-mental health policy documents, relevant reports and publications by both government and community organisations. Overall, we believe the richness of information we were able to find has enabled this Review to meet its objectives in full.

In this review, we identify e-health interventions that aim to promote mental health and prevent the onset of a mental illness. Recently, the National Mental Health Service Planning Framework (MHSPF) conducted an international review of mental health promotion and mental illness prevention strategies that provides a useful basis for examining e-health interventions in this sphere. For each approach, the MHSPF nominated classes of evidence-supported strategies. This classification was used to tabulate the e-health interventions that have been found to be effective among non-clinical community samples (see Appendix 4a & 4b).
Analysis of research evidence

The framework used in this review is the Spectrum of Interventions for Mental Health produced by the US Institute of Medicine in 2004 and adapted for use by the Commonwealth Department of Health and Aged Care in 2000 and subsequently in Mental Health Policy in Australia. This spectrum argues that resources should be distributed across promotion, prevention, early intervention, treatment and continuing care and while this model was developed for face-to-face services, it is equally applicable online. A description of current online service offerings, their availability in NSW and where they are positioned on the mental health spectrum is provided in Appendix 1a and 1b.

As outlined in ‘The Case for Mental Health Reform in Australia,’ mental health outcomes in Australia are sub-optimal and the current system is comprised of a complex network of care settings and service providers, with mixed and overlapping responsibility for service delivery. The nature of mental illness also increases the likelihood that an individual will interact with multiple parts of the health care system and the broader social services, yet the service model is fragmented and without co-ordination. In addition, almost 60% of individuals with mental health problems do not access professional treatment (Burgess et al., 2009).

Technologies can play two critical roles:

1. Providing online support for those who do not currently engage in the mental health system; and,
2. Empowering consumers to use technologies to improve their interaction with the mental health system.

The rationale and evidence for both critical roles is well established and yet the integration of technological solutions into the traditional mental health care system has not yet occured.

In 2010, many individuals in the NGO sector united to write recommendations for considering the use of technologies in mental health service delivery. The arguments were simple, but are worth restating:

- E-mental health services enable consumers confidential, flexible access to services through preferred methods of contact, i.e. contact can be made from home, at all hours of the day, and in ways that do not require disclosure to friends or family members. Immediacy of access is especially important for delivery of services to people from rural and remote locations, and this feature will have substantially increased impact as broadband becomes universally available.
- Access at low cost and in flexible, non-stigmatising ways is particularly important for people with high-prevalence, low-severity disorders, who are over-represented in the group who currently are not receiving treatment.
- E-mental health services can also be used as an adjunct to face-to-face treatment or as a guide for treatment sessions, ensuring high fidelity, evidence-based care, and building the capacity of practitioners.
- E-mental health services can reach consumers in rural, regional and remote locations who are often severely under-served.
- E-mental health supports consumer-initiated contact with mental health services, in forms that do not require firstly contacting a ‘gatekeeper’ service, such as a GP. Contact with e-mental health services can occur at a pace set by the consumer, and consumers can explore information and service options in a self-directed way.
- E-mental health is potentially less costly for consumers and providers.
- E-mental health is more cost effective for Governments than traditional mental health services (Christensen et al., 2010) (beyondblue, 2013).

Mental health services are not well rationalised, so that those with the greatest need may not receive face-to-face services quickly. Despite significant efforts to date, the need for better integration of mental health care prevails within and across sectors resulting in a lack of continuity of care. In addition, costs of medical care are spiralling and workforce numbers are low.

Research evidence surrounding the use of the internet and associated technologies are now recognised as key solutions to the delivery of high quality, cost effective health services.
PROMOTION AND PREVENTION

Tables 5a and 5b in the Appendix provide a summary of evidence from Australian services that are specifically available in NSW including MoodGYM, Reachout.com, lifeline and kidshelpline, etc. that support the use of technologies for promotion and prevention, specifically:

• Australia has been at the forefront of international innovations in its use of e-health platforms to promote better mental health and deliver enhanced mental health care (Christensen and Petrie, 2013, Griffiths, 2013, Proudfoot, 2013). Good evidence exists that technologies can be used effectively in improving mental health and wellbeing (Cuijpers et al., 2008, Griffiths et al., 2010), especially among young people (Christensen and Hickie, 2010b).

• Online interventions for a range of mental disorders and problematic health behaviours (e.g. depression, anxiety, smoking, weight, substance use) have demonstrated efficacy, and the number of programs available is growing rapidly (Mitchell et al., 2010).

• A review of 26 randomised controlled trials (RCTs) found the internet to be an effective medium for the delivery of interventions designed to reduce the symptoms of depression and anxiety conditions in 88% of the studies (Griffiths et al., 2010).

• Calear and Christensen (2010) conducted a systematic review of internet-based prevention and treatment programs for children and adolescents, identifying eight studies across schools, primary health care, mental health clinics and via open-access websites. The authors concluded that the ”...findings provide early support for the effectiveness...” but more ”...research is needed to further establish the conditions through which effectiveness is enhanced” (p. S12).

• Tait and Christensen (2010) conducted a systematic review of RCTs of web-based interventions for problematic substance use by adolescents and young adults. The authors identified 16 studies largely from tertiary students and concluded that web-based interventions were as effective as brief in-person interventions.

• While positive results are seen from the use of self-directed e-health interventions, there is some evidence that these are most effective if used as part of a stepped-care model (Van Straten et al., 2010), with the support of a trained professional (Perini et al., 2009, Titov et al., 2009) or as an adjunct to face-to-face treatment (Hickie et al., 2010).

• An evidence-based literature review of over 50 studies examining young people’s use of social networking showed significant benefits to young people’s mental health, including: delivering educational outcomes; facilitating supportive relationships; identity formation; and, promoting a sense of belonging and self-esteem. Collin et al. further argue that the ”...strong sense of community and belonging fostered by SNS (social networking services) has the potential to promote resilience, which helps young people to successfully adapt to change and stressful events” (2011).

• For those wishing to improve their overall wellbeing, technologies can assist in promoting social inclusion, access to material resources and freedom from discrimination and violence (Burns et al., 2009, Burns and Blanchard, 2009).

EARLY INTERVENTION, ENHANCED SELF-MANAGEMENT AND SECONDARY PREVENTION

As 50% of adult mental disorders have their onset before age 15 years, and 75% by age 25 years, the teenage period offers the greatest opportunity for providing interventions early in the course of these disorders.

The goals of such early intervention strategies are not simply the reduction in immediate symptoms of distress but also a broader range of more profound impacts including:

• supporting ongoing participation in education and employment;
• enhancing participation in relevant social networks and supporting age-appropriate social development;
• reducing the risks of self-harm and suicidal behaviour;
• reducing the risks of poor physical health through direct modification of relevant co-morbid risk factors such as tobacco and cannabis smoking, as well as other lifestyle modifications such as enhanced physical activity, management of appropriate eating behaviour and support for development of appropriate sleep-wake cycles; and,
• secondary prevention of development of alcohol and other substance misuse disorders.

This focus on earlier intervention during the teenage years has raised many conceptual, ethical and health service challenges. From an illness-onset and treatment perspective, it requires active identification of disorders before they necessarily reach current diagnostic thresholds – which in turn guide treatment selection. From an ethical perspective,
they raise questions about choice of treatment and potential exposure to harm associated with over-diagnosis, premature medicalization, of distress or over treatment. Additionally, these key issues are arising at ages when a young person may wish to be treated as an individual, and with their own confidentiality concerns – and, thereby, separated from the decision-making processes of the family of origin. In most medical settings, however, during these years the consent and cooperation of parents or guardians would be sought for initiation of relevant medical or psychological therapies.

From a health services perspective, traditional primary care services, and particularly those based in typical general practice settings – see (Hickie et al., 2001) – have had the least engagement with the mental health concerns of young people. Repeated mental health surveys in Australia have indicated the lack of progress between 1997 and 2007 in attracting young people with mental disorders to health care – with only 16% of males under the age of 25 with a mental disorder, and 30% of females, receiving professional assistance. This is despite the fact that young people themselves increasingly recognise the importance of mental health problems emerging at this stage of life – and are increasingly likely to seek help from peers, family and the internet (Burns et al., 2010b).

In response to recognition of the gap between the need for care and the use of traditional primary care services in Australia, the national government supported the development of the headspace youth services network (McGorry, 2007). This network is based on the concept that health care can be delivered earlier in the course of the major anxiety, mood, psychotic and substance misuse disorders if that care is targeted directly at young people and their families.

Preliminary evaluation of such services (Scott et al., 2012a) indicate the extent to which young people in earlier stages of common disorders (including 50% males) can be attracted to health care. Importantly, it is clear that while most of these young people do not yet have persistent or severe mental disorders, they are already experiencing significant disability, increased rates of alcohol and other substance misuse and daily tobacco use (Hermens et al., 2013), increased rates of suicidal ideation (Scott et al., 2012a, Scott et al., 2012b), and disturbed patterns of sleep-wake cycle behaviour (Scott et al., 2012b).

However, the capacity of centre-based headspace services or other more traditional primary care services to connect with large numbers of young people, provide ongoing care or support, or focus on the broader range of outcomes described above remains unclear. Importantly, as such services are conceived largely as short-term or crisis-focused, they do not necessarily engage young people in the ongoing building of self-management supports or strategies or ongoing monitoring of key aspects of both their physical or mental health. The opportunity, therefore, to link with more dynamic e-mental health strategies is now perceived to be a major challenge for the field.

Appendix Table 6 provides a summary of the reviews, which have explored the most current technologies including gaming, social networking services and online interventions.

