



Submission to the Productivity
Commission Mental Health Inquiry:
The Social and Economic Benefits of
Improving Perinatal Mental Health
April 2019

*'...society continues to
sweep this illness under the
rug... we are failing women
and their families if we don't
address the shortcomings in
the system'*

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Overview

PANDA - Perinatal Anxiety & Depression Australia's interest in this inquiry is in relation to the impact of perinatal mental illness and the need for appropriate information and support for the 1 in 5 expecting and new mothers and the 1 in 10 new fathers who are directly affected by this illness. We also recognise the 600 Australian mothers (and their families) who are affected by postnatal psychosis each year in Australia.

PANDA works each day to provide support, information and hope to families across Australia affected by perinatal mental illness (mental illness during pregnancy and the first 12 months after birth).

Early intervention reduces the impact and severity of perinatal mental illness on individuals, their families and future generations.

This submission has been developed in collaboration with our Community Champions and Community Education Volunteers who have experienced perinatal mental illness. The submission is also informed by practice wisdom gained from providing services to callers to PANDA's National Perinatal Anxiety & Depression Helpline since 2010, and the latest research evidence. The stories within this document are our volunteer's experiences, and have been shared with consent to support PANDA's submission.

Perinatal mental health is a crucial public health issue. If parents at risk of or experiencing perinatal mental illness are not identified and able to access adequate support and treatment, there can be significant and devastating outcomes for the entire family unit, with the potential to impact children well into their adult lives.

Each year a further 100,000 families in Australia will face perinatal mental illness yet there is still a great deal of stigma around the illness and many of those affected feel isolated and ashamed about their feelings.

There are opportunities to improve the design and delivery of health and support services for perinatal mental health. By listening to the voices of those who have experienced perinatal mental illness governments, planners, service providers, workplaces and the community will be better able to support expecting and new parents affected by perinatal mental illness.

The submission is divided into the following sections:

Background

- PANDA - Perinatal Anxiety & Depression Australia
- Perinatal Mental Health - A Summary

Key priorities

- Increasing Awareness
- Effective Consumer Engagement
- Timely Identification and Treatment
- Care for Parents with a History of Mental Illness
- Access to Specialist Care
- Supporting Fathers
- Responding to Family Diversity
- Health Professionals
- National Coordination

Recommendations

Thank you to our generous volunteers for sharing their personal stories and insights for this submission.

PANDA - Perinatal Anxiety & Depression Australia

PANDA was established in Victoria in 1983 by two women who had experienced postnatal depression, and wanted to support others in the same situation. Since that time PANDA has continued to grow and now supports families across Australia impacted by perinatal mental illness. PANDA is committed to raising community awareness of the incidence and impact of perinatal anxiety, depression and postnatal psychosis so that families can understand what is happening to them and seek help early. This national awareness raising work is led by the experience of our Community Champions and Community Education Volunteers (hereafter referred to as Community Volunteers) who share their stories.

Since 2010 PANDA has provided the only specialist National Perinatal Anxiety & Depression Helpline service, underpinned by clinical evidence and informed by the lived experience of perinatal mental illness. In addition to the Helpline Service PANDA's websites and written resources provide specialised information and support.

PANDA's unique expertise

As the only provider of a specialist National Perinatal Mental Health Helpline Service, PANDA is well regarded as the national expert in the lived experience of perinatal mental illness. This knowledge places PANDA in a unique position to advocate that Australia's approach to perinatal mental health should be evidence based, and driven by a strong consumer voice.

Since the establishment of PANDA's Helpline Service we have had over 110,000 conversations about perinatal mental health with expectant and new parents, their loved ones and health professionals. These conversations provide us with a unique understanding of the lived experience of perinatal mental illness, including the barriers to accessing and engaging with universal and specialist health services established to meet the needs of parents and infants. Our submission is informed by this knowledge, and feedback from our Community Volunteers who have generously shared their own experiences of perinatal mental illness. As a key national consumer organisation, PANDA's expertise is frequently sought by governments, researchers, health bodies and policy makers.

PANDA's consumer engagement experience

As a consumer organisation, PANDA is committed to facilitating consumer engagement at every level of the organisation. Peer support volunteers are highly valued members of PANDA's National Perinatal Anxiety & Depression Helpline team, working alongside professional counselling staff to provide peer support, information, and referral services. Our national volunteer program includes more than 280 Community Champions and Community Education Volunteers with lived experience of perinatal mental illness.

PANDA undertakes meaningful consumer engagement in a number of ways:

- Champions engage in activities within their local communities to raise awareness, reduce stigma, and share a message of hope and recovery.
- Community Champions have the opportunity to share their story in a number of ways, including via our website, media opportunities, and contributing to research projects.
- All consumer and health professional resources, including our website, factsheets, and health professional training, are co-produced with volunteers.
- Ensuring there is an emphasis on the lived experience in all our written communication, through the use of direct quotes from service users and volunteers.
- Utilising aggregated data from the Helpline Service and other program areas to inform communications about the lived experience of families impacted by perinatal mental illness.
- Actively seeking and incorporating feedback from all service users to inform quality improvement and program development activities.
- Facilitating external partner's consumer engagement activities. This has included Community Champion involvement in research projects, including the co-design of perinatal mental health interventions.

Meaningful consumer engagement is an iterative process, and requires an ongoing commitment of time and resources. PANDA's experience of consumer engagement has demonstrated that these ongoing commitments are necessary for perinatal services to meet the needs of service users.

Collaboration

PANDA has a proven recording working successfully across a number of health discipline and health service silos, and across state and territory borders. This is evidenced by our professional collaborations, including:

- Parent-Infant Research Institute (PIRI)
- Judith Lumley Centre, La Trobe University
- Centre of Perinatal Excellence (COPE)
- DJIRRA (Aboriginal community controlled family violence prevention and legal service)
- NHMRC funded research collaborations, including two current projects.

PANDA also collaborates with a number of health professional groups, partnering with health services and local government to provide workforce training and resources. In addition, we provide education and training for a number of non-government organisations and associations. These partnerships include:

- General practitioners
- Midwives and Maternal, Family, and Child Health nurses
- Allied health service providers, including psychologists
- Specialist perinatal mental health services, including psychiatrists, mental health nurses, and mother baby units
- Specialist domestic and family violence services.

Perinatal Mental Health - A Summary

'I feel that my experience of perinatal mental distress was compounded (my suffering and symptoms increased in severity and were prolonged) as a result of the current state of our perinatal mental health services, and our maternity system as a whole. Perinatal mental health must be prioritised. Knowledge and services must be improved. I would never wish the pain and fear that I experienced on another person, and yet I am connected with hundreds of women, and their families, who have been, and continue to be, impacted by perinatal mental distress. We have to do better.'

Community Volunteer – New South Wales

Incidence and impact of perinatal mental illness

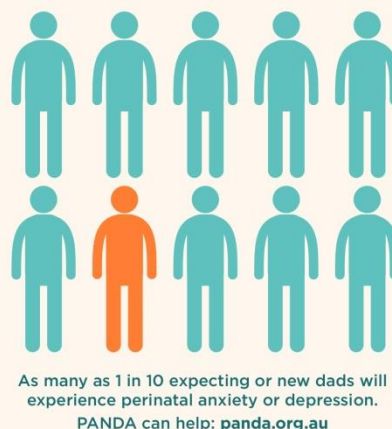
A more detailed discussion regarding the incidence and impact of perinatal mental illness can be found in Appendix 1.

Around 100,000 expecting or new parents in Australia each year experience perinatal depression and/or anxiety.

Incidence

The perinatal period is a time of increased risk for mental illness. Perinatal anxiety and depression are common and serious medical conditions occurring during pregnancy and the year following birth, affecting up to one in 5 expecting or new mothers. Left untreated, perinatal depression and anxiety is associated with short and long term adverse consequences for the mother, her baby and the family¹. Up to one in 10 fathers will experience perinatal mental illness.

In particular, there is an increased risk of severe mental disorders during the perinatal period, including affective psychosis^{2,3}. Postpartum psychosis affects up to 1 in 500 new mothers, usually within the first 3-4 weeks post birth. This is a very serious condition that almost always requires hospitalisation.



Impact

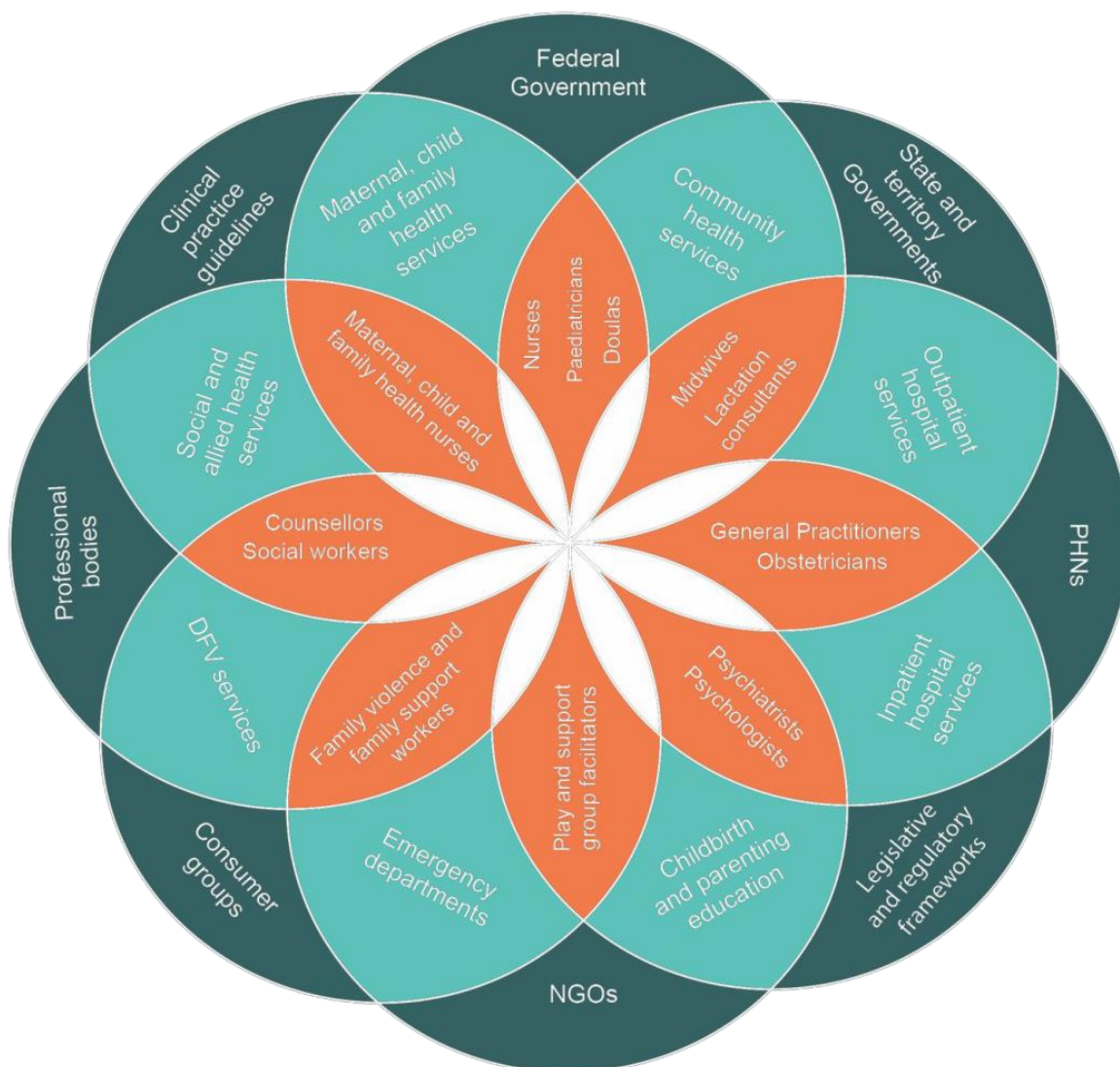
Perinatal anxiety and depression affects the whole family and can have a devastating impact on nearly every area of life. The impact of unidentified and untreated perinatal anxiety and depression includes:

- Attachment trauma
- Relationship breakdown
- Parentification of older children
- Suicide and/or infanticide
- Partner perinatal anxiety or depression

Perinatal Services

The figure below shows the complicated matrix of health professionals, health services and agencies responsible for perinatal mental health. Although not an exhaustive list, it demonstrates the complexity of coordinating perinatal mental health across diverse practice and policy settings. Conversely, it also represents an opportunity to ensure everyone involved in caring for women and families in the perinatal period are skilled in perinatal mental health.

Figure 1: Perinatal health service delivery, policy, and funding landscape



Cost of perinatal mental illness

In 2012 PANDA commissioned Deloitte to report on the cost of perinatal depression in Australia. The full report is included as Appendix 2. It is important to note that the report focussed on depression rather than the broader cost of perinatal mental health, and was restricted by significant data limitations. As such, PANDA is now working with three other perinatal consumer organisations (Gidget Foundation, PANDSI and Peach Tree) to seek funding to update the report to adequately reflect the cost of perinatal mental illness, including anxiety and psychosis, in Australia.

Impact Assessment PANDA - Perinatal Anxiety & Depression Australia

In 2018 PANDA commissioned Strategic Project Partners (SPP) to conduct an assessment of the impact of the National Perinatal Anxiety & Depression Helpline. The summary report is included in Appendix 3. Some key findings include:

PANDA received funding of \$1.384 million (2017 – 2018 financial year) from the federal government to provide the Helpline Service.

PANDA plays a critical role in the perinatal anxiety and depression (PAND) space.

The PANDA model works by normalising PAND and building capacity in the caller to seek help as required. PANDA also plays a specialist role in the PAND space, with frontline healthcare workers turning to PANDA for advice and support in addition to referring families.

The National Helpline provides benefits to callers, their children, their partners, their family and network as well as the broader economy. In FY2017/18 the National Helpline supported ~2500 families.

Overall, the National Helpline delivers three key benefits. For FY2017/18 these benefits have been estimated at:

- **\$57.5m p.a.** in increased economic output (enabled by a healthy population that is fully able to participate in the workforce);
- **\$12.3m p.a.** reduced burden on the Australian health system (enabled by reducing the need for emergency intervention, reducing the severity of the condition and supporting better utilisation of health services) and;
- **2,500 reduction** of Disability-Adjusted Life Years (DALYs) p.a. in improved wellbeing and awareness (enabled by a better quality of life and family dynamics)

In addition, PANDA also delivers a significant intergenerational impact. Early intervention helps remove stigma around seeking help for mental health issues, empowers parents to draw on supportive relationships and helps develop a positive model for parenting, all of which will impact the child's development and their coping mechanisms in the future.

Sector professionals strongly appreciate PANDA's expertise on PAND and feel that it is filling a critical gap in health services.

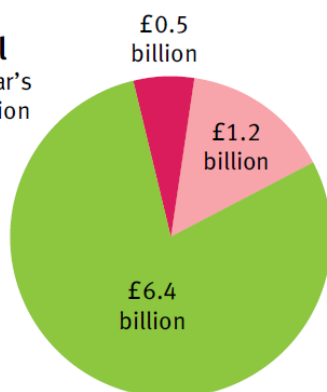
PANDA is continuing efforts to increase reach and accessibility and a key element of this is the planned introduction of an online peer support forum and other online capabilities.

The cost of perinatal mental health problems - UK report

Some additional insights regarding the costs of perinatal mental illness can be gained from a more recent UK report⁴. Commissioned by the Maternal Mental Health Alliance, the study demonstrates that perinatal anxiety, depression, and psychosis cost UK society £8.1 billion for each one-year cohort of births. This report was also able to demonstrate the intergenerational impact of this cost; 72% relates to adverse impacts on the child, not the mother. The graphics below are from this report.

Known costs of perinatal mental health problems per year's births in the UK, total: £8.1 billion

health and social care
other public sector
wider society



Of these costs

28%

relate to the mother

72%

relate to the child



Costs v improvement

The cost to the public sector of perinatal mental health problems is **5 times** the cost of improving services.

'I told my GP I wasn't feeling good and was told it was "just my hormones" I scored high for PND at my postnatal check-up yet was only given a social worker and no follow ups. I felt inadequate as a parent and hated going to mothers group. I got lost in the system somehow. I didn't know where to look or who to turn too. I just "sucked it up"'

Community Volunteer - Queensland

Perinatal mental health – key considerations

Undetected

Perinatal anxiety and depression are serious, prevalent, and treatable. Despite the fact that the majority of women are engaged in regular health appointments in the perinatal period, most women with perinatal mental illness are not identified by their care providers⁵⁻⁷.

Awareness of anxiety and incidence of mental illness during pregnancy

A lack of awareness regarding perinatal anxiety, and the potential for poor mental health during pregnancy remains a key barrier to early identification and treatment. Women with anxiety appear less likely to seek help than those with depression⁸, and a significant number of women with symptoms of mental illness during pregnancy are not identified until after birth.

Maternal suicide

Suicide is the leading cause of maternal death (during pregnancy and the 12 months following birth) in Australia⁹. Although maternal deaths in Australia have reduced over time, deaths attributed to psychosocial causes have increased¹⁰, despite the fact that women are in frequent contact with health professionals in the perinatal period.

Poor social health

Poor social health, such as social isolation and a lack of partner support, is a key and modifiable risk factor for perinatal mental illness. Unless social health issues are addressed, treatments for perinatal mental illness are unlikely to be effective¹¹. Improving social health also reduces the risk of harm to children¹².

Pre-existing mental illness

One of the key risk factors for perinatal mental illness is a previous or pre-existing mental illness¹³⁻¹⁶. It is common for parents to experience a relapse in pre-existing mental health issues during the perinatal period. Although this risk factor cannot be modified, it presents an opportunity for focused prevention and early identification strategies.

Family violence

Pregnancy has been identified as a time of high risk for women to experience domestic violence¹⁷, and a history of abuse or family violence has been consistently identified as a key risk factor for perinatal mental illness^{13,16,18,19}. Current experiences of family violence have also been identified as a risk factor for suicidal ideation in the perinatal period^{20,21}.

Workplace interventions

Workplaces have an important opportunity to increase awareness of perinatal mental illness so that all parents can be aware of potential symptoms and seek help early. Workplaces could offer a key opportunity for early intervention initiatives.

Priority 1 - Increasing Awareness

There is poor community understanding of perinatal mental health, particularly regarding perinatal anxiety and the occurrence of poor mental health during pregnancy.

'Raising awareness and reducing stigma needs to be a priority too, because I believe these two factors stop people seeking help even if they know they may feel mentally unwell'

Community Volunteer – Victoria

Becoming a parent is one of the most significant life transitions someone can experience. In this time of great change symptoms of perinatal mental illness are often confused with 'normal' experiences of parenting. The lack of awareness of the incidence and impact of perinatal mental illness amongst expecting and new parents can contribute to delays in seeking help. We know that early intervention is the key to reducing symptoms and helping those affected to recover.

While we need an overall increase in awareness of perinatal mental illness, PANDA has identified a need for specific focus on three key areas:

- Increased understanding that mental illness occurs during pregnancy, not only following birth
- Anxiety is just as common, if not more so, than depression
- Fathers and non-birth parents can also experience depression and anxiety in the perinatal period

Significant improvements in attitudes relating to perinatal mental illness including reducing stigma will only occur with increased community awareness and system wide commitment to perinatal mental health. This commitment must include re-framing maternity and family services to ensure mental health is valued equally to physical health.

Community Awareness of Perinatal Mental Illness

In 2016 PANDA undertook research into community awareness of perinatal mental illness²². This research built on work completed by beyondblue in 2009. While the beyondblue research focussed on awareness of antenatal and postnatal depression we also explored community understanding of perinatal anxiety and awareness of perinatal mental health difficulties in expecting and new fathers.

The research showed 52% of Australians identified depression as a key health issue in the year after birth. This increased from 45% in the 2009 research. However, when asked about key health issues during pregnancy only 5% identified depression or anxiety as a key issue. Interestingly, 34% were able to identify gestational diabetes as a key health issue, even though it is less common than antenatal anxiety and depression.

When prompted just 39% of respondents indicated they were aware that some women experience anxiety during pregnancy and after birth. Further, 60% of the Australian community are unaware that perinatal anxiety and depression can be experienced by men.

Helpline service knowledge

Callers to PANDA's Helpline are asked how long they have been experiencing symptoms before picking up the phone for help. Consistent with research findings regarding barriers to care (Appendix 1), most callers have been unwell for more than a month before they contact PANDA. Worryingly, 9% of callers have been experienced symptoms for more than a year before finally accessing the help they need.

Table 1: Timing of help-seeking

< 4 weeks	40%
1 - 6 months	40%
6 - 12 months	11%
> 12 months	9%

Over 65% of Helpline callers report anxiety symptoms including engaging in significant avoidant behaviours related to the care of their baby. A mother who is unaware of the symptoms of anxiety is likely to think her anger, agitation, distress and irritability are personal flaws and indicators that she is ill-equipped to be a parent rather than a sign of anxiety. These are often persistent thoughts and it is not uncommon for callers to the Helpline Service to state *'my partner and baby would be better off without me'*.

Antenatal anxiety and depression receive little attention in routine antenatal care, causing unnecessary and extended distress for many parents. Antenatal care is often focused on screening and identification of deviations in normal physical health for women and babies; the same emphasis is not placed on the family's mental health.

'It wasn't identified that I was experiencing such significant anxiety during my pregnancy and I continued to experience symptoms until my daughter was nearly two years of age...'