**BARRIERS TO ACCESS, THE DIGITAL DIVIDE AND THE ROLE OF TECHNOLOGIES**

The literature shows that young people experience barriers in gaining access to mental health services, with some segments of the population more underserved than others (Burns et al., 2008). Studies show that in Australia, many young people lack access to traditional, clinic-based mental health services (Christensen and Hickie, 2010b). Culturally and linguistically diverse (CALD) youth experience high levels of structural disadvantage that threaten their mental wellbeing as well as posing barriers to accessing support (Francis and Cornfoot, 2007). Exposure to trauma makes young refugees especially vulnerable (Drew et al., 2005). Other groups of young people that face barriers to mental health services due to social exclusion, discrimination, and other constraints include Indigenous youth; people living with disability or chronic illness; carers; and sexuality, sex, and gender diverse youth (Blanchard et al., 2008, Burns et al., 2008).

The disadvantage experienced by Indigenous Australians living in remote communities is a factor in higher rates of serious mental disorders and of mental health problems that are compounded by narrowly focused and inadequate mental health services, with children being particularly vulnerable (Hunter et al., 2007). Socio-economic factors also play a role in determining access to care, with young people living in disadvantaged areas more likely to lack social support (Australian Institute of Health and Welfare, 2007).

A number of different types of barriers faced by young Australians in need of mental health services were indicated by the literature. For example, geographical barriers can limit access to services for people too young to drive, particularly in rural and remote locations where public transport is not available (Aisbett et al., 2007, Boyd et al., 2007). Physical
constraints can prevent access for young people living with disability and chronic illness (Burns et al., 2008). Cultural barriers, such as language and communication difficulties, can complicate service access for Indigenous and CALD youth (Gorman et al., 2003, Francis and Cornfoot, 2007). Temporal barriers have also been suggested by research, as young people are more likely to experience psychological distress after 11pm when mental health services are less available (Burns et al., 2013).

Throughout this review, digital connectivity has been affirmed as increasingly important, particularly for young people. For this reason it is important to consider the role of technologies in achieving greater levels of health equity, as well as the inequities generated by barriers to access to technologies, known as the ‘digital divide’. Access to the internet has been linked to income, class, ethnicity, disability status, and levels of education (Notley and Foth, 2008, Livingstone and Helsper, 2007, ABS, 2008). Metropolitan families with children under 15 years of age in higher income brackets are more likely to use computers and the internet, while groups that are less likely to have access are Indigenous Australian, the unemployed, people with low incomes, and people living with a disability (Notley and Foth, 2008). Consideration of structural factors, therefore, is important in understanding how to remove barriers to internet access (Blanchard, 2011, Collin and Burns, 2008).

The literature suggests that removing barriers to internet access can be useful in improving mental health outcomes for young people. In addition to the barriers young people face in accessing mental health services, young people with mental health problems are less likely than adults to seek help from GPs or clinic-based services (Blanchard, 2011). Recent studies demonstrate that young people prefer to access support online (Gould et al., 2002, Hampshire and Di Nicola, 2011, Burns et al., 2010b), and that online services can transcend many of the barriers faced by traditional clinical services, such as temporal and geographical constraints This research, combined with recent policy documents (Christensen et al., 2010), present a strong case for the potential role of mental e-health services in improving both access to services, and rates of usage by young people (Burns et al., 2010a).

A better understanding of how young people access support through the internet is important when considering how to improve equity of access and reduce the digital divide. One Australian study found that 43% of young people at greater risk of mental health problems accessed the internet at home, with libraries (32%), schools (18%), internet cafes, workplaces, and youth centres cited as other points of access (Blanchard et al., 2008). Studies in the US and Germany have found evidence of increased access to the internet through mobile phone usage in disadvantaged populations of young people, indicating the importance of mobile phone applications (Thomas et al., 2010, Horrigan, 2009).

The use of social media to bolster social inclusion is also indicated by a study that found 57% of young people creating online content using Web 2.0 platforms in the US belong to racial minorities (Lenhart and Fox, 2006). Recent reports show that 90% of Australians aged 12-17 use social networking sites frequently, with figures increasing to 97% when only 16-17 years olds are considered (Australian Communications and Media Authority, 2009). Further research undertaken with young Australian men reported that those suffering from psychological distress were significantly more likely to seek mental health information through the internet, with 95% reporting that they were satisfied with information they received (Burns et al., 2013).

**MEDICAL, LEGAL AND ETHICAL ISSUES**

“In those emerging areas (i.e. internet, telephone) in which generally recognised standards for preparatory training do not yet exist, psychologists nevertheless need to take reasonable steps to ensure the competence of their work and to protect patients, clients, students, research participants, and others from harm”. (APA, 1997).

E-mental health refers to ‘mental health services and information delivered or enhanced through the Internet and related technologies’ (Christensen and Petrie, 2013). In addition, the term ‘m-health’ refers to ‘health care delivered on mobile communication devices such as mobile phones, smartphones and tablets’(Proudfoot, 2013).

To date, e- and m-health technologies have been subject to the basic/core ethics standards dictated by the professional bodies of the given countries in which they have been developed. For the present discussion it may be best considered within the framework of the Universal Declaration of Ethical Principles for Psychologists (2008). The core principles of the declaration will be used as the template from which to assess the ethical and medico-legal obligations of internet-based mental health interventions. These core principles are:
1. Respect for the dignity of persons and peoples
2. Competent caring for the wellbeing of persons and peoples
3. Integrity
4. Professional and scientific responsibility to society

While researchers and clinicians are bound by codes of conduct, at this stage, there do not appear to be specific standards or guidelines relating to the development and delivery of e- or m-health initiatives beyond stated professional and ethical codes of conduct. Recent viewpoint papers by leading Australian e- and m-health researchers describe the need for guidelines and standards to keep up with these new and emerging technologies, and one contributor raised the salient point that it may be the service providers/researchers rather than government bodies who need to develop and drive the necessary regulation (Jorm et al., 2013).

While there has been a rapid increase in the number of e- and m-health initiatives, there still remains a lack of adequate evaluation of many publically available interventions (Christensen and Petrie, 2013, Griffiths, 2013). It would seem sensible that a component of the evaluation of e- and m-health interventions is the degree to which they comply with established professional standards. There is some progress being made, and a recent viewpoint paper by Proudfoot (2013) describes the move within the m-health intervention sector by groups, such as Happtique, to establish standards of practice relating to the security, storage and transfer of data as well as guidelines relating to confidentiality and privacy (Happtique, 2012). In addition, government telehealth and telemedicine policy and guidelines may be used to provide basic privacy and confidentiality standards for the data collected through e- and m-health interventions.

Working within the existing Universal Declaration of Ethical Principles for Psychologists (2008) there are several key areas that relate to e- and m-health interventions:

1. **Respect for the dignity of persons and peoples:**
   - Issues relating to informed consent – it is difficult to establish whether a participant in online interventions have: (a) understood; (b) are capable of providing informed consent to participate in internet delivered interventions; and, (c) are of an age to provide consent. Requirements for participants to be over a certain age, or else provide parental consent are difficult to verify with large-scale self-selecting interventions.
   - Privacy – security of information transmitted over the internet. Appropriate encryption, password protection and secure storage of personal information as well as the de-identification of participants in datasets (Andersson, 2009).
   - Confidentiality – not disclosing to a third party any details collected from an individual during online interventions, as well as who will have access to the information provided by the participant during the course of an intervention.

2. **Competent caring for the wellbeing of persons and peoples:**
   This is raised by Jorm et al., (2013) as an issue relating to the need for human care and Dever Fitzgerald et al. (2010) suggest that in areas of issues relating to harm minimisation as well as maintaining competence. These may influence the scale and scope of services that are provided over the Internet. However, a consideration relating to care requirements is determining whether large-scale e- and m-health interventions actually establish a therapeutic alliance, and if there is no therapeutic alliance, determining if this does limit the ethical responsibility to the individual by the service provider.

   National/international jurisdictions – determining whether service providers are required to meet ethical and medico-legal requirements within their own as well as the users country/state. The reach of e- and m-health is potentially global, therefore it must be determined by legislation whether complaints are to be dealt with at the location where the intervention was developed, or at the location where the complaint was lodged (Dever Fitzgerald et al., 2010).

3. **Integrity:**
   Not exploiting for personal, professional or financial gain – cost recovery models may not adhere to this principle so well. There is the requirement for participants to be informed of any potential conflict of interest.

4. **Professional and scientific responsibility to society:**
   Report and disseminate research findings.
ANALYSIS OF GAPS IN EVIDENCE

It is clear there are a plethora of online services; some have been vigorously evaluated and others are popular because they have developed popular brands that people trust. A number of gaps in the evidence base for e-mental health interventions clearly exist. First and foremost, there are a variety of e-mental health resources used for prevention and promotion, including mobile phone applications, available to NSW residents (and more widely), that are currently undergoing evaluation or yet to be evaluated. Until all online services adhere to a protocol that makes evaluation for impact mandatory, we are unable to make recommendations regarding these resources, despite their current use and/or public accessibility.

Secondly, there are some interventions which are effective, but only accessible to research populations. Additionally, there are a range of e-mental health programs currently being used as treatment interventions among clinical samples which could be adapted and disseminated for prevention purposes, but require further investigation.

Thirdly, in relation to mental health promotion, there is a lack of evidence on the effectiveness of online mass media campaigns to disseminate information and change attitudes. A number of high profile organisations (e.g. beyondblue, headspace, SANE) have launched websites to encourage help-seeking and combat stigma, yet few of these have been formally evaluated. Moreover, some of these organisations have launched discrete mental health promotion or anti cyber-bullying campaigns using mixed media (e.g. SANE Say no to Stigma! YouTube Campaign, and REELise) that are also yet to be evaluated. Research has found that traditional mass media campaigns are not effective in reducing stigma but with the uptake of social media, we are unsure if these findings are mirrored in the changing e-mental health context.