Community Volunteer - Western Australia

Effective Awareness Raising

Universal community anxiety and depression awareness campaigns do not reach parents in the perinatal period. Awareness raising efforts need to specifically target the unique reality of the perinatal period to help expecting and new parents identify when symptoms go beyond the normal challenges of pregnancy and parenting.

Stories about the real experiences of those affected by perinatal mental illness are an essential component of awareness raising; to both connect parents to the messages and to break down stigma about mental illness at this crucial time. PANDA's websites panda.org.au and howisdadagoing.org.au both contain stories from PANDA's Community Volunteers. The popularity of these stories is evidenced by the number of page visits but also through feedback. Indeed some of our Community Volunteers have reported that while they didn't access PANDA's Helpline Service they spent many hours reading the stories to help them know that they are not alone and to help them understand and feel hope that they could get better.

Mental Health Checklist

In November 2018 PANDA launched a new online mental health checklist for expecting and new parents. This comprehensive checklist (30 questions addressing changes in body and behaviours, thoughts and feelings, and relationships) has been completed by more than 14,000 people since it was launched just under 5 months ago. The checklist is a powerful awareness raising tool, and produces a personalised summary report that indicates whether the symptoms being experienced by the user or a loved one could be a reason to seek help.

Perinatal Anxiety & Depression (PANDA) Awareness Week

PANDA works all year round to raise awareness through traditional and social media drawing on the generous stories provided by our Community Volunteers. This work culminates in the annual Perinatal Anxiety & Depression Awareness (PANDA) Week in November. PANDA established this week in 2005 to increase awareness of perinatal mental illness and to reduce stigma. Since then PANDA has been using the Week to speak out about supporting the mental and emotional wellbeing of expecting and new parents, including raising awareness about the signs to look for and where to go to seek support.

'I was alone after my child was born as my spouse had to travel overseas for work. Battling depression and managing the home, baby and caring for myself became overwhelming and unbearable. But I went through this time alone and in secret. The depression never left me right through my child's growing years.'

Community Volunteer – Western Australia

Priority 2 - Effective Consumer Engagement

‘Without informed, knowledgeable and articulate health consumers, health policy will always be unbalanced whatever the goodwill and idealism of governments and health providers. Mature consumer organisations are an essential part of the health equation.’

The Hon Neal Blewett, Minister for Community Services and Health, speech to CHF’s Selecting Our Priorities Conference for Consumer and Community Groups, 1988

There is increasing global acknowledgement of the importance of involving consumers^{*1} in the development of health policy and priorities, as well as the design, implementation, and evaluation of health services and supports²³. In order for health care to be safe and of high-quality, it needs to be consumer centred. Research evidence demonstrates that consumer centred care can improve health outcomes, and engaging in consumer partnerships has become an important part of mental health service accreditation in Australia^{24,25}. Meaningful collaboration between consumers, health practitioners, policy makers, and governments can help to ensure health services and supports are accessible and effective, and improve consumer experiences²⁶.

Current practices in consumer engagement

At present, consumer engagement in perinatal mental health is piecemeal at best. Many projects and research studies are undertaken without adequate consumer contributions – some do not have any form of consumer engagement. There is no coordinated system which facilitates consumer engagement in perinatal mental health planning and policy development, service design and evaluation, or research, meaning the decision whether and to what extent to involve consumers is made on a case by case basis.

Meaningful consumer engagement is a skilled and iterative process. It requires that people and organisations have access to quality training and ongoing support to facilitate consumer engagement, and resources to ensure consumers are supported and paid for their time. Without these resources and systems, meaningful consumer engagement will not be possible.

Transformative potential

Effective consumer engagement has the potential to transform perinatal mental health. Key opportunities include:

- Providing meaningful opportunities for parents to share their experiences of perinatal mental illness
- Ensuring health planners, providers, policy makers and researchers involved in perinatal mental health are aware of and prioritise what matters to parents
- Designing and delivering consumer centred health services
- Improving the appropriateness, relevance, and scalability of research projects
- Ensuring undergraduate and postgraduate education, and ongoing professional development for health professionals is consumer focused

^{*1} For the purpose of this document, the word consumer is inclusive of any parent who has experienced perinatal mental illness, as well as their family and carers.

Consumer engagement case study - Community Champions Program

'I am proud now to be part of PANDA and to stand gently in front of other new parents and share with them my story and give them a map of what some people experience in the perinatal period so that they don't feel the pain and shame as I once did. Talking about my experience with the other volunteers at PANDA has been a key part of my recovery and I highly recommend peer support as part of any mental health system.'

Community Volunteer – Victoria

PANDA has developed a Community Champions program which has taken steps toward supporting effective consumer engagement. The program is limited by the availability of funding, yet the results have been significant and the program is ready to be expanded should additional funding be secured.

Examples of activities Community Champions could undertake in a fully funded program include:

General awareness raising	Engaging with local and regional events to share information about perinatal mental health
Speaker team	Sharing personal experiences in a range of forums (i.e. traditional and online media, professional development activities, new parents groups, pre-service training for GP's, midwives, Child & Family Health Nurses)
Co-producing awareness raising and consumer resources	Providing consumer advice / input to assist health service organisations, researchers, and government to produce information resources and services for families and health professionals
Representing consumer experience	Participating in formal and informal processes to influence health planners and providers, government, researchers etc.
Advanced representation of consumer experience	Advanced participation on national committees, research projects, advisory groups etc.

Priority 3 - Timely Identification and Treatment

'I was suffering extreme anxiety with a newborn to the point of losing 15 kilograms in 3 weeks – I only gained 7 in my pregnancy. I could hardly eat and felt sick all the time. I felt as if I could not be alone with my daughter or do anything by myself. My GP said it was all normal for new mums and kept telling me things would get better. The GP kept increasing the dose of my medication which I had been on for 10 years. I had to advocate for myself, whilst my mother and husband helped me care for my daughter 24/7. I knew I didn't feel right and I couldn't imagine how continuing to see my psychologist and GP was going to get me any better. I knew I needed more intervention. I ended up doing my own search for [Mother Baby Units] and made my own referral. My GP had to be convinced by my husband that I needed it. I ended up being admitted for 5 weeks. It was the best thing we could have done. I just wish it had been done sooner, with less leg work from me. I wish someone had been my advocate. It's only because of my line of work, my education and skills, and my history of mental illness, that I was able to strongly advocate for myself, despite my mental state at the time.'

Community Volunteer - Victoria

Many jurisdictions in Australia have long implemented policies supporting universal screening for mental illness in the perinatal period, particularly following the introduction of the National Perinatal Depression Initiative²⁷. These policies are intended to ensure every single woman is screened for anxiety and depression during pregnancy and following birth, using tools such as the Edinburgh Postnatal Depression Scale (EPDS)²⁸. Screening intends to reduce morbidity resulting from perinatal mental illness by ensuring women who are at risk of, or are experiencing, perinatal anxiety and depression are identified and receive appropriate assessment, referral, treatment and follow up support. Screening programs alone, however, do not improve mental health outcomes for women^{29,30}; only screening programs which are properly embedded within a system of referral and support have any chance of improving outcomes^{30,31}.

'I experienced terrible anxiety during my first pregnancy, which was never discussed. The birth of our first child was traumatic, it was never followed up on or discussed. And then after our 2nd child was born anxiety was very present yet there was no one I felt I could turn to or ask for help. The stigma of feeling I was "failing" was overwhelming.'

Community Volunteer – Victoria and Tasmania

Despite clear policy guidance, screening has been inconsistently implemented. Research indicates less than half of all women with perinatal depression are identified as such, and of those recognised less than half are adequately treated³². This is a stark indication that the issue is not one of policy, but of implementation at a service delivery level. Much faith is held in the 'best practice' administration of screening tools both antenatally and postnatally, yet insufficient consideration is given to workforce development to ensure health professionals are ready to have difficult conversations, know how to explore sensitive and complex issues and feel confident responding when concerns are raised. This gap in confidence and skill set might be one explanation as to why most parents experiencing perinatal anxiety and depression are not identified by care providers.

'I experienced severe postnatal depression and anxiety following the birth of my son in 2016. Despite recognising it early and reaching out myself to get the help I needed, it still took too long for me to get the right level of help and by then I was both suicidal and had lost hope. Unfortunately the health care professionals weren't aware that there was a mother baby unit that I was able to access, nor that I needed that level of care, until I was critically ill. Once my son and I attended the unit I quickly received incredible care and support, ensuring I was able to return home within a few months.

The mother baby unit saved my life.'

Community Volunteer – Victoria

Experiences of seeking help

The experiences of PANDA Community Champions and Community Education Volunteers illustrate the difficulties regularly faced in getting support for perinatal mental illness. Many parents report multiple help-seeking attempts before they were finally able to get the help they needed. Some people have been lucky because they have seen a health care provider, such as a midwife or a GP, who is skilled in perinatal mental health and has been able to meet their needs. Others have not received adequate care, but have been able to access the help they need through perseverance and even self-referral to acute mental health services. These experiences bring to life the reality that a significant number of parents experiencing perinatal mental illness do not receive the help they need.

This should not be a privilege afforded only to those who are lucky to see the right health professionals, or who are most able to advocate for themselves. Our health system and the professionals working within it need to be able to identify and support any parent at risk of, or experiencing, perinatal mental illness.

As detailed above, a significant number of parents with perinatal mental illness experience barriers to identification, referral, treatment and ongoing support. A variety of factors contribute to this, including stigma^{33,34}, lack transport to face-to-face services, language and financial barriers³⁵, and discrimination³⁶.

'I was deeply traumatised following the birth of my first child. In the days and weeks following I experienced PTSD symptoms [including] regular flashbacks and severe anxiety. When I asked for help from the visiting midwife or whether I could receive a debrief or counselling from the hospital, she told me that was not a service they offered and I needed to sort it out myself. I then suppressed those feelings and over the following 9 months spiralled further and further into [postnatal depression] before calling PANDA for help on the verge of total breakdown. How different might my experience have been if that midwife had simply said 'yes, we can do that and yes we can support your mental health needs.'

Community Volunteer – Victoria

Health services caring for pregnant women, babies, and their families in the perinatal period are overtly focused on physical health, with far less emphasis placed on mental health. This has a detrimental impact on the chance of prevention and early identification measures being successful. Delayed response to mental health decline increases the chance of parents experiencing mental health crisis, with clear potential for negative impacts on the entire family. Sadly suicide is the leading cause of maternal death in Australia⁹, despite the fact that women in the perinatal period are 'among the most medically supervised members of the population'¹⁰.

'I presented with postnatal anxiety the day my daughter was born. No one asked how I was doing mentally after my planned caesarean birth. I felt the hospital after day 2 from feeling suffocated and out of control - still, no one asked how I was doing mentally. My baby suffered horrific colic and was not sleeping, still, my maternal health nurse did not ask how I was coping mentally and just kept badgering me to make sure my baby had good sleep. I knew I was losing the battle so I went to a doctor and she said "oh, all good! Just take antidepressants- most people in your suburb are on them!"... I couldn't get on them and the doctor didn't really hear me when I told her how much I wasn't coping. So I went back to another doctor and broke down in front of her. She was the first professional person to understand me. She gave me different antidepressants and suggested I see a psychiatrist who specialises in PND. I had googled one that had amazing reviews and who practiced near me. He saved my life. He listened to me, he understood me and he helped me. I was lucky. I kept pushing and I kept seeking. I was also lucky enough to live near good resources.'

Community Volunteer – Victoria

Priority 4 - Care for Parents with a History of Mental Illness

I live in a rural location... It was once I was home that things began to fall apart. My partner was beyond stressed having had to manage his older children, the house, the property and work as well as his own shock and trauma from the birth. He now recognises that he was suffering depression, anxiety and the ongoing stress of the trauma. We both have a history of depression and anxiety as well as trauma/vicarious trauma. I became severely sleep deprived as I was so concerned about my attachment bonds with my baby - having had such a terrible start. I felt like a failure. As I strived more and more to protect her I sank into exhaustion and chronic anxiety and panic attacks. The midwives at the mothers group I was put with did a session on mental health and began by asking all those who experienced the baby blues to put their hands in the air. I gingerly put mine up but I was the only one. I felt even more isolated and ashamed, stigmatised. I did not want to expose myself to the women or nurses in that group anymore. I went on to seek counselling but the only free appropriate service was in Geelong and it was hard enough to organise myself to get into the local town let alone drive back into Geelong. It was ultimately my local MCHN who picked up that I wasn't coping and things slowly got better but I needed ongoing support to greater and lesser degrees over the years that followed. In those first 8-9 months I became crippled by my symptoms, I couldn't make decisions, I felt awful about myself and so very ashamed.

Community Volunteer - Victoria

A past history of mental illness, either earlier in life or in a previous perinatal experience, is a significant risk factor for perinatal mental illness¹³⁻¹⁶. As such there is an important opportunity for those with a past or current history of mental illness to be identified early and supported through pregnancy and parenthood to reduce the chances of mental health decline, and help to facilitate early identification and access to treatment if this becomes necessary.

Over 50 % of callers to PANDA's Helpline Service report a history of mental health issues, yet most express being caught off guard and ill prepared when they encounter mental health decline during pregnancy or after birth.

For some, strategies employed to successfully manage their mental health become impractical or ineffective in the perinatal period. As an example, sleep management is often an important tool for women managing bipolar disorder, but this is naturally more difficult to manage with a new baby. Insight regarding their illness and how to support their mental health can be challenged through this major life transition, presenting a need for additional support.

Other callers with an existing mental illness have reported that their existing general or mental health practitioners have not had the skill to manage their mental illness in the context of pregnancy and early parenthood. PANDA commonly hears from women living with a mental illness whose doctor has recommended they cease taking psychotropic medication due to concerns for the potential impact on the developing baby. This can result in a rapid mental health decline, confusion and distress, and has been linked with suicidality³⁷⁻³⁹.

Women receive this advice despite the fact that a number of psychotropic medication can be taken in pregnancy and while breastfeeding.

We need to work together to ensure the community knows that having a mental health issue does not preclude someone from being an exceptional parent, rather signals an opportunity for additional specialist care, monitoring and support before conception, during pregnancy and in the early days of parenting.

'When I was in hospital with my second and third baby they knew I had a PNDA history and no one mentioned it nor was I assessed for risk or saw any kind of support whilst staying in the hospital. When out the community nurse saw me once and then I was left to my own devices to see my GP whilst dealing with severe PNDA and shame and I had to access my own counselling which cost me money. Something more needs to be done. If I had needed a hospital bed which was quite realistic my third time round as that was my worst bout of PNDA there wasn't anything available to me so my husband at the time and mum had to step in and care for me and my third baby and the other two.'

Community Volunteer – New South Wales

Priority 5 - Access to Specialist Care

'I spent 5 weeks in a mental health facility dedicated to women and their babies for severe [perinatal mental illness] after my son was born. It only had 6 rooms and as far as I am aware it is the only facility of its kind in South Australia where you can be admitted with your baby. With my second baby I was more aware of the signs and when I started to notice them I acted early because I was informed from previous experience. The illness has been a lot more manageable and did not progress as far because I was aware and didn't hesitate to get help. Awareness and early intervention is key!

Community Volunteer – South Australia

Specialist health professionals

The perinatal period is a crucial time in a family's life. It is important that those experiencing mental illness have access to specialist perinatal mental health services and professionals who are aware of and responsive to the challenges and circumstances unique to the perinatal period. Non-specialised health professionals may provide advice that is not appropriate for the perinatal period, such as abrupt discontinuation of psychotropic medication as detailed above. Unfortunately, families experience a number of barriers to accessing specialist health professionals. This can include extended wait time of weeks to even months, and significant out of pocket costs. These barriers are further compounded for particular populations, including those who live in regional, rural or remote parts of Australia, where they may be literally no one with perinatal expertise available to them.

By two weeks post-delivery, I was clearly suffering from post-natal depression and anxiety. The only reason it was picked up when it was, was because I have a background in nursing and mental health and was able to talk to my husband about what I was feeling. I was lucky enough to have a great GP who I was able to see straight away, and who kept me at her clinic until she made sure I was on the waitlist for a public mother-baby unit and linked in with the CAT team. Unfortunately, the CAT team assigned to my area weren't great, and said some really damaging things to me like 'why did you even have a baby in the first place?!'. It was not until I was admitted to the MBU that I saw a perinatal psychiatrist, and started other treatments such as art therapy. Unfortunately, I did end up being admitted to the MBU a second time, but I had a good experience then as well.

Community Volunteer – Victoria

Specialist health services - Mother Baby Units

Specialist Mother Baby Units (MBUs) are important for new mothers experiencing severe mental health issues who require inpatient mental health admission. Women are able to be admitted with their baby, meaning she can receive the care she needs while her relationship with her baby is protected and supported. MBUs also support family relationships and encourage partners to stay with the family where possible. General acute mental health services do not provide a safe and therapeutic option for new mothers and do not accommodate babies – causing significant and long lasting distress for women who are needlessly separated from their babies.

'I suffered postnatal psychosis following the birth of my son in 2012. My symptoms developed within days and became life-threatening over several weeks. Despite having a family history of Bipolar disorder and showing signs of mania, I received no help during this time and had to get help for myself. I was a risk to myself and possibly my baby. WA's health system failed me but ultimately save me. I was eventually hospitalised in Perth's Mother Baby Unit and stayed there for nearly four months over two admissions. The Mother Baby Unit saved my life - I am certain I would have ended up killing myself had I been unable to access an MBU. It scares me to think had I been in Sydney that I would have been involuntarily sectioned and had my baby taken from me. This is still happening to women in Australia and it's disgusting. I will not stop advocating for universal access to Mother Baby Units as I believe they save lives.'

Community Volunteer – Western Australia

Unfortunately, access to public MBUs varies greatly across the country. Public MBUs are currently available in Melbourne (6), Perth (2), Adelaide (1), and the Gold Coast (1). These inpatient services are critical to support mothers with severe perinatal mental illness and are also a crucial early intervention measure to support the wellbeing of the mother-baby dyad. Access to MBUs therefore has the potential to reduce the risk of intergenerational trauma resulting from untreated perinatal mental illness and the unnecessary separation of parents from their children during the crucial first year of life.

'Following the birth of my first child, I rapidly declined and experienced what we now know as Postpartum Psychosis. I was separated from the first born, even though He was exclusively breastfed, and placed in a local mental health ward. I stayed there for 13 days in which I only saw my child for 1.5 hours over 3 visits. During my stay I was subjected to increased and unwanted attention from another patient (male) and was left to fend for myself. Having given birth so close to admission, I was still bleeding and lactating. The staff were ill equipped to deal with me and lacked the understanding, empathy and education to manage a patient such as myself. I was discharged early due to an incident, and they could no longer protect me. This also created issues as I had no time to prepare for life outside and sent me into a spin. It took months to adjust to life on the outside and I had little to no support once discharged. Mentally and emotionally it was a huge toll and after 5.5 years there are still times of deep reflection on aspects of my 'care' that should have been better!'

Community Volunteer – New South Wales

Priority 6 - Supporting Fathers

'I went to a highly regarded, experienced psychologist last year who literally chuckled condescendingly as he told me that men don't experience postnatal depression'

Community Volunteer - Victoria

There is limited community awareness that men can experience perinatal anxiety and depression. As previously highlighted, PANDA's community research demonstrates that 60% of the Australian community are unaware that perinatal anxiety and depression can be experienced by men. At the same time there is increasing evidence about the importance of fathers' mental health. There is increasing acknowledgement that the mental health of fathers is important for the wellbeing of the entire family unit, including child outcomes⁴⁰.

Helpline service knowledge

Just 11% of callers to PANDA's National Perinatal Anxiety & Depression Helpline are men. Of this group 72% call about their own mental health and the remaining 28% about their partner's health.

From our Helpline Service we know that it is difficult for fathers to ask for help for themselves – particularly at this time when they are establishing a family or welcoming an additional baby. We often talk to fathers who say that their partner has been through so much (pregnancy, childbirth) so they feel ashamed about their own experience of perinatal mental health problems or difficulties with the transition to parenthood.

Fathers calling PANDA about their partner's mental health express different concerns. They are generally surprised and worried about their partner's mood or behaviour and surprised to learn about how common perinatal mental illness is. In working with fathers seeking support for their partners, PANDA is mindful that paternal involvement in infant care can protect against maternal depression⁴¹. Our experiences from the Helpline Service and from our Community Volunteers indicates that health and social care systems in the perinatal period are focused on the wellbeing of the pregnant woman and her baby, with very little inclusion of fathers, particularly their mental health needs.

Support for parents with partners with severe mental illness

It is crucial that parents supporting a partner with severe mental illness are also supported themselves. Parents can quickly find themselves acting as a carer for a very unwell partner, trying to navigate an unfamiliar mental health system (often for the first time), caring for their children, and processing their own transition to parenthood. To maximise infant welfare the entire family unit needs to be supported, not just the parent who has been identified as acutely unwell.

It is also important to recognise that parent's supporting a partner with severe mental illness are at increased risk of perinatal mental illness themselves. In the absence of universal services providing routine care and support to fathers the risk of paternal perinatal anxiety and depression being unrecognised and untreated is high.

Fathers stepping in to the role of primary care giver at this time, whether by choice or due to their partner's mental illness, tell us they find it difficult to access the systems designed for mothers and babies. They report that they are not equally valued as key stakeholders in their baby's wellbeing and not welcomed by maternity and child family health systems.