Finally, with the growing interest in and recognition of the importance of workplace mental health, workplace programs (eg. Mindful employer) and mobile phone applications for workplace stress reduction also remain to be formally evaluated. Additional areas that may be suited to e-health interventions, but require further research, include:

Promotion:
- Enhancing first aid behaviours.
- Interaction via video link with those suffering mental ill-health and experiencing the effects of stigma.
- Social and emotional learning.
- Positive psychology (NB: The Black Dog Institute’s positive psychology website ‘Bite Back’ is currently being evaluated, with a manuscript in preparation. The web and mobile phone meditation application ‘Smiling Mind’ is also currently being evaluated in Australian schools).
- Reduction of bullying and cyber-bullying (NB: ‘REELise’, a community-based program encouraging constructive use of mobile phones to combat cyber-bullying and ‘headspace’ YouTube anti-bullying campaign are both yet to be evaluated).

Prevention:
- Restriction to means with the aim of preventing suicide (NB: ‘search word optimisation’ is being investigated by researchers at the Brain and Mind Research Institute, University of Sydney).
- Responsible reporting in media about suicide (NB: Mindframe and SANE have published resources, but these are yet to be evaluated).
- School-based programs for the prevention of aggression, violence, antisocial conduct disorder and externalising behaviours (NB: e-mental health treatment interventions exist which could be adapted for prevention purposes eg. ‘Treasure Hunt’).
- University-based programs for the prevention of eating disorders and body image problems.
- School-based prevention programs for suicide (NB: ‘Reframe IT’ is current being evaluated by Orygen Youth Health).
- Preschool Screening & CBT (NB: ‘BRAVE online’ for parents of pre-schoolers is currently being evaluated).
- Primary School-based Prevention of Depression and Anxiety.
- Parent Management Training (NB: Triple P is currently being adapted for online delivery but yet to be evaluated).

Legal and Ethical Considerations:
- Management of crisis – May depend on the nature of the intervention, but the legal question may be something along the lines of “Does the intervention take reasonable and prudent course of action relating to potential risk or harm to self or others”. (NB: the ReachOut.com online forums duty of care framework)
• Age of consent – valid legal competence to consent.
• Client privacy and confidentiality – issues relating to de-identified data, the use of password protected files, and encryption that have been raised above. Requirement of service providers would be to clearly state what purposes any data collection will be used for and must act within the limits of these stated uses. This (according to US, European and Canadian-based legislation) also extended to ensuring the accurate collection, storage and reporting of data.
• Further research is needed to understand how clinicians and services might integrate user generated and internet-collected diagnostic information.

ANALYSIS OF THE APPLICABILITY OF THE FINDINGS TO THE NSW CONTEXT

CURRENT PROVISION OF E-MENTAL HEALTH SERVICES

A number of current providers offer a range of e-mental health services across the preventive interventions spectrum (see Matrix in the Appendix). Those listed in the text below and in the Appendix are not an exhaustive list.

- beyondblue and ReachOut.com (Inspire Foundation) provide health promotion and early intervention activities, with some prevention interventions (i.e. www.reachoutcentral.com.au; ‘Young Minds’ online training for allied health professionals and General Practitioners at www.youthbeyondblue.org.au; beyondblue 24 hour infoline).
- E hub at the Australian National University provides prevention and self care in depression, anxiety, social anxiety and facilitates peer-to-peer support through ‘blueboard.’
- Lifeline Australia and kidshelpline provide online and telephone counselling for mental health and life problems for a large number of Australians and crisis support services for suicide.
- The Black Dog Institute provides information, prevention, self care and telemedicine for mood disorders.
- mindhealthconnect provides an online portal to mental health services.
- Virtual clinics such the National eTherapy Centre, MindSpot and Virtual Clinic provide either automated or clinician guided services, or both. Research is currently underway by the Young and Well CRC to develop a University Clinic and an online multidisciplinary Professionals Clinic.
- A range of models exist for the use of e-mental health systems within general practice i.e. The Black Dog Institute.
- There are also providers from the non-university or public health sector, such as private psychologists and psychiatrists who provide online therapy, and increasingly insurers and the telecommunications providers are exploring commercial opportunities for e-mental health.

As they stand currently, these services do not achieve the level of benefits that might be obtained in a united and coordinated system of mental health care. The level of investment in research and evaluation has been minimal and as a result very few effectiveness evaluations have been undertaken. Although these services promise to reduce demand on the health workforce, the evidence for this has not been established.

Youth health workers believe that using technologies will enable them to have a greater impact on young people’s mental health, argue Blanchard and colleagues (2012). The same study reports that youth health workers believed that technologies play a considerable role in the lives of most young people, and that these technologies have the potential to influence mental health and wellbeing, both positively and negatively. However, participants also felt that these technologies are poorly understood and under-utilised in mental health promotion and in the prevention, early intervention and treatment of mental ill-health. If barriers to the use of technologies were overcome, the youth mental health workforce would be able to use technologies more effectively in their practice. Such barriers include poor infrastructure, lack of guidelines or policies to support safe and constructive use of technologies and lack of awareness about which technology-based strategies or approaches are most effective, and in which contexts (Blanchard et al. 2012).

Further investment needs to be made in securing appropriate technological infrastructure in youth mental health services, and in training staff members to develop an adequate understanding of young people’s technology use and the range of strategies that can be applied to improve and promote young people’s wellbeing (Blanchard et al., 2012). The capacity of the existing health workforce to integrate e-mental health services into their practice has been found to
be low. Funding, promotion, professional development and online teaching resources have been needed to increase uptake and sustained use.

**BUILDING NEW E-HEALTH SYSTEMS OF CARE TO SUPPORT EARLY INTERVENTION AND TREATMENT STRATEGIES**

Given workforce shortages in mental health, the geographical and cost barriers to effective service provision, and the reluctance of key groups (such as young people and men) to use formal clinical services, e-mental health innovations will be central to real reforms (Rosenberg et al., 2009, Burns et al., 2013). Technologies are likely to have maximum impact within the health system in the next decade if attention is given to both empowering individuals to use technologies to manage their own mental health and wellbeing and integrating online services with face-to-face services.

Snapshot 1 (below) outlines the services likely to have maximum growth in the next 10 years. Snapshot 2 summarises how e-mental health services aim to solve current problems in the delivery of health services, including those that facilitate consumer driven health, and Snapshot 3 notes the likely technologies that will gain dominance over the next 10 years.

**Snapshot 1. Expected areas of growth in e-mental health services**

E-mental health services are likely to have growth in the following areas:

- Stand-alone online interventions
- Organisation-based engagement and direction to care online
- Support to traditional centre-based care
- Provision of traditional assessment or support online
- Development of more comprehensive online assessment and support, linked to geographically-based specialists and other supports system
- Development of comprehensive assessment and treatment systems online

**Snapshot 2. Expected benefits of e-mental health services**

Through e-mental health services, the health system will:

- Empower individuals to manage their own mental health and wellbeing
- Provide better access to mental health programs
- Rationalise mental health services so that services match patient need
- Facilitate pathways to face-to-face care for consumers
- Facilitate continuity of care and follow-up
- Facilitate peer-to-peer support
- Lower costs for practitioners and consumers
- Reduce demand on workforce
- Tools, training and professional development for health care professionals

**Snapshot 3. Expected growth in technology**

- Biometric Devices
- Biofeedback to manage and monitor individual and organisational mental health
- Interoperability to facilitate service co-ordination
- Open API and standards to ensure data sharing
Currently, there is a range of e-health strategies in place or early development to support early intervention, enhanced self-management and secondary prevention (Christensen and Hickie, 2010a, Christensen and Hickie, 2010b). These can be conceptualised as fitting one of five different types:

**Stand-alone online interventions**
The first relevant developments in this area have been the wide range of online programs that have been developed for psychological or behavioural management of anxiety, depression or substance misuse. While not formally linked to traditional health care systems, they not only provide intervention potentially early in the course of such disorders, but also promote person-based health care for those at risk of self-harm or those with persistent disorders. The wide range of interventions available online also have the largest evidence base to support their continued promotion to young people with early phases of these common disorders.

**Organisation-based engagement and direction to care online**
The most obvious example of this approach has been promoted by the Inspire Foundation over the last 15 years in Australia, through its active development of the ReachOut.com website, related online communities, community promotion and development and, more recently, development of direct mental health interventions (e.g. Reach Out Central – see Burns et al., MJA 2010).

**Support to traditional centre-based care**
Here the focus of development is using e-tools to enhance delivery and monitoring of care for those who have presented early in the course of illness to a traditional primary care service. Active engagement with clinicians to encourage them to engage with a young person, who may be more familiar with using such tools, and related social media, is being pursued (e.g. Inspire Foundation-supported the development of ReachOut Pro).

**Provision of traditional assessment or support online**
In Australia, the national government has increasingly supported the provision of traditional assessments by clinicians online – largely using existing telehealth technologies (supported by Medicare Benefits Schedule rebates) or through direct contracts to larger organisations (e.g. eheadspace). Here the problems related to geographical gaps between clients and providers may be overcome, and there may be an increased willingness of young people to use such services in crisis or earlier in the course of illness. However, the extent to which such services actually engage a different group of individuals than those who present to traditional centre-based care is yet to be established.

**Development of more comprehensive online assessment and support, linked to geographically-based specialists and other support system**
With the development of more specialised treatment centres (e.g. for early psychosis, severe mood disorders, eating disorders) there is a recognised need to potentially divert early or less severe cases to online rather than traditional person-based care systems (see Christensen & Hickie MJA 2010). These systems can then provide relevant online interventions, monitor progress and, if needed, promote the appropriate rapid movement back to centre-based care.