Health services and professionals caring for a parent with perinatal mental illness should routinely consider provision of information and referral for their partner.

PANDA's Helpline counsellors often 'care for the carer', by providing them with assistance to navigate the mental health system, and offering support in their own journey to parenthood. This is an easily accessible, free early intervention to reduce the possibility of a decline in the partner's mental health.

'When I had my second child in 2013, my husband and I already had a toddler son. My husband worked long hours as a shift worker, and we had little family support because everyone thought we were coping. The reality was quite different. I was struggling with a toddler and baby on my own day in and day out. My husband was angry, grumpy and sad all the time. When he wasn't at work he would retreat to the bedroom and sleep. Eventually I felt so sleep deprived the housework became messier, and I had trouble gaining the energy to cook dinner every night. I eventually became miserable as my husband and I sank into a depression. I was by myself all day with no strength to even take the kids out. Although sometimes I wanted to escape my house and life so badly I would randomly put my babies in the car and stop at car parks just so I could cry. When I took my kids out I would get intense anxiety that I would lose them (especially in crowded playgrounds). I would then grab the children and lock myself in the public toilet so I could cry. My husband had no idea I was struggling because he was battling his own depression that was not diagnosed until 2 years after. By that stage our marriage fell apart because we had lost that vital connection between us. I eventually sought help and went to a perinatal counselling group and it was wonderful. I really connected with all the other parents there, and felt less isolated. I did CBT exercises that really helped lift my spirits. After my husband and I separated in 2016 my ex eventually started on antidepressants. I found there was help for me when I needed it, but my husband's mental health needs were ignored. Today I am 100% happier as a single mum and my kids are loving, well-adjusted individuals.'

Community Volunteer – Western Australia

Priority 7 - Responding to Family Diversity

When my daughter was 3 and half, we moved to Australia. I was 14 weeks pregnant. Despite of the grief of having left behind family and friends, I was happy and excited about our new life. After my son was born, I had a lot of pain in my lower back. I could hardly walk....

My husband stayed home for the first week, but then I was all on my own with my baby. From that time, I remember the contrast between the calm at home while my baby sleeps – he sleeps so well, how lucky I am! – and the inner storm of emotions and thoughts that constantly come and go, those that I don't share with anybody. There is nobody to share how I'm feeling, anyway. For the first time I really miss my friends, they would have come to visit me, to chat, to laugh together, to hold my baby, to give me a break. I feel so isolated!

Community Volunteer – Victoria

We know that families from minority communities face additional risks for perinatal anxiety and depression, and barriers to accessing safe, appropriate services. It is crucial that services supporting families in the perinatal period are responsive to this, with the ability to individualise care and support in response to these factors.

Supporting our diverse community

Australia is a fast-changing, ever-expanding, multicultural, multi-faith and diverse nation, and this is reflected in the make-up of Australian families. More than 300 languages are spoken in Australian homes, with 21% of households speaking a language other than English at home – most commonly Mandarin, Arabic, Cantonese and Vietnamese. Each day through PANDA's Helpline Service we talk with families from all over Australia with different cultural and language backgrounds. From this experience we know that perinatal anxiety and depression can be exacerbated by different cultural expectations about being a new parent. Sometimes we hear from parents who are struggling to blend their values about being a parent in Australia with those of their own parents.

Whilst extended families often want to support a new parent through the experience of bringing a new baby into the world, sometimes this can cause tension and distress for the new parents as they negotiate their personal need to adjust to being a parent with the ideas of others around her. This can also create difficulties between the new parents. We also talk to parents who are struggling because their families do not understand that mental illness is a 'real illness'.

Further we hear from callers about difficulties in cross cultural marriages where cultural and value differences can become problems when faced with the demands of a new baby. It is surprisingly common for couples to only begin to talk about their individual beliefs and values about parenting after the baby is born. This can relate to key issues like breastfeeding, sleeping and crying. When differences in views about these issues are discovered, with the pressure of the new baby present, they can lead to conflict and distress.

Supporting Aboriginal and Torres Strait Islander families

It is important that health professionals and services acknowledge the historic and ongoing impacts of colonisation, dispossession and of the policies and practices that resulted in the Stolen Generations. These impacts include both intergenerational trauma and barriers to engagement with mainstream services that greatly increase the risk and impact of perinatal anxiety and depression for Aboriginal and Torres Strait Islander families. We frequently have conversations with families who have struggled to access safe and appropriate support for their mental health in the perinatal period. This is particularly difficult for Aboriginal and Torres Strait families who commonly express fear of child removal, due to the fact that Aboriginal and Torres Strait Islander children are almost 10 times more likely to be in out of home care than non-Aboriginal and Torres Strait Islander children⁴².

LGBTIQ+ parented families

Australian family structures are also diverse, with increasing numbers of children growing up in sole parent, step-parent, blended, extended and kinship families, and with LGBTIQ (lesbian, gay, bisexual, trans*, intersex and queer) parents. LGBTIQ parent families in themselves are diverse in their family forms and ways of creating families. While there are many that have two mothers or two fathers, there are also many that include bisexual, trans, gender diverse, non-binary, queer or intersex people in parenting roles parents or co-parents. Sole parents by choice are also an increasing population, especially following reforms that removed discrimination in access to fertility services for single people.

Among the plethora of risk factors for perinatal mental illness, both LGBTIQ parents and sole parents by choice also face minority stress – that is, the impact of both interpersonal prejudice and institutionalised discrimination. Callers from these communities often share with PANDA counsellors a range of experiences of exclusion, judgement and prejudice from families of origin, their local communities and care providers, including maternity services, child and family health services, new parent group, GPs and even mental health clinicians. They describe significant mental health impacts of families like theirs being vilified within mainstream and social media, as was widely the case during the 2017 marriage equality postal survey and its aftermath, and which increases again each time LGBTIQ issues are raised in mainstream media. In addition, family diversity is not well represented in the ways that many care providers represent families, and their services to families. Overwhelmingly, families are represented and discussed in heteronormative ways – as “mum and dad” families with their own biological children. This further contributes to the perception within the LGBTIQ parenting community that few services are culturally safe or appropriate for them, or sensitive to the particular challenges they face. These experiences of discrimination and isolation – and the fear they create of further discrimination – increase isolation and discourage help-seeking at a time of particular risk for these vulnerable families. It is thus also important for the PANDA Helpline and all mainstream to have a good knowledge of LGBTIQ specific services for referral, although it’s certainly true there are not adequate services to meet this community’s needs even within capital cities, let alone in outer suburban, regional or rural areas.

Priority 8 - Health Professionals

“There is no time in the lifespan that the statement
‘there is no health without mental health¹’
rings truer than in the perinatal period”

(Howard, Piot, & Stein, 2014)¹ - Farrelly, S. et al., (2014).

The perinatal period is a time when women and families are in regular contact with health professionals, sometimes for the first time in their lives. These professionals have the potential to ensure every parent’s mental health is supported, and issues are identified early.

A range of professionals help to care for families in the perinatal period, including:

- Antenatal care providers
- Postnatal and family health providers
- General Practitioners
- Mental health services
- Community health practices
- Community and family support services
- Domestic and family violence services.

‘Looking back, a lot of red flags for mental illness - anxious person, difficult end stages of pregnancy, traumatic birth resulting in general anaesthetic c-section, breast feeding issues. If appropriately trained mental health professionals were involved in perinatal care, [they] could have better identified my risk factors and put an appropriate care plan in place. Any checks with [health professionals] felt forced, uncomfortable and like they were “tick and flick”... they had to ask because there was a sheet of paper that told them to’

Community Volunteer - Victoria

The table below outlines numbers of key health practitioners who can contribute to better perinatal mental health. We estimate that there are more than 200,000 professionals employed across Australia who can help reduce the burden of perinatal anxiety and depression with consumer informed information, support and training.

Table 2: Health and allied health professionals involved in supporting perinatal mental health

		Estimated number of professionals ^A
Doctors	- General Practitioners	28,352
	- Obstetricians	1,930
	- Psychiatrists, including perinatal specialists	3,244
	- Neonatologists and Paediatricians	2,059
Midwives	- Community and hospital settings	26,375
Nurses	- Child and Family Health/Maternal and Child Health	3,000 ^{^^}
	- Mental Health	19,610
Allied and Psychological Health	- Psychologists, including perinatal specialists	25,219
	- Counsellors	25,900
	- Lactation consultants	2,059
	- Social Workers	23,166

^A Information regarding AHPRA registered health practitioners was accessed from the Australian Government Health Workforce Data, and information regarding practitioners not registered with AHPRA from the relevant professional bodies/organisations in Australia and/or the ABS. ^{^^} Estimate only

Pre-registration and continuing professional development for health professionals caring for families in the perinatal period

The table above demonstrates just how many professionals have the potential to have a real impact on better perinatal mental health outcomes. In order for this potential to be realised all health professionals in Australia, particularly those who focus on working with families in the perinatal period, should receive specialist, consumer-focused education on perinatal mental health. It is clear the educational approaches currently in use are not working - we need to understand what does work.

Mental Health Workforce

The mental health workforce has clear and established expertise in mental health. There are however needs and risks unique to the perinatal period which a proportion of the mental health workforce may not be aware of. These include consideration of the mother-baby relationship, assessing suicide risk in the context of high impulsivity, use of psychotropic medication during pregnancy and lactation, and the need to collaborate with family members and local child protection agencies relating to child safety. Consumer-focused education relating to perinatal mental health would also assist these professionals to better meet the needs of expecting and new parents.

'It took me 12 weeks to be diagnosed with postnatal depression and anxiety. I believe this is too late. Women need to be cared for closely and monitored. Those at risk could benefit from a longer stay after having baby, to be monitored more closely.'

Community Volunteer – South Australia

Priority 9 - National Coordination

Australia has some of the best service models and access for perinatal mental illness in the world. Australia's commitment to perinatal mental health screening has progressed beyond a number of other high income countries. Our acute mother and baby units provide world class care in many states. We are fortunate to have internationally recognised experts in perinatal mental illness - including psychiatry, psychology, midwifery, nursing, and research. However the lack of National coordination restricts our capacity to build on these strengths to provide the best support for families affected by perinatal mental illness.

The National Perinatal Depression Initiative (NPDI) was established in 2010 with the aim of improving prevention, early detection, support and treatment for perinatal depression. A total of \$85 million was allocated to the initiative over five years, ending June 2015. Since the NPDI ceased, there has been no national leadership in perinatal mental health: the coordination role previously undertaken by beyondblue ceased with the NPDI, and individual states and territories are essentially operating in isolation, and in some cases with no clarity regarding who is responsible for perinatal mental health planning and delivery.

We have no nationally coordinated approach to early identification, treatment, support and promotion of perinatal mental health. This is evidenced in the sporadic and at times poor uptake of research evidence and clinical practice guidelines, lack of coordination and cooperation across the country and ongoing difficulties experienced by many families trying to access specialist perinatal mental health support when needed. National coordination is crucial to develop a national understanding of the impact of perinatal mental illness, foster cooperation and support best practice.

Individual states and territories are working in isolation to support perinatal mental illness. Without deliberate national leadership and coordination, there is no cohesive approach to perinatal mental health best practice in Australia. Coordinated planning and policy is further complicated by the devolution of responsibility for community based perinatal mental health planning and delivery to 31 Primary Health Networks across the country.

There is an opportunity to plan across jurisdictions and departments, health services and disciplines to support consistent data collection to support a coordinated approach to perinatal mental health. There are a range of regulatory provisions and frameworks linked to the effective development of a coordinated perinatal mental health response. There is a need to increase understanding of best practice perinatal mental health systems and services and encourage cooperative approaches to service planning and provision.

Coordination is particularly important in perinatal mental health which sits at an intersection between the range of primary and specialist health during pregnancy and the year following birth. It is further complicated because there are effectively at least two people in each consultation – (generally) the mother and the baby. New National Clinical Guidelines released in 2018 provide important guidance for the identification and treatment of perinatal mental illness, but cannot offer solutions to ongoing challenges relating to poor identification of women experiencing perinatal mental illness, service utilisation and care coordination.

In PANDA's day to day work supporting callers to our Helpline Service we see how often health systems fail to support families to recognise and seek treatment for perinatal mental illness. Through better coordination, including effective consumer engagement, we can achieve better outcomes within existing funding models.

Recommendations

Priority 1 - Increased Awareness

1. Public awareness raising campaign sharing diverse consumer stories of hope and recovery from perinatal mental illness, including postnatal psychosis, to help the community more effectively identify the signs of the illness and know where to seek help.
2. Targeted public awareness raising to families from culturally and linguistically diverse communities, LGBTIQ+ parented families and Aboriginal and Torres Strait Islander families.
3. Increased focus on perinatal mental health in antenatal care so that expecting and new parents can recognise the symptoms of perinatal mental illness and seek treatment.
4. Routine inclusion of perinatal mental health information in antenatal classes, maternity appointments, Child Family Health appointments, new parents' groups, parenting classes and other environments where health issues related to pregnancy and early parenting are discussed.
5. Increased availability of consumer informed online perinatal mental health resources.

Priority 2 - Effective Consumer Engagement

6. Funded national Consumer Collaboration Program to build capacity for effective consumer engagement to support planning and delivery of perinatal mental health services. This will facilitate meaningful consumer engagement for health service organisations, researchers, and government.
7. Involvement of consumers with a lived experience of perinatal anxiety, depression or psychosis in the development and review of any service/system established to support the emotional and mental wellbeing of expectant or new parents. PANDA can assist in this work through our Community Champions program.
8. Consumer voice and experience to be included in all training of health professionals who provide care to families in the perinatal period.

Priority 3 - Timely Identification and Treatment

9. Effective screening for perinatal mental health as outlined in the Australian Clinical Guidelines for Mental Health Care in the Perinatal Period for all expecting and new mothers.
10. Support for health professionals to better understand and address the systemic and interpersonal barriers to care faced by expecting and new parents experiencing perinatal mental illness.
11. Health systems providing care to families in the perinatal period should be re-framed to ensure there is equal emphasis on the both physical and mental health of parents.
12. Access to a range of treatment options to support effective care across the perinatal period.
13. Proactive support for parents experiencing early distress to prevent further deterioration in their mental health. This kind of support can be achieved through interventions to improve social support such as support groups.
14. Clear referral pathways to support access to care.

Priority 4 - Care for Parents with a History of Mental Illness

15. Parents with a history of mental illness should be identified at the beginning of pregnancy by their care providers, and have access to prevention and early intervention services.

Priority 5 - Access to Specialist Care

16. Public Mother Baby Units should be available for Australian families in all States and Territories.
17. Development and evaluation of specialist acute mother baby support options for regional and rural hospitals.
18. Health professionals caring for a parent with severe perinatal mental illness should be resourced to provide support to the entire family unit, particularly the parent's partner.

Priority 6 - Supporting Fathers

19. Services supporting families in the perinatal period should be welcoming and inclusive of fathers, and able to support their mental health as well as mother's.

Priority 7 - Responding to Family Diversity

20. Significant investment is required to ensure services are able to respond to family diversity, including having the knowledge and flexibility to individualise care to the needs of each family.

Priority 8 - Health Professionals

21. Key health professionals working with families in the perinatal period should be supported to develop the skills and confidence necessary to identify and support for parent's mental health
22. Regular professional development for GPs highlighting the complexity of perinatal mental illness, the safe use of psychotropic medication during pregnancy and breastfeeding, and the importance of further consultation and referral for parent's experiencing severe perinatal mental illness.
23. Workforce development for mental health crisis and triage staff to ensure they understand the specific needs and risks present during the perinatal period.

Priority 9 - National Coordination

24. Consider funding a National Coordination Strategy to ensure effective collaboration across jurisdictions.

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Appendices

Appendix 1 – Perinatal mental health

Appendix 2 – The cost of perinatal depression in Australia

Appendix 3 – National Perinatal Anxiety & Depression Helpline Impact Assessment

Perinatal Mental Health in Australia

A range of mental health difficulties occur in the perinatal period; mental disorders are one of the most common morbidities women experience in pregnancy and the year following birth¹. Although disorders across the diagnostic spectrum can occur, focus in research and practice has until recently remained on postnatal depression, with far less attention paid to mental health during pregnancy, and the importance of other mood disorders such as anxiety^{1,2}. We therefore have more knowledge of postnatal depression than any other mental disorder in the perinatal period, although this is beginning to change², with increasing evidence to demonstrate significant morbidity relating to other mental health disorders in the perinatal period¹. This historical focus on maternal mental health and postnatal depression still impacts health care practices and community understanding of perinatal mental illness today^{3,4}. Due to this, the majority of the literature discussed here relates to maternal mental health, particularly depression occurring after birth. This is a key limitation of the current research relating to mental health in the perinatal period, and one that needs to be addressed by further research.

Prevalence of perinatal mental health disorders

Although specific estimates regarding the incidence and prevalence of perinatal mood disorders vary, there is wide agreement that these problems are common, and are public health issues of critical importance⁵⁻⁷. Estimates of how many parents will experience perinatal mental illness vary due to large differences in research methodologies and methods used, including data collection methods, inconsistent use of diagnostic interviews, variation in screening cut-off points, and use of point or period prevalence. There has also been inconsistent definitions of perinatal depression and anxiety used by both researchers and health care providers, further adding to this confusion⁸.

A highly cited systematic review identified a period prevalence of maternal major and minor depression in pregnancy of 18.4%, and 19.2% in the first three months postpartum⁹. Similar rates were identified in an Australian population based survey of 4,366 women; at six months postpartum 17.4% of women screened positive for depression symptomatology, 12.7% for anxiety, and 8.1% for comorbid depression and anxiety¹⁰.

A recent British study identified a higher population prevalence of perinatal mood disorders in early pregnancy than previous studies¹¹. The research aimed to investigate the prevalence of mental health disorders in early pregnancy, as well as the diagnostic accuracy of two screening tools. The study has two strengths that are not common in population-based studies of perinatal mental health; all women recruited to the study underwent a Structured Clinical Interview DSM-IV (SCID), and women who did not speak English were able to be included in the research through the use of interpreters. The study included 545 women, and found a population prevalence of any disorder identified by the SCID interview to be 27%. Overall, 11% were diagnosed with depression; 15% an anxiety disorder; 2% obsessive compulsive disorder; 2% eating disorders; 0.3% bipolar disorder I; 0.3% bipolar disorder II; and 0.7% borderline personality disorder. The study found that one in four women at midwifery 'booking' appointment met diagnostic criteria for a mental health disorder, a significantly higher prevalence than previous studies have identified. Although the study was conducted at only one maternity site in inner city London, it included women who do not speak English and are typically excluded from research, and so may provide a more accurate indication of the prevalence of mental health disorders in pregnancy than previous studies.

Identification and seeking help

Despite the fact that anxiety and depression are common in the perinatal period, identification of women at risk of or experiencing perinatal mental illness remains poor, with research indicating up to three quarters of women with anxiety and/or depression are not identified by their care providers¹²⁻¹⁴. A number of barriers to

help-seeking have been identified in the literature, including difficulties attending appointment; perceived lack of time; stigma¹⁵; language barriers; financial difficulties¹⁶; poverty; and discrimination¹⁷.

Many women do not seek help^{3,15,18}. Of the women in the Victorian Maternal Health Study, only half of those who reported symptoms of anxiety and/or depression had sought help from a health professional³. The study highlighted under-reporting of anxiety symptoms in particular; only 25% of women reporting just anxiety symptoms had sought help from a health professional, in contrast to 46% of women reporting symptoms of depression, or 64% of women reporting co-occurring symptoms of anxiety and depression. Women reported different reasons for not seeking help, with the most common being a belief that they could deal with their difficulties themselves; being too busy; feeling too embarrassed; or not having anyone with whom they would be comfortable to discuss their experiences. The authors hypothesised that historical emphasis on depression may also help to explain why women appear less likely to seek help for anxiety³.

Serious mental illnesses in the perinatal period

Although less common than other disorders, the perinatal period is associated with an increased risk of severe mental disorders, such as bipolar disorder, schizophrenia, or affective psychosis^{19,20}. These disorders may occur as a continuation of an existing illness, or new onset soon after birth (postnatal psychosis)¹⁹. Research reviewing the rate of postnatal psychiatric hospital admission indicates that one to two women per 1000 giving birth will experience postpartum psychosis^{21–23}. There is some uncertainty though, as estimates have been established by reviewing inpatient mental health admissions following birth. The figures could therefore be an under estimate, as some women with postpartum psychosis may be treated at home, especially if a joint mother baby admission is not possible¹⁹. Childbirth can be a powerful trigger for mania and psychosis, and episodes at this time in a woman's life have the potential to cause significant morbidity and mortality, and have long-term implications for the entire family unit¹⁹.

Risk factors

A range of psychosocial factors have been identified as contributing to poor mental health in the perinatal period. These include: past and current pregnancy complications; low self-esteem^{24,25}; adverse life events; high perceived levels of stress^{24–28}; history of mental illness^{24–26,28}; history of abuse or family violence^{24,27–29}; lack of social support; and a lack of partner support^{24,27}.

Stressful life events and poor social health are common in the perinatal period. Nearly half of the 4,366 women in an Australian population-based survey reported stressful life events and/or social health issues in the first six months following the birth of their baby, including the death of a close friend or family members, having lots of bills they could not pay, or serious family conflict¹⁰.

Any perinatal mental health initiative would need to be responsive to the psychosocial factors which contribute to mental illness at this time in a woman's life in order to be successful.