**Development of comprehensive assessment and treatment systems online**
The most challenging area of future e-health based early intervention is to build clinical management systems, where for those who are in the early phases of disorder, the entire clinical process can not only be replicated online but greatly enhanced by linking to: enhanced self-care strategies; continuous passive and active illness monitoring systems; utilisation of data from relevant and personalised biometric monitoring and feedback system; and, the wider social media network of the young person, their family and their peers. This type of development is currently being pursued by the Young and Well CRC in Australia.
CONCLUSION AND RECOMMENDATIONS

A long-term objective for mental health reform should be ensuring that people can access the right care at the right time, and that support can be provided universally and around-the-clock. The widespread integration and uptake of technology can strengthen the capabilities of the sector, allowing for 24/7 care and information to be available. Four hypothetical vignettes (see Appendices 6a-6d) are provided to help the reader imagine what a synergised and seamless system of mental health care could potentially look like for an informed and empowered consumer utilising both online and offline supports.

The following recommendations are provided with a view of creating a seamless system of mental health care:

<table>
<thead>
<tr>
<th>CHANGE</th>
<th>TIME FRAME</th>
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<tbody>
<tr>
<td><strong>Structural</strong></td>
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<tr>
<td>© Recommendation One: Develop a common protocol for e-mental health services (i.e. online interventions, mobile apps, campaigns, online clinics, web based services) that stipulate mandatory evaluation of impact.</td>
<td>Ongoing/medium to long term</td>
</tr>
<tr>
<td>© Recommendation Two: Quarantine a budget segment for provision and continual improvement of technology infrastructure for the mental health sector, with an initial start point of piloting in rural, regional and indigenous communities.</td>
<td>Ongoing/long term</td>
</tr>
<tr>
<td>© Recommendation Three: Map current e-mental health policies across mental health services and develop one standard that promotes the integration of e-mental health into clinical care.</td>
<td>Ongoing/long term</td>
</tr>
<tr>
<td>© Recommendation Four: Work to develop funding models that support institutions delivering e-mental health interventions – through private insurers or Public Private Partnerships.</td>
<td>Ongoing/long term</td>
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<tr>
<td><strong>Programmatic</strong></td>
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<tr>
<td>© Recommendation Five: Trial the provision of an iPad to NSW GPs pre-loaded with a variety of e-mental health services and apps to be used in a consultation to advise the patient of available online support.</td>
<td>Pilot in 2014 in 15 metro GP clinics and 15 regional and remote GP clinics. If successful, rollout in 2016.</td>
</tr>
<tr>
<td>© Recommendation Six: Make available the products being developed by the Young and Well CRC, including:</td>
<td>Prototype currently being developed by partners of the Young and Well CRC. Rollout achievable in 2015.</td>
</tr>
<tr>
<td>i. Provision of the ‘Online Wellbeing Centre’ and ‘Link’ to every NSW secondary school. With both programs accessible via school intranets, the Wellbeing Centre will host a suite of apps that promote the wellbeing of young people, while ‘Link’ will provide a triage pathway to care;</td>
<td>Immediately – framework already established.</td>
</tr>
<tr>
<td>ii. Provision of online clinics developed in partnership with Brain and Mind Research Institute, Orygen Youth Health Research Centre, headspace, The Black Dog Institute and the Australian National University to every secondary school and University in NSW;</td>
<td>Immediately.</td>
</tr>
<tr>
<td>iii. Share and promote the ‘Better Practice Guide for Services about using technologies safely and effectively to promote young people’s wellbeing.’ Published in 2013 by the NSW Centre for the Advancement of Adolescent Health and the University of Sydney, this resource can be used as the backbone for the</td>
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</table>
education and training of healthcare professionals.

- **Recommendation Seven**: Leveraging off the successful National E-smart Libraries Digital Literacy and Cybersafety Program, incorporate a training module for older people to become e-mental health literate.

**Professional Training**

- **Recommendation Eight**: Train healthcare leaders in NSW on the use of emerging technologies in e-mental health, and develop a Digital Roadshow, which can be delivered face-to-face in a community forum as well as online. The Digital Roadshow would run via a hub-and-spoke model (the ‘hub’ being a rural centre with higher capacity and serving the ‘spokes’ being smaller rural centres with less capacity), with suggested pilot areas; for example; Broken Hill with Wilcannia and Menindee, or Armidale with Gunnedah, Narrabri and Coonabarabran.

**Further Research**

- **Recommendation Nine**: Review the evidence supporting e-mental health annually and maintain an up-to-date analysis relevant to NSW, to ensure it remains innovative.

<table>
<thead>
<tr>
<th>Rollout immediately with update for older populations and promote ongoing maintenance.</th>
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<tbody>
<tr>
<td>Immediately – targeting 4 metro areas and 4 regional areas in a hub-and-spoke model.</td>
</tr>
<tr>
<td>Ongoing/annually.</td>
</tr>
</tbody>
</table>
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Appendix 6d: User journey vignette – John
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Authors

ASSOCIATE PROFESSOR JANE BURNS

Associate Professor Jane Burns is the founder and Chief Executive Officer of the Young and Well CRC. Its establishment is a culmination of Jane’s work in suicide and depression prevention and builds on her national and international partnerships with the corporate, philanthropic and not-for-profit sectors. Jane holds a VicHealth Principal Research Fellowship at Orygen Youth Health Research Centre, Centre for Youth Mental Health at The University of Melbourne and an Honorary Fellowship at the Brain & Mind Research Institute, The University of Sydney. She was a Commonwealth Fund Harkness Fellow at the University of California, San Francisco. She joined beyondblue in its start up phase and established and managed the youth agenda. Jane completed her PhD in Medicine as a National Health and Medical Research Council Scholar at The University of Adelaide. Jane was a Victorian Finalist in the 2012 Telstra Business Women’s Awards and was listed in the Financial Review and Westpac Group 100 Women of Influence in 2012.

PROFESSOR IAN HICKIE

In 2003, Professor Ian Hickie was appointed as the inaugural executive director of the flagship Brain & Mind Research Institute at The University of Sydney. Since then he has overseen its development as a major hub in translational neuroscience and clinical psychiatry. Prior to this, in October 2000 he was appointed as the inaugural Chief Executive Officer of beyondblue, and from 2003 to 2006 served as its Clinical Advisor. In 2006, Professor Hickie received the Australian Honours Award of Member (AM) in the General Division; for services to medicine in the development of key national mental health initiatives and general practice services in both the public and non–government sectors. From 2006 he was a founding member of headspace. In 2007, Professor Hickie was elected as a Fellow of the Academy of the Social Sciences in Australia. From 2007 to 2012, Professor Hickie was one of the first round of NHMRC Australian Research Fellows, recognising excellence in Australian medical research. From 2008 to 2010, he was appointed to the Federal Health Minister’s National Advisory Council on Mental Health and then in 2010 to 2011, the Federal Minister’s Mental Health Expert Advisory Group. From 2012, Professor Hickie was appointed as a Commissioner in the new National Mental Health Commission, to oversee enhanced accountability for mental health reform in Australia. He was also appointed as Chair of the Scientific Leadership Council for the Young and Well CRC.

PROFESSOR HELEN CHRISTENSEN

Professor Helen Christensen is the Director of the Black Dog Institute, The University of New South Wales, and an NHMRC Senior Principal Research Fellow. She is the immediate past President of the Australasian Society for Psychiatric Research (ASPR), and immediate past president of the International Society for Research on Internet Interventions (ISRII), currently Treasurer of ISRII, which leads e! orts to incorporate an international society of researchers and to establish an international exchange program for young researchers in e–health. She has more than 350 research publications, and the author of e–health websites, some of which are used throughout the world to deliver automated cognitive therapy for depression.
This diagram represents the different e-mental health providers and their positioning in relation to the mental health intervention spectrum from mental health promotion to treatment and their role as an enabler moving through to an active online service provider.
**E-MENTAL HEALTH PROGRAMS AVAILABLE FOR PEOPLE IN NSW**

The following table provides a summary of e-mental health programs that are accessible to people in NSW. This summary has been limited to include those programs that have an interactive element including online chat, screening, assessment and treatment. The summary provides details of the organisation and the program developed, the type of program and the medium of delivery, brief description and target group, accessibility and an indication where the program sits on the mental health intervention spectrum described below.