Impact of perinatal mental illness

Perinatal mental disorders are associated with a number of adverse outcomes, such as self-harm²⁰, suicide^{30–33}, and risk of harm to children^{7,34}. There is limited information available on suicidality and self-harm in the perinatal period. It was previously thought that pregnancy and the early postpartum period were protective against suicidality, however this is now known not to be the case³⁰. Although maternity mortality in Australia is decreasing, deaths due to psychosocial causes have increased, with most of these attributed to suicide, despite the fact that women in the perinatal period are *'among the most medically supervised members of the population'*³³.

The most recent report on maternal death in Australia indicates that suicide is the leading cause of maternal death during pregnancy and the first 42 days following birth³⁵. A New South Wales data linkage study (1 July 2000 to 31 December 2007) identified 31% of maternal deaths in the year following birth were caused by suicide³². Of those in the study who died by suicide, 73% did so by violent means, such as jumping from a high place, a feature which, although uncharacteristic of suicide at other times in a woman's life, has been identified in other Australian^{36,37} and international studies reporting on maternal suicide³⁸. Research from the USA also suggests women are more likely to experience thoughts of suicide in the perinatal period if they are experiencing family violence^{30,39}.

Increasingly the potential impact of perinatal mental illness on the entire family unit is being recognised. Maternal mental illness increases the chance of premature birth and low birthweight⁴⁰; impaired maternal-infant interactions; cognitive, attention and expressive language problems for children³⁴, and the woman using harsh punishments and experiencing thoughts of harming her child³⁴. These morbidities have the potential to impact children well into their adult lives. Furthermore, maternal depression increases the chance of her partner also experiencing depression⁴¹, which can further contribute to negative impacts on parent-child interactions and parenting behaviours⁴². Negative impacts for children are however not inevitable; risk of harm to children is greatest when there is severe or chronic mental illness, and psychosocial factors are not addressed such as low socioeconomic status and absence of social support⁷.

Psychosocial and psychological interventions to improve perinatal mental health

There are a number of interventions which have been found to assist in the prevention and treatment of perinatal mental illness. Psychosocial and psychological interventions, such as interpersonal psychotherapy, peer support, and individualised postnatal home visits have all been found to significantly reduce the number of women who develop postnatal depression⁴³. Far less is known regarding interventions to prevent perinatal anxiety¹, however a brief antenatal cognitive thought behavioural therapy intervention was found to reduce both depression and anxiety following birth⁴⁴, as was an antenatal self-guided workbook with weekly telephone support⁴⁵.

Psychological and psychosocial interventions are also effective in treating mood disorders. This evidence is again limited by a historical focus on postnatal depression; far less is known regarding treatment for anxiety and other disorders¹. All randomised studies included in the latest Cochrane review of psychosocial and psychological interventions demonstrated a reduction depressive symptomatology when compared with standard care. Interventions included peer support, interpersonal therapy, and cognitive behavioural therapy⁴⁶.

Despite this evidence regarding effective ways to prevent perinatal anxiety and depression, these interventions have not been consistently incorporated into standard care for Australian families. Barriers to research translation must be addressed if we are to capitalise on this research evidence.

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Deloitte Access Economics

The cost of perinatal depression in Australia

FINAL REPORT

Post and Antenatal
Depression Association

23 October 2012

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Glossary

AIHW	Australian Institute of Health and Welfare
AND	Antenatal depression, in both women (maternal AND) and men (paternal AND)
APA	American Psychiatric Association
ATO	Australian Taxation Office
CBT	Cognitive behavioural therapy
BEACH	Bettering the Evaluation and Care of Health
BDI	Beck Depression Inventory
CI	Confidence intervals
DALY	Disability Adjusted Life Year
DIS	Diagnostic Interview Schedule
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders
DPMQ	Dispensed price for maximum quantity
EPDS	Edinburgh Postnatal Depression Scale
GHQ	General Health Questionnaire
ICD-10	International Classification of Disease version 10
ICD-10-AM	International Classification of Disease version 10, Australian Modification
MCPF	Marginal Cost of Public Funds
MBS	Medicare Benefits Schedule
NSW	New South Wales
PBS	Pharmaceutical Benefits Scheme
PANDA	Post and Antenatal Depression Association
PND	Postnatal depression, in both women (maternal PND) and men (paternal PND)
PRIME-MD	Primary Care Evaluation of Mental Disorders
SDAC	Survey of Disability, Ageing and Carers
THPI	Total Health Price Inflation
WHO	World Health Organization
YLD	Years of life lost due to disability
YLL	Years of life lost

Executive Summary

This study supports the endeavours of the Post and Antenatal Depression Association (PANDA) in raising awareness of the prevalence and impacts of maternal and paternal perinatal depression in Australia, and highlights some of the benefits of PANDA's services.

The key objectives of this study were to assess:

1. **Prevalence** of antenatal depression (AND) and postnatal depression (PND) among women (maternal) and men (paternal).
2. **Financial costs** associated with perinatal depression, to governments and private payers (private health insurance funds and individuals), including:
 - a Direct costs related to expenditure on health care services for people with perinatal depression; and
 - b Indirect costs, including those related to productivity losses and the costs of informal care (e.g. if a partner or other family member must stay at home to care for the person with perinatal depression).
3. **Burden of disease** associated with perinatal depression, measured in terms of lost quality of life among people with perinatal depression.
4. **Potential benefits associated with the PANDA National Perinatal Depression Helpline**, which provides support, counselling, information and referral services for people with perinatal depression.

Perinatal Depression

Perinatal depression is a mood disorder which encompasses antenatal depression (AND), arising during pregnancy, and postnatal depression (PND), experienced for varying durations over the first 12 months following childbirth (Brenda and Kaplan 2009; Gavin et al. 2005). People with AND may go on to experience PND. Similarly, people with PND may not necessarily have also experienced AND during their pregnancy.

Symptomatology of perinatal depression is similar to that for depression generally. Symptoms may be experienced by both the mother (maternal AND/PND) and her partner (paternal AND/PND). People with both AND and PND may experience a lower than normal mood, loss of enjoyment of life, feelings of hopelessness, anxiety¹, excessive fatigue, tearfulness, psychomotor agitation, appetite and sleep disturbance, guilt and/or feelings of inadequacy (O'Hara and Swain 1996).

There is little agreement in the literature regarding the duration of perinatal depression; however it has been suggested that most cases remit within three to six months, with some cases lasting up to four years (Campbell and Cohn 1997; Goodman 2004; Horowitz and Goodman 2004; McLennan et al. 2001).

¹ Anxiety may be a feature of both AND and PND, however it may also be considered a separate diagnostic category. It should be noted that diagnostic classification systems (DSM-IV and ICD-10) do not distinguish between depression and anxiety in the perinatal period.

Depression is the leading cause of non-fatal disability in Australia, representing a significant disease burden. The range of depressive disorders, which include perinatal depression, are associated with substantial losses to the economy in terms of lost worker productivity and, high utilisation of health and social services which impact the government directly. Depression has consistently been the most frequent of mental health conditions managed by General Practitioners (GPs) in Australia over recent years – along with anxiety and sleep disturbance (also symptoms of depression), accounting for over 60% in 2009-10 (AIHW 2011).

In response, the Australian, state and territory governments committed to the National Perinatal Depression Initiative 2008-2013, which included contributions to the national rollout of universal screening for maternal perinatal depression. This also provided funding to raise community awareness and provide training to health professionals. Other programs improve access to specialised mental health services provided by psychologists and other allied health professionals, including *Access to Allied Psychological Services* (ATAPS, through Divisions of General Practice), *Better Access* and *Mental Health Treatment Plans* (through Medicare). (DOHA 2012b).

Perinatal depression is a global issue, however, risk factors and causes of perinatal depression and anxiety vary between countries and cultures, and between ethnic groups within countries (Affonso et al. 2000). In Australia, the risk factors for perinatal depression are reported to include living in a rural community, unemployment, and housing and financial difficulties (AIHW 2012a).

Prevalence

There is little agreement regarding the prevalence of perinatal depression, (maternal or paternal) within the Australian and international literature

Prevalence is commonly assessed through screening programs, which utilise tools such as the Edinburgh Depression Scale (EPDS), developed specifically to detect cases of maternal perinatal depression (but also used for paternal perinatal depression). The Beck Depression Inventory (BDI) is also commonly used to detect paternal perinatal depression in particular. and was developed to detect depression in the general population. Both scales involve a questionnaire, where responses are scored and a score above a certain cut-off indicates the potential presence of depression. This must then be confirmed with clinical diagnosis, as the rate of false positives detected in the EPDS, for example, may be 30% (Austin et al. 2010).

Depending on the point in time at which screening is undertaken, the scale used and characteristics of the sample population, prevalence estimates vary widely. A targeted literature search was conducted and identified the following prevalence ranges in the Australian population:

- **Maternal AND** – 12% to 22% (Matthey et al. 2000; Morse et al. 2000);
- **Maternal PND** – 6.1% at four to six weeks after childbirth to 22% at one month after childbirth (Condon and Corkindale 1997; Morse et al. 2000);
- **Paternal AND** – 5.2% to 12.0% (Condon et al. 2004; Morse et al. 2000); and
- **Paternal PND** – 2.9% to 17.4% (Matthey et al. 2001; Dudley et al. 2001).

Prevalence estimates were based on studies that fulfilled a number of criteria, Australian studies based on a large sample size were preferred, and it was a requirement that the method used to detect perinatal depression was in line with best practice, as identified in the literature. The selected prevalence rates and estimated numbers of people with perinatal depression in Australia in 2012 are summarised in Table i.

Table i: Australian perinatal depression prevalence, 2012

Illness	Prevalence (%)	New mothers/ fathers	Prevalence (n)
Maternal AND	8.9%	289,335	25,751
Maternal PND	15.7%	289,335	45,426
Paternal AND	5.3%	280,655	14,875
Paternal PND	3.6%	280,655	10,104

Source: Buist and Bilszta 2006; Matthey et al. 2000 and ABS 2010.

Note: The literature presents a wide range of estimates of prevalence rates, commonly taken from screening samples, which are subject to false positive and false negative results. The estimates presented in this table reflect the criteria outlined in section 2.2.

The total number of people with perinatal depression in 2012 was estimated to be 96,156, including 71,177 new mothers and 24,979 new fathers.

It is estimated that, in Australia, around 26,000 women will experience AND and 45,000 women will experience PND in 2012. Fewer data are available on the extent of paternal perinatal depression. This study proposes best estimates of 15,000 men experiencing AND and 10,000 men experiencing PND.

This is in line with the Australian and international literature regarding the costs of depression more broadly and reflects the similar symptomatology of perinatal depression and depressive disorders that arise outside of the perinatal period (see, for example, Hilton et al. 2003).