<table>
<thead>
<tr>
<th>ORGANISATION</th>
<th>PROGRAM</th>
<th>TYPE</th>
<th>MOBILE PHONE</th>
<th>INTERNET</th>
<th>ACCESS</th>
<th>DESCRIPTION AND TARGET GROUP</th>
<th>INTERVENTION SPECTRUM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BLACK DOG INSTITUTE</strong></td>
<td>myCompass</td>
<td>Self help tool</td>
<td>√</td>
<td>√</td>
<td>24/7</td>
<td>Support people with anxiety and depression. 18+</td>
<td>EI T</td>
</tr>
<tr>
<td></td>
<td>Bite Back</td>
<td>Digital online space</td>
<td>X</td>
<td>√</td>
<td>24/7</td>
<td>Aims to build resilience and character in young people.</td>
<td>HP P</td>
</tr>
<tr>
<td><strong>INSPIRE</strong></td>
<td>Reach Out Central (ROC)</td>
<td>Online game</td>
<td>X</td>
<td>√</td>
<td>24/7</td>
<td>Learn and improve skills for life. Young people.</td>
<td>HP P EI</td>
</tr>
<tr>
<td></td>
<td>WorkouT</td>
<td>Online training program</td>
<td>X</td>
<td>√</td>
<td>24/7</td>
<td>Training program for young people to kick start the mind.</td>
<td>HP P</td>
</tr>
<tr>
<td><strong>HEADSPACE</strong></td>
<td>e-headspace</td>
<td>Online counselling and support through email or web chat</td>
<td>X</td>
<td>√</td>
<td>1.00pm to 1.00am</td>
<td>Online and email support by mental health professionals for young people 12-25.</td>
<td>EI T</td>
</tr>
<tr>
<td>**CENTRE FOR MENTAL HEALTH RESEARCH (ANU)</td>
<td>MoodGYM</td>
<td>Online interactive program</td>
<td>X</td>
<td>√</td>
<td>24/7</td>
<td>Interactive web treatment program for depression. All ages.</td>
<td>P EI</td>
</tr>
<tr>
<td></td>
<td>E-couch</td>
<td>Self-help web based program</td>
<td>X</td>
<td>√</td>
<td>24/7</td>
<td>Interactive program for depression, anxiety &amp; worry, relationship issues and loss &amp; grief. Adult oriented.</td>
<td>P EI</td>
</tr>
<tr>
<td><strong>BEYONDBLUE</strong></td>
<td>Web counselling and email support</td>
<td>Online web chat and email response</td>
<td>X</td>
<td>√</td>
<td>4pm to 10pm web chat</td>
<td>Online and email support for depression and anxiety provided by mental health professionals for all age ranges.</td>
<td>P EI</td>
</tr>
<tr>
<td>ORGANISATION</td>
<td>PROGRAM</td>
<td>TYPE</td>
<td>MOBILE PHONE</td>
<td>INTERNET</td>
<td>ACCESS</td>
<td>DESCRIPTION AND TARGET GROUP</td>
<td>INTERVENTION SPECTRUM</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>---------------------------------------------------</td>
<td>------------------------------------------------</td>
<td>--------------</td>
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<td>-----------------------------------------------------------------------------------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>KIDS HELP LINE</td>
<td>Web and email counselling</td>
<td>Online counselling and support through email or web chat</td>
<td>X</td>
<td>✓</td>
<td>1pm to 11pm</td>
<td>Online and email support by mental health professionals for young people 5-25.</td>
<td>EI T</td>
</tr>
<tr>
<td>MENTAL HEALTH ONLINE</td>
<td>Clinical Assessment and treatment</td>
<td>Online assessment and treatment programs</td>
<td>X</td>
<td>✓</td>
<td>24/7</td>
<td>Assessment and treatment for anxiety. Adult oriented.</td>
<td>EI T</td>
</tr>
<tr>
<td>MIND SPOT CLINIC</td>
<td>Screening assessment and clinical treatment</td>
<td>Online assessment and treatment programs</td>
<td>X</td>
<td>✓</td>
<td>24/7</td>
<td>Assessment and treatment for depression and anxiety for adults 18 to 65.</td>
<td>EI T</td>
</tr>
<tr>
<td>ST VINCENT’S HOSPITAL (CRUFAD)</td>
<td>This Way Up Clinic</td>
<td>Online treatment course</td>
<td>X</td>
<td>✓</td>
<td>24/7</td>
<td>Treatment course for anxiety and depression. Referral required and a fee is charged. Adult oriented.</td>
<td>T</td>
</tr>
<tr>
<td>LIFELINE</td>
<td>Crisis support chat</td>
<td>Online chat service</td>
<td>X</td>
<td>✓</td>
<td>8.00pm to midnight</td>
<td>Web based support for people in crisis to talk with a trained volunteer.</td>
<td>EI</td>
</tr>
</tbody>
</table>

**Mental health intervention spectrum**

HP = Mental health promotion - any action taken to maximise mental health and wellbeing among populations and individuals.

P = Prevention – interventions that occur before the onset of a mental illness.

EI = Early intervention - targeting people displaying the early signs and symptoms of a mental health problem or mental disorder.

T = Treatment – proactive identification of an illness or problem that requires effective evidence-based treatments.
12-month prevalence estimates of mental illness in the population by severity level, based on diagnosis, disability and chronicity

- **Severe**: 2-3% (approximately 600,000 Australians)
- **Moderate**: 4-6% (approximately 1 million Australians)
- **Mild**: 9-12% (approximately 2 million Australians)
- **General population with no current mental illness**: 80%

In addition to the groups above, a further 25% of the population will experience a mental illness at some point in their lives.

Appendix 3a

Proportion that access the internet by age and gender

<table>
<thead>
<tr>
<th>Years of age</th>
<th>Male Access (%)</th>
<th>Female Access (%)</th>
<th>Total Access (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14–19</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20–29</td>
<td>98</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30–39</td>
<td>99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40–49</td>
<td>97</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50–64</td>
<td>84</td>
<td></td>
<td></td>
</tr>
<tr>
<td>65+</td>
<td>60</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

91% of Males access the internet
82% of Females access the internet
86% of Australians access the internet

Source: Sensis and AIMIA (2013). Yellow Social Media Report: What Australian people and businesses are doing with social media.
Appendix 3b

Frequency of internet use in Australia

“How often do you access the internet?”

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than five times a day</td>
<td>44%</td>
</tr>
<tr>
<td>Everyday</td>
<td>32%</td>
</tr>
<tr>
<td>Most days</td>
<td>6%</td>
</tr>
<tr>
<td>A few times a day</td>
<td>3%</td>
</tr>
<tr>
<td>About once a week</td>
<td>1%</td>
</tr>
<tr>
<td>Less often than weekly</td>
<td>1%</td>
</tr>
<tr>
<td>Never</td>
<td>14%</td>
</tr>
</tbody>
</table>

Source: Sensis and AIMIA (2013). Yellow Social Media Report: What Australian people and businesses are doing with social media.
### Appendix 4a

**Evidence-based e-Health Interventions for Mental Health Promotion**

<table>
<thead>
<tr>
<th>Approach to Mental Health Promotion</th>
<th>Evidence-based Strategy</th>
<th>E-health Intervention</th>
<th>Reference(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promoting Help Seeking Attitudes &amp; Behaviours</td>
<td>Psycho-Education</td>
<td>Health e-cards</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reachout.com</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reach Out Central</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BluePages</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Beyondblue InfoLine</td>
<td>5</td>
</tr>
<tr>
<td>Enhancing Community Attitudes &amp; Stigma Reduction</td>
<td>Intensive Educational Interventions</td>
<td>CO-ED (Computer Assisted Education)</td>
<td>6, 7</td>
</tr>
</tbody>
</table>

### Appendix 4b

**Evidence based e-Health Interventions for Mental Illness Prevention**

<table>
<thead>
<tr>
<th>Approach to Mental Illness Prevention</th>
<th>Evidence-based Strategy</th>
<th>E-health Intervention</th>
<th>Reference(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevention of Suicide, Suicidal Ideation and Behaviour</td>
<td>Gate Keeper Training</td>
<td>QPR (Question, Persuade, Refer)</td>
<td>8</td>
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<tr>
<td></td>
<td>Web-Based Programs for Reducing Suicide Ideation</td>
<td>Living with Deadly Thoughts</td>
<td>9</td>
</tr>
<tr>
<td>Crisis Intervention (Telephone and Internet Helplines)</td>
<td>Lifeline Crisis Telephone Service</td>
<td>10, 11</td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------------------</td>
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<td></td>
</tr>
<tr>
<td>Kids Helpline</td>
<td></td>
<td>12</td>
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</table>

<table>
<thead>
<tr>
<th>Indicated Prevention of Depression and Anxiety</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>School-Based Screening &amp; Cognitive Behavioural Therapy (CBT)</td>
<td>MoodGYM</td>
<td>13, 14</td>
</tr>
<tr>
<td>Parent Training and Family Strengthening</td>
<td>Youth Mental Health: A Parent's Guide</td>
<td>15</td>
</tr>
<tr>
<td>General Adults CBT for Depression</td>
<td>Online Anxiety Prevention Program</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>MoodGYM</td>
<td>17, 18</td>
</tr>
<tr>
<td></td>
<td>Stress and Mood Management</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>MyCompass</td>
<td>20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Universal Prevention of Depression and Anxiety</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>High School-Based CBT</td>
<td>MoodGYM</td>
<td>21, 22</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prevention of Eating Disorders And Body Image Problems</th>
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<th></th>
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</thead>
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<tr>
<td>Community-Based Programs</td>
<td>My Body, My Life</td>
<td>23</td>
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</table>

<table>
<thead>
<tr>
<th>Prevention of PTSD</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevention of Post-Event Pathology For Those Who Demonstrate Vulnerability</td>
<td>So You've Been in an Accident</td>
<td>24</td>
</tr>
<tr>
<td>#</td>
<td>Reference</td>
<td>Mental health promotion strategy</td>
</tr>
<tr>
<td>----</td>
<td>---------------------------------------------------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>Costin, D.L., Mackinnon A.J., Griffiths K.M., Batterham, P.J., Bennett A.J., Bennett, K., &amp; Christensen H. (2009). Health e-cards as a means of encouraging help seeking for depression among young adults: Randomized controlled trial. <em>Journal of Medical Internet Research, 11</em>, e42.</td>
<td>Promoting Help Seeking Attitudes &amp; Behaviours – Psycho-education</td>
</tr>
<tr>
<td>2</td>
<td>Collin, P.J., Metcalf, A.T., Stephens-Reicher, J.C., Blanchard, M.E., Herrman, H.E., Rahilly, K. &amp; Burns, J.M. (2011). ReachOut.com: The role of an online service for promoting help-seeking in young people. <em>Advances in Mental Health, 10</em>, 39-51.</td>
<td>Promoting Help Seeking Attitudes &amp; Behaviours – Psycho-education</td>
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<tr>
<td></td>
<td>Shandley, K., Austin, D., Klein, B., Kyrios, M. (2010). An evaluation of 'Reach Out Central': an online gaming program for supporting the mental health of young people. <em>Health Education Research, 25</em>(4), 563-57</td>
<td>Promoting Help Seeking Attitudes &amp; Behaviours – Psycho-education</td>
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<tr>
<td>4</td>
<td>Christensen, H., Griffiths, K.M., &amp; Jorm, A.F. (2004). Delivering interventions for depression by using the Internet: Randomised controlled trial. <em>British Medical Journal, 328</em>, 265-268.</td>
<td>Promoting Help Seeking Attitudes &amp; Behaviours – Psycho-education</td>
</tr>
<tr>
<td>5</td>
<td>Dunt, D., Robinson, J., Selvarajah, S.,</td>
<td>Promoting Internal</td>
</tr>
<tr>
<td>Help Seeking Attitudes &amp; Behaviours – Psycho-education</td>
<td>data evaluation (published as a report)</td>
<td>hour telephone helpline that operates seven days a week, providing callers with access to information and referral to relevant services where necessary.</td>
</tr>
<tr>
<td></td>
<td>Finkelstein, J., &amp; Lapshin, O. (2007). Reducing depression stigma using a web-based program. <em>International Journal of Medical Informatics</em>, 76, 726-734.</td>
<td>Enhancing Community Attitudes &amp; Stigma Reduction - Intensive Educational Interventions</td>
</tr>
<tr>
<td>---</td>
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<td>---</td>
</tr>
<tr>
<td>7</td>
<td>Finklestein J., Lapshin O., &amp; Wasserman E. (2008). Randomised study of different anti-stigma media. <em>Patient Education and Counselling</em>, 71, 204-14.</td>
<td>Enhancing Community Attitudes &amp; Stigma Reduction - Intensive Educational Interventions</td>
</tr>
</tbody>
</table>
### Evidence-based e-Health Interventions for Mental Illness Prevention

#### Table of References

<table>
<thead>
<tr>
<th>#</th>
<th>Reference</th>
<th>Mental health promotion strategy</th>
<th>Study type</th>
<th>Intervention</th>
<th>Study method</th>
<th>Findings</th>
<th>Summary of evidence</th>
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<tbody>
<tr>
<td>8</td>
<td>Gardner, P. C., Moore, J. T., Cigularov, K. P., Putter, S. E., Sampson, J. M., Maertens, J., Chen, P. Y., Quinnett, P., &amp; Baker, A. (2009, April). Comparison of online and face-to-face gatekeeper training. Paper presented at the 42nd American Association of Suicidology Annual Conference, San Francisco, CA.</td>
<td>Prevention of Suicide, Suicidal Ideation and Behaviour – Gate keeper training</td>
<td>Non-randomised pre-post trial</td>
<td>QPR (<em>Question, Persuade, Refer</em>): A program designed to train community members who may be in contact with suicidal individuals to identify those at risk and assist with referring to appropriate mental health services.</td>
<td>107 Australians participated in the web-based version of QPR training and 853 Americans in the face-to-face QPR training.</td>
<td>Both groups demonstrated gains in knowledge post-test and declines at follow-up. Web-based QPR group showed more improvement in self-efficacy at post-test but this gain was not maintained at follow-up. Both groups showed gains in intentions to engage in suicide intervention post-test but only the online group maintained these intentions at follow up.</td>
<td>The results of this study are promising for the utility of the web-based QPR training, however they need to be replicated in an RCT. Further, it is not clear how these training programs directly impact actual gatekeeper behaviour or suicidal ideation/behaviour in those who are at risk.</td>
</tr>
<tr>
<td></td>
<td>van Spijker, B.A., Majo, M.C., Smit, F., van Straten, A., &amp; Kerkhof, A.J. (2012). Reducing suicidal ideation: Cost-effectiveness analysis of a randomized controlled trial of unguided web-based self-help. <em>Journal of Medical Internet Research, 14</em>, 141.</td>
<td>Prevention of suicide, suicidal ideation and behaviour – Web Based Programs For Reducing Suicidal Ideation</td>
<td>RCT &amp; cost-effectiveness analysis</td>
<td><em>Living with Deadly Thoughts</em>: Online self-help CBT program to reduce suicide ideation.</td>
<td>236 adults experiencing mild-moderate suicidal ideation, randomised to intervention or waitlist, information-only control. All participants received care as usual (CAU)</td>
<td>Significantly larger proportion of individuals who received the intervention demonstrated clinically significant reductions in suicidal ideation (35% vs. 21% in the control group); with a saving of, €34,727 (US $41,325) societal costs relative to CAU.</td>
<td>Online self-help CBT program on top of CAU increases the likelihood of clinically significant reduction in suicidal ideation, at lower cost.</td>
</tr>
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<td>---</td>
</tr>
<tr>
<td>10*</td>
<td>Lifeline (2009). <em>Crisis Support through 13 11 14</em>. Lifeline: Deakin West, ACT [available online <a href="http://www.lifeline.org.au/About-Lifeline/Research-and-reports/Research-and-Reports">http://www.lifeline.org.au/About-Lifeline/Research-and-reports/Research-and-Reports</a>]</td>
<td>Prevention of suicide, suicidal ideation and behaviour – Crisis Intervention</td>
<td>Internal data evaluation (published as a report)</td>
<td><em>Lifeline Crisis Telephone Service</em>: 13 11 14 is a confidential telephone crisis support service available 24/7 from a landline, payphone or mobile.</td>
<td>Cross-sectional analysis of Lifeline call data sample (2008-2009).</td>
<td>5.8% of calls identified as suicide related (45-50 calls/day); 10% of suicide-related calls required emergency service attendance for direct intervention; 32% of suicide-related calls reported mental health and 33% reported ‘aloneness and support’ as a main concern.</td>
<td>Lifeline provides support to highly vulnerable population groups with high suicide risk, receives suicide-related calls and facilitates interventions where appropriate for these suicide-related calls to ensure safety.</td>
</tr>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Prevention of suicide, suicidal ideation and behaviour – Crisis Intervention</td>
<td>RCT</td>
<td><em>Lifeline Crisis Telephone Service:</em> Weekly 10 minute calls to previous Lifeline callers were made by Lifeline counsellors. NB: intervention examined within an RCT (compared to other active interventions).</td>
<td></td>
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</tr>
<tr>
<td>155 Lifeline callers with elevated psychological distress randomised to internet CBT (MoodGYM) plus weekly telephone follow-up; internet CBT only; weekly telephone follow-up only or wait-list TAU control. Regardless of intervention, participants demonstrated significant declines in suicidal ideation over time (12 months). Telephone call back group showed significant reduction in suicidal ideation from pre to post-intervention, 6 and 12 months follow-up. Suicide ideation declines over time both with and without proactive intervention. Weekly call back by Lifeline counsellors was equally as effective as alternative interventions and no intervention, in the resolution of suicidal ideation.</td>
<td></td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

<p>| Prevention of suicide, suicidal ideation and behaviour – Crisis Intervention | Survey | <em>Kids Helpline:</em> A free, 24 hour counselling service for young people aged 5-25 years. Counselling is offered by phone, email and over the web. |
| Two telephone surveys conducted by Kids Helpline counsellors with 77 young people at the end of their counselling session. 95% clients were found to be “satisfied” or “Very satisfied” with the service. 96% reported having gained some idea on how to manage their problem. 92% reported confidence in their ability to manage. Kids Helpline appears to increase a young person’s ability and confidence to deal with their issues, and the service is in line with the needs of callers. |</p>
<table>
<thead>
<tr>
<th></th>
<th>O’Kearney, R., Gibson, M., Christensen, H., &amp; Griffiths, K.M. (2006). Effects of a cognitive-behavioural internet program on depression, vulnerability to depression and stigma in adolescent males: A school-based controlled trial. Cognitive Behaviour Therapy, 35, 43-54.</th>
<th>Indicated prevention of depression and anxiety - School based screening &amp; CBT</th>
<th>School-based controlled trial</th>
<th>MoodGYM: Online self-help CBT program</th>
<th>78 males aged 15-16 allocated to MoodGYM or standard PE education classes; assessed post-test and 16 weeks.</th>
<th>Those completing 3+ MoodGYM modules showed small relative benefits in depressive symptoms and attributional style and a small reduction in risk of becoming depressed; all of which approached significance at post-test. These results were not maintained at follow-up.</th>
<th>Tentative support for reduction in risk of depression and small improvements in depression symptoms and attributions following moderate exposure to MoodGYM as an indicated program; however, results did not reach significance. Unable to endorse MoodGYM as an effective indicated program for depression in school-aged males.</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>O’Kearney, R., Kang, K., Gibson, M., Christensen, H., &amp; Griffiths, K.M. (2009). A controlled trial of a school-based Internet program for reducing depressive symptoms in adolescent girls. Depression and Anxiety, 26, 65-72.</td>
<td>Indicated prevention of depression and anxiety - School based screening &amp; CBT</td>
<td>School-based controlled trial</td>
<td>MoodGYM: Online self-help CBT program</td>
<td>157 females aged 15-16 allocated to MoodGYM or usual PE curriculum.</td>
<td>Significantly faster rate of decline in self-reported depressive symptoms observed in MoodGYM group compared to controls at 20 week follow-up (d=.46, 95% CI .10-.82). No significant intervention effects on depression status or attributional style.</td>
<td>Some benefits demonstrated from MoodGYM on self-reported depressive symptoms only.</td>
</tr>
<tr>
<td>No.</td>
<td>Author(s)</td>
<td>Year</td>
<td>Sample</td>
<td>Design</td>
<td>Findings</td>
<td>Commentary</td>
<td></td>
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<td>17</td>
<td>Ellis, L., Campbell, A.J., Sethi, S., &amp; O’Dea, B.M.</td>
<td>2011</td>
<td>Comparative Randomized Trial of an online cognitive-behavioural therapy program and an online support group for depression and anxiety. <em>Journal of Cyber Therapy &amp; Rehabilitation</em>, 4, 461-467.</td>
<td>Indicated Prevention of Depression and Anxiety - General adults CBT for depression &amp;/or anxiety</td>
<td>RCT</td>
<td>Initial positive benefits for anxiety and CBT literacy following use of MoodGYM, however long term outcomes require examination.</td>
<td></td>
</tr>
<tr>
<td>Page</td>
<td>Author(s)</td>
<td>Title</td>
<td>Indicated Prevention of Depression and Anxiety</td>
<td>Adult Group</td>
<td>Study Design</td>
<td>Intervention</td>
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<td>18</td>
<td>Mackinnon, A., Griffiths, K.M., &amp; Christensen, H. (2008)</td>
<td>Comparative randomised trial of online cognitive–behavioural therapy and an information website for depression: 12-month outcomes. <em>British Journal of Psychiatry, 192</em>, 130-134.</td>
<td>CBT for depression &amp;/or anxiety</td>
<td>General adults</td>
<td>RCT</td>
<td>MoodGYM: Online self-help CBT program.</td>
<td>525 adults allocated to online CBT (MoodGYM) or placebo control (online depression information website).</td>
</tr>
<tr>
<td></td>
<td>Authors</td>
<td>Year</td>
<td>Study Type</td>
<td>Program</td>
<td>Participants</td>
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<td>20</td>
<td>Harrison, V., Proudfoot, J., Wee, P.P., Parker, G., Pavlovic, D.H., Manicavasagar, V.</td>
<td>2011</td>
<td>Feasibility proof of concept study</td>
<td>My Compass: web and mobile-based self-help program for mild-moderate stress, anxiety and depression.</td>
<td>44 adults used MyCompass for 6 weeks, with pre-post assessment.</td>
<td>Significant reductions in general psychological distress, stress, depression and anxiety symptoms at post-test, compared to pre-test scores, following 6 weeks using MyCompass.</td>
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<td>21</td>
<td>Calear, A.L., Christensen, H., Mackinnon, A., Griffiths, K.M. &amp; O’Kearney, R.</td>
<td>2009</td>
<td>Stratified, cluster RCT</td>
<td>MoodGYM: An online, self-directed cognitive-behavioral therapy program designed to prevent or decrease the symptoms of anxiety and depression in adolescents.</td>
<td>32 Australian schools (N = 1,477 Year 9, 10 and 11 students) were randomised to the intervention (MoodGYM) or a waitlist control condition.</td>
<td>At post-intervention and 6-month follow-up, participants in the intervention condition had lower levels of anxiety than those in the control condition. Only males in the intervention condition showed reduced depressive symptoms at post-intervention and 6-month follow-up.</td>
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<td></td>
<td>Universal Prevention of Depression and Anxiety - High School Based CBT</td>
<td>Stratified, cluster RCT</td>
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<td>MoodGYM: An online, self-directed cognitive-behavioral therapy program designed to prevent or decrease the symptoms of anxiety and depression in adolescents. 32 Australian schools (N = 1,477 Year 9, 10 and 11 students) were randomised to the intervention (MoodGYM) or a waitlist control condition. Those in the intervention group were then classified as low or high adherers to the MoodGYM program. High adherers reported stronger effects on anxiety and depression at post-intervention and follow-up than low adherers (vs. control). Predictors of adherence: Being in Year 9, living in a rural location and having higher pre-intervention levels of depressive symptoms. Preliminary support for the positive relationship between program adherence and outcomes in a school environment. The identification of significant predictors of adherence will assist in identifying the type of user who will engage most with an online prevention program.</td>
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<td>Prevention of Eating Disorders And Body Image Problems - Community-Based Programs</td>
<td>RCT</td>
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<td><em>My Body, My Life</em>: Weekly, CBT- based online group sessions facilitated by a guided self-help manual and trained therapist, plus online discussion board. 73 girls (12 – 18 years) who self-identified as having body image or eating problems. Randomly assignment to intervention (<em>My Body, My Life</em>) or a delayed treatment control group. Clinically significant improvements in body dissatisfaction, disordered eating, and depression observed at post-intervention and maintained at follow-up. Internet delivery was enthusiastically endorsed. Preliminary support for an online group intervention for non-clinical girls with disordered eating behaviours or body image.</td>
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<td>Cox, C. M., Kenardy, J. A., Hendrikz, J. K. (2010). A randomized controlled trial of a web-based early intervention for children and their parents following unintentional injury. <em>Journal of Pediatric Psychology</em>, 35(6), 581-592.</td>
<td>Prevention of PTSD - Prevention of Post-Event Pathology From Post-Event Intervention For Those Who Demonstrate Vulnerability</td>
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- Evaluation conducted in non-academic context
## New and emerging technologies in mental health promotion, early intervention and treatment

### Table of References

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<th>#</th>
<th>Reference</th>
<th>Mental health promotion strategy</th>
<th>Study type</th>
<th>Intervention</th>
<th>Study method</th>
<th>Findings</th>
<th>Summary of evidence</th>
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<tr>
<td>1</td>
<td>Christensen, H. and I. Hickie (2010). &quot;Using e-health applications to deliver new mental health services.&quot; Med J Aust 192: S53-S56.</td>
<td>Promoting Help Seeking Attitudes and Behaviours – Psycho-Education</td>
<td>N/A</td>
<td>E-health services: how these services are delivering new and innovative mental health approaches.</td>
<td>Review of recent research publications.</td>
<td>Despite 'successful' public awareness campaigns, school-based prevention programs and reforming of the primary care-based mental health system, individuals experiencing a diagnosable mental health condition are too often not receiving adequate care. The facilitation of promotion, prevention and early intervention programs and access to care can be improved by the investment and sector-wide uptake of e-health services.</td>
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<td>Burns, J., T. Davenport, H. Christensen, G. M. Luscombe, J. A. Mendoza, A. Bresnan, M. Blanchard and I. Hickie (2013). Game on: Exploring the impact of technologies on young men’s mental health and wellbeing Findings from the first Young and Well National Survey. Australia, The Young and Well Cooperative Research Centre.</td>
<td>Enhancing Community Attitudes, Promoting Help Seeking Attitudes and Behaviours – Psycho-Education</td>
<td>Survey.</td>
<td>Utilising online services and mobile apps to benefit the mental health and wellbeing of young men.</td>
<td>700 young men completed a CATI survey over the phone.</td>
<td>Almost 50% of young men said coping with stress was their biggest issue, but less than one-in-four young men would recommend professional support, either face-to-face or online. Young men are not engaging with current mental health promotion, prevention and early intervention programs, and are therefore reaching crisis point before receiving care. Current research suggests that by more greatly using online approaches, young men are more likely to engage with strategies.</td>
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<td>3</td>
<td>Christensen, H. and I. B. Hickie (2010).</td>
<td>Promoting Help Seeking Attitudes and Behaviours – Psycho-Education</td>
<td>E-mental health: briefly outlining successful models of e-mental health care in Australia.</td>
<td>Review of recent publications.</td>
<td>Australia is leading the world in the development of e-mental health strategies, which are significantly improving access to care and treatment outcomes.</td>
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<td>Blanchard, M., A. Metcalf, J. Degney, H. Herrman and J. Burns (2008). &quot;Rethinking the Digital Divide: Findings from a study of marginalised young people's ICT use.&quot; Youth Studies Australia 27(4): 35-42.</td>
<td>Enhancing Community Attitudes, Promoting Help Seeking Attitudes and Behaviours – Psycho-Education</td>
<td>Service evaluation - focus groups</td>
<td>The report “investigated the role that information communication technologies (ICT), specifically the internet, may play in promoting mental health among young people at risk of, or experiencing, marginalisation.”</td>
<td>Sixteen focus groups were conducted with 96 young people at 12 locations in rural, regional and metropolitan Victoria. ICT plays an enormous part in the everyday lives of marginalised young people, with a greater ease of access that hypothesised by researchers prior to the commencement of the research. Young people who experienced marginalisation were not necessarily limited in their ability to access the internet and ICT services.</td>
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<td>Blanchard, M., H. Herrman, M. Frere and J. Burns (2011). Attitudes</td>
<td>Enhancing Community</td>
<td>Online questionnaire</td>
<td>Investigating the current role technology plays in</td>
<td>Online questionnaire</td>
<td>More than half of the questionnaire</td>
<td>Professionals have a poor awareness of the</td>
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informing the use of technologies by
the youth health workforce to improve
young people's wellbeing:
Understanding the nature of the
"digital disconnect". National Youth
Sector Conference 2011.

Attitudes, Promoting Help Seeking
Attitudes and Behaviours – Psycho-
Education
re, organisational audits
and interviews.

enhancing a young person’s mental health, in
conjunction with understanding the youth mental health sector
professional’s understanding and uptake
of technological strategies.

Attitudes, Promoting Help Seeking
Attitudes and Behaviours – Psycho-
Education

Enhancing Community Attitudes,
Promoting Help Seeking
Attitudes and Behaviours – Psycho-
Education

Evaluation of service.

Reachout.com: A website
established and
maintained by the Inspire
Foundation targeted at
young people aged 14-25
years.

Review of internal
statistics and
research.

Reach Out! provides a reliable,
cost-effective and
accessible service
delivering information and
early intervention
strategies to young people. Reach Out!
Pro is a service
aimed specifically
at mental health
sector professionals, as
how to integrate the
tools Reach Out!
provides in care
plans.

Reach Out! recognises
the potential that the
wide provision of e-
mental health
information and
programs, for both
young people and
mental health
professionals alike.

Participants believed that
technology interventions have a
role to play in the
improvement of
young people’s
mental health.
However, from a
professional perspective, there
was limited uptake and understanding
of the available
online and
technologically
driven interventions
and programs.

7 Burns, J., C. Morey, A. Lagalee, A.
"Reach Out! Innovation in service
delivery." Medical Journal Australia
187: S31-34.

Enhancing Community Attitudes,
Promoting Help Seeking
Attitudes and Behaviours – Psycho-
Education

Evaluation of service.

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8 Burns, J., M. Blanchard and A.
En Enhancing Review of The impact Review of recent
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<td>Sensis and AIMIA (2013). Yellow Social Media Report: What Australian people and businesses are doing with social media.</td>
<td>N/A</td>
<td>Survey.</td>
<td>N/A</td>
<td>Survey of 515 individual consumers and 1959 businesses.</td>
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<td>10</td>
<td>Burns, J. M., T. A. Davenport, L. A. Durkin, G. M. Luscombe and I. B. Hickie (2010). &quot;The internet as a setting for mental health service utilisation by young people.&quot; Med J Aust 192(11 Suppl): S22-26.</td>
<td>Enhancing Community Attitudes, Promoting Help Seeking Attitudes and Behaviours – Psycho-Education</td>
<td>Cross-sectional RCT, CATI telephone interview.</td>
<td>N/A</td>
<td>2000 young people aged 12-25 years completed the survey.</td>
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<td>Department of Health and Ageing (2012). E-Mental Health Strategy for Australia. D. o. H. a. Ageing, Canberra, Australian Government.</td>
<td>Enhancing Community Attitudes, Promoting Help Seeking Attitude, Web Based Programs For Improving Mental Health</td>
<td>N/A</td>
<td>Review of recent literature</td>
<td>The Australian Government, by funding a number of small, evidence-based projects, is striding forward with an agenda to widely integrate e-mental health</td>
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<td>Enhancing Community Attitudes, Promoting Help Seeking Attitude, Web Based Programs For Improving Mental Health</td>
<td>Review of recent literature</td>
<td>N/A</td>
<td>Review of recent literature; PubMed, PsycInfo, and Cochrane Central Register of Controlled Trials databases were searched using keywords, phrases, and MeSH terms. A total of 28 papers were included.</td>
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<td>Medibank Health Solutions and Nous Group (2013). The Case for Mental Health Reform in Australia: a Review of Expenditure and System Design, Medibank Health Solutions and Nous Group.</td>
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<td>Review of recent literature</td>
<td>N/A</td>
<td>Review of recent literature and data; the report “provides the most comprehensive estimate to date of expenditure” on mental health in Australia.</td>
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<td>Author(s)</td>
<td>Title</td>
<td>Type</td>
<td>Study Design</td>
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<td>14</td>
<td>Blanchard, M. (2011).</td>
<td>Navigating the Digital disconnect Understanding the use of information communication technologies by the youth health workforce to help improve young people’s mental health and wellbeing</td>
<td>PhD</td>
<td>PhD Thesis.</td>
<td>233 members of the youth mental health sector completed an online questionnaire, organizational audits of five multidisciplinary youth and community mental health services and in-depth interviews with eight leaders in the fields of psychiatry, psychology, e-health, epidemiology and sociology.</td>
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<td>Dowling, M. and D. Rickwood (2013).</td>
<td>“Online Counseling and Therapy for Mental Health Problems: A Systematic Review of Individual Synchronous Interventions Using Chat.” Journal of Technology in Human Services</td>
<td>Review of recent literature</td>
<td>N/A</td>
<td>Review of recent literature; A systematic search was conducted using the following EBSCO databases: Academic Search Complete, CINAHL Plus, Psychology and Behavioral Sciences Collection, PsychArticles, and Psych INFO.</td>
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<td>Author(s)</td>
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<td>Kauer, S. D., C. Mangan and L. Sanci</td>
<td>(2013). Does online mental health improve help-seeking for young</td>
<td>Review of recent literature.</td>
<td>The report finds a lack of studies that examine the effect of technology on help seeking in young people aged 14-25 years. The report doesn’t strive “to say that there is no benefit in online services, rather that this field has yet to be properly evaluated.”</td>
<td>This report describes the effectiveness of online means on help-seeking.</td>
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<td>people? A systematic review, University of Melbourne.</td>
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<td>Johnson, D., C. Jones, L. Scholes and M.</td>
<td>(2013). Videogames and Wellbeing: A Comprehensive Review. Melbourne,</td>
<td>Review of recent literature.</td>
<td>The report found videogames have been shown to positively influence young people’s emotional state, self-esteem, optimism, vitality, resilience, engagement, relationships, sense of competence, self-acceptance and social connections and functioning.</td>
<td>This report explores the positive effects of videogames on young people’s mental health and wellbeing, as well as calling for further research into this relationship.</td>
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<td>C. Carras Colder</td>
<td>Cooperative Research Centre.</td>
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<td>Collin, P., K. Rahilly, J. Richardson</td>
<td>(2011). The Benefits of Socials Networking Services. Sydney,</td>
<td>Review of recent literature.</td>
<td>The usage of social networking services by young people can have a positive impact “delivering educational outcomes; facilitating</td>
<td>This report finds there are many positive links between the mental health and wellbeing of young people and the usage of social networking services.</td>
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<td>and A. Third</td>
<td>Cooperative Research Centre for Young People, Technology and</td>
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<td>Wellbeing.</td>
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<td>Enhancing Community Attitudes, Promoting Help Seeking Attitude, Web Based Programs For Improving Mental Health Report of recent literature. N/A Review of recent literature.</td>
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<td>After reviewing samples of “Australian and international literature to identify successful models for using technology to engage young people in health services, design and delivery,” the authors formulated a set of guidelines for the sector. The implementation of a framework to ensure the safe, inclusive and innovative use of technology in the delivery of mental health and wellbeing services is vital.</td>
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1. Paul's mum Lisa sees the Headspace campaign to promote help-seeking for young men.

2. Lisa recommends Paul log onto Headspace.org. Using the Link plug-in, Paul is directed to his local Headspace site. Link provides relevant information for download on referral.

3. Paul and Lisa visit the Headspace site together for Paul’s assessment by a clinician and share his information from Link. Assessment determines Paul needs to see a clinical psychologist for treatment.

4. While waiting for first appointment Headspace directs Paul to specific apps for young men on the Online Wellbeing Centre.

5. 6 sessions with a clinical psychologist, enhanced by access to data (encrypted) from the apps Paul has been using.

6. Once discharged from care, Paul joins Horyzons Recovery Program. Horyzons has access to data from Link, online well-being centre, apps and Headspace to support Paul’s recovery.
1. AT A YOUNG AND WELL SCHOOL FORUM SALLY HEARS ABOUT THE ONLINE WELLBEING CENTRE.

2. SALLY REGISTERS FOR ONLINE WELLBEING CENTRE WITH SINGLE SIGN ON AND DOWNLOADS THE @PPRECIATE APP.

3. @PPRECIATE APP DIRECTS SALLY TO BUTTERFLY WEBSITE WITH LINK PLUG IN. THIS DIRECTS SALLY TO EITHER RIVERINA HEADSPACE (AN HOUR AWAY) OR THE ONLINE PROFESSIONALS CLINIC IN PARTNERSHIP WITH EHEADSPACE.

4. SALLY CHOOSES THE ONLINE PROFESSIONALS CLINIC, DEVELOPS A 12 WEEK SHARE PLAN WHICH SHE IMPLEMENTS WITH ONLINE SUPPORT FROM A MULTIDISCIPLINARY TEAM WHO HAVE ACCESS TO HER DATA AND PLAN. SALLY USES THE RECOVERY RECORD APP DURING HER TREATMENT TO MANAGE HER EATING.

5. AT THE END OF HER 12 WEEKS SHE IS REFERRED TO HORYZONS ANXIETY RECOVERY GROUP.
1. Jill sees The Blackdog Institute campaign to increase mental health and wellbeing literacy in Aboriginal and Torres Strait Islander young people.

2. Using link on her mobile, Jill is directed to the online wellbeing centre. She is recommended to use the Ibobbly app, a program specifically aimed at combatting suicidal ideation in Indigenous young people. This allows her to access help confidentially and in her own time.

3. Via link and using data collected using Ibobbly, Jill is then referred to a local employment service and regular appointments with youth worker are scheduled.

4. Jill uses a mood and sleep app to monitor her daily activity, and to help address her issues with alcohol. She signs up for a Hello Sunday Morning.
// A USER JOURNEY THROUGH A SYNERGISED MENTAL HEALTH SYSTEM

60-YEAR-OLD
JOHN IN BROKEN HILL WITH DEPRESSION

1. JOHN SEES ADVERTISING FOR BEYONDBLUE’S MANThERAPY CAMPAIGN.

2. JOHN LOGS ONTO MANThERAPY.ORG.AU AND WATCHES A NUMBER OF VIDEO TESTIMONIALS DETAILING PERSONAL EXPERIENCES WITH MENTAL ILLNESS.

3. JOHN DECIDES TO SIGN UP TO THE DISCUSSION FORUM VIA THE MANThERAPY WEBSITE AND SIGNS UP VIA LINK, WHICH RECOMMENDS JOHN VISIT HIS GP.

4. USING THE INFORMATION COLLECTED FROM LINK, JOHN’S GP REFERS HIM TO A CLINICAL PSYCHOLOGIST. WHILE WAITING FOR HIS FIRST APPOINTMENT MANThERAPY AND BEYONDBLUE DIRECTS JOHN TO SPECIFIC APPS FOR OLDER PEOPLE ON THE ONLINE WELLBEING CENTRE.

5. 6 SESSIONS WITH A CLINICAL PSYCHOLOGIST, ENHANCED BY ACCESS TO DATA (ENCRYPTED) FROM THE APPS JOHN HAS BEEN USING.

6. JOHN JOINS A LOCAL MENS SHED PROGRAM. HE CONTINUES TO MONITOR HIS MOOD AND ACTIVITY USING APPS VIA THE ONLINE WELLBEING CENTRE.