Direct financial costs – health services

Table ii summarises the total direct costs estimated to be associated with maternal and paternal perinatal depression in 2012. These costs relate to primary care, psychiatrist and allied health services, medications, hospitals and community services.

Where it was necessary to make assumptions in order to calculate costs for both public and private expenditure, these always resulted in conservative cost estimates. Costs were estimated for maternal and paternal PND only, as no reliable data was available relating to AND. The costs of screening for perinatal depression have also been excluded.

Total costs to government for attributable to maternal and paternal PND were estimated at \$40.52 million in 2012. Private costs were estimated at \$38.13 million, including \$22.69 million to private health insurance funds and \$15.44 million to individuals.

Total costs for maternal and paternal PND (governments and private) were estimated at \$78.66 million.

The highest cost category across all payers and in total was hospital services, which were estimated to be \$42.84 million in 2012. This is notable, given that the NHMRC-approved

Clinical Practice Guidelines for depression and related disorders in the perinatal period (Austin et al. 2011) indicate that the majority of care should be provided in a primary care setting. The next most significant cost categories were psychiatrist and allied health services (\$13.91 million), medications (\$10.78 million), primary care (\$7.41 million) and community mental health services (\$3.72 million). Total estimated costs by payer are shown in Table ii.

Table ii : Summary of direct costs of PND* in Australia (\$ million)

Cost category	Maternal PND				Paternal PND**				Total PND			
	Govt	PHI	Ind	Tot	Govt	PHI	Ind	Tot	Govt	PHI	Ind	Tot
Primary care	5.04	n/a	0.50	5.54	1.53	0.25	0.10	1.87	6.57	0.25	0.60	7.41
Psychiatrist & allied health services	4.70	0.69	2.14	7.53	3.84	0.90	1.63	6.38	8.54	1.59	3.77	13.91
Medications	1.79	1.79	1.68	3.48	3.79	0.04	3.48	7.31	5.58	1.83	5.17	10.78
Hospitals***	14.42	20.33	5.67	40.42	1.77	0.48	0.16	2.42	16.20	20.82	5.83	42.84
Community services	3.64	n/a	0.07	3.72	n/a	n/a	n/a	n/a	3.64	n/a	0.07	3.72
Total	29.60	21.02	10.07	60.68	10.93	1.67	5.37	17.97	40.52	22.69	15.44	78.66

Notes:

*No costs were estimated for AND, due to data limitations.

**Cost estimates for paternal PND are indicative only, due to data limitations.

***Hospital costs reflect inpatient costs only for maternal PND and outpatient costs only for paternal PND.

PND=Postnatal Depression; Govt=governments; PHI=private health insurance; Ind=Individuals; Tot=Total.

All cost estimates are subject to the caveats outlined in sections 3.1.2.6, 3.1.3.6 and 3.2.3.

Costs for maternal PND were estimated from data provided by the AIHW where PND was indicated as the primary diagnosis for the case. This diagnosis category is relatively narrow and includes only depression arising within six weeks of childbirth (in line with the ICD-10 classification).

Paternal PND is also not included in this category. Paternal PND costs were estimated from a study of the “excess” health care costs associated with depression in the general population (Hawthorne et al. 2003). Costs of treating paternal PND in hospitals are not the highest cost category, as they are for maternal PND, because Hawthorne et al. did not find any significantly higher hospital inpatient costs for people with depression (only hospital outpatient costs, which are less than inpatient costs, are included).

These estimates are likely to understate the true direct health service costs of both maternal and paternal perinatal depression, due to the conservative approach that was taken in making assumptions. One major limitation is that no costs for maternal or paternal AND were included. Furthermore, the estimates for maternal PND were limited to where PND was directly identified as the reason for treatment. This excludes women diagnosed with PND more than six weeks after childbirth. It also excludes women who are not diagnosed but may seek medical treatment for related conditions, as well as potential longer term consequences that stem from the PND. Other data limitations are discussed in sections 3.1.2.6, 3.1.3.6 and 3.2.3.

Indirect costs and costs to the wider economy

Total indirect costs and costs to the wider economy were estimated at \$354.87 million, these were predominantly attributable to productivity losses (\$310.34 million).

Productivity losses

Productivity losses attributable to perinatal depression were estimated from a large Australian study conducted in 2009 (Hilton et al. 2010), based on the results of a survey of more than 60,000 full-time employees from 58 large companies. These estimates were adjusted to reflect average earnings in 2012 and reduced workforce participation among pregnant women / new mothers and fathers.

The total costs of lost productivity due to perinatal depression in 2012 were estimated to be \$310.34 million.

This includes: \$86.59 million for maternal perinatal depression (\$53.22 million AND and \$33.37 million PND); and \$223.75 million for paternal perinatal depression (\$117.41 million AND and \$106.34 million PND).

The major factor influencing the substantially higher costs attributable to paternal perinatal depression is the higher average earnings for men relative to women in Australia. Also, the majority of new mothers spend time out of the workforce during pregnancy and immediately following childbirth, whether or not they have perinatal depression, which limits the difference in productivity between people with and without perinatal depression. This is more pronounced for PND than AND, due to greater workforce participation during pregnancy than following childbirth.

Informal care

Informal carers provide care to others in need of assistance or support on an unpaid basis. Generally, informal care is provided by family or friends of the person receiving care. While the carer may not charge for the service they provide, they may have to forgo paid employment in order to fulfil their role as carer. Indeed, the value of lost leisure time would also represent a cost to the carer. However, the targeted literature search did not identify a reliable source of Australian or international data regarding carers for people with perinatal depression. As a result, the informal care costs of AND and PND for women and men were excluded from this study.

Costs to the wider economy

Additional economic costs are associated with government expenditure on health and related services that are provided to people with perinatal depression. The government raises taxes in order to fund expenditure on health services². While the direct transfer of funds from tax payers to the government is not considered an economic cost in itself, the transfer is. For example, income taxes increase the price of working, relative to leisure

² This implicitly assumes funds have not been directed from some other area of the health care system.

activities, and create a disincentive to work. This disincentive creates deadweight loss or an excess burden of tax³.

Costs to the wider economy were calculated at 28.75%⁴ of the costs to government, resulting from direct expenditure on health services for people with perinatal depression and lost taxation revenue due to lost earnings (productivity losses). This results in costs of \$44.53 million.

Burden of disease

People who experience perinatal depression may experience a considerable loss in quality of life. This is measured in non-financial terms, based on the disability adjusted life year (DALY).

Table 4.3 summarises the estimated burden of perinatal depression in Australia in 2012. Premature mortality was excluded from the analysis as the targeted literature search did not identify any conclusive evidence regarding this. The entire burden thus relates to years of life lived in disability, at a disability weight (0.51) taken from Dutch burden of disease studies to reflect moderate to severe depression. These weights were applied to assumed durations for each category of disorder, taken from the literature, and applied to prevalence estimates.

Total DALYs attributable to perinatal depression in Australia in 2012 were estimated at 20,732. This includes: 4,991 from maternal AND (24.1%); 11,584 from maternal PND (55.9%); 2,200 (10.6%) from paternal AND; and 1,958 (9.4%) from paternal PND.

Maternal PND accounts for the majority of DALYs, as a result of higher prevalence estimates and assumed longer duration. Opposite reasons lead to lower DALYs for AND (lower prevalence estimate and shorter assumed duration).

Paternal AND accounts for slightly more DALYs than paternal PND, reflecting a higher estimated prevalence.

Uncertainty regarding the prevalence and duration of perinatal depression meant that a conservative approach was taken to applying assumptions for these. As such, the calculated burden of disease (DALYs) is likely to understate the true burden.

³ The costs associated with deadweight loss will depend on the method used to raise additional taxation revenue. Studies that have evaluated the marginal welfare cost of raising additional tax revenue – the marginal cost of public funds (MCPF) – mostly relate to the United States (Browning 1976; Browning et al. 1987; Ballard et al. 1985; Stuart 1984). Estimates have ranged from zero marginal cost to well over 100%. This wide range has been due to the alternative models used (partial versus general equilibrium), alternative parameter estimates, and assumptions on the adjustment of employment relative to changes in tax rates (labour supply elasticity).

⁴ The Productivity Commission (2003) has estimated a marginal cost of 28.75 cents per dollar of additional tax revenue that is raised (27.5 cents attributable to lost efficiency and 1.25 cents attributable to administration by the Australian Taxation Office).

Table iii: DALYs due to perinatal depression in Australia in 2012

Disease	Prevalence	Disability weight	Duration	YLD	YLL	DALY
Maternal AND	25,751	0.51	0.38	4,991	0	4,991
Maternal PND	45,426	0.51	0.50	11,584	0	11,584
Maternal perinatal depression				16,574	0	16,574
Paternal AND	14,875	0.51	0.29	2,200	0	2,200
Paternal PND	10,104	0.51	0.38	1,958	0	1,958
Paternal perinatal depression				4,158	0	4,158
All perinatal depression				20,732	0	20,732

Benefits of the PANDA National Perinatal Depression Helpline

Amongst other activities, PANDA operate the National Perinatal Depression Helpline (“the PANDA Helpline”), to provide support, advice and referral services for women and men with symptoms of AND and PND (and anxiety). It is estimated that approximately 2,500 women will contact the PANDA Helpline in 2012, 40% of whom are diagnosed with perinatal depression (while men represent a significant proportion of the burden of perinatal depression in Australia, data indicate that they are much less likely than women to call the PANDA Helpline).

Based on limited follow up data, up to 85% of these women will seek further support from health professionals after calling the PANDA Helpline. As a result, they may be better able to manage the disorder, potentially avoiding the use of more intensive or emergency health care services later on and assisting them in returning to or continuing to work.

Callers to the PANDA Helpline represent approximately 1-3% of the estimated 70,000 women with perinatal depression or an associated condition and only a handful of the estimated 25,000 men with perinatal depression in Australia. **Thus, there may be scope for the PANDA Helpline to reach out to more women and men with perinatal depression.**

Recommendations for PANDA Helpline

The benefits assessment indicates that an expansion of the service could benefit additional callers. This could be achieved via:

- greater promotion of PANDA and the PANDA Helpline at maternity clinics, other family services centres and through all forms of media and social media to reduce stigmas and encourage people to seek earlier treatment;
- more resources and counsellors to deal with incoming calls and follow up with callers;
- increased focus of promotion activities on men;
- greater integration of PANDA with primary care services in Australia (e.g. direct referrals); and
- enhanced data collection, including follow up of caller outcomes after treatment is sought.

Conclusions

Perinatal depression is estimated to cost the Australian economy \$433.52 million in 2012, in financial costs only (\$4,509 per person with perinatal depression). Of these total costs: \$56.98 million is attributable to maternal AND (\$2,213 per woman with AND); \$113.86 million is attributable to maternal PND (\$2,506 per woman with PND); \$125.7 million is attributable to paternal AND (\$8,451 per male with AND) and: \$136.99 million is attributable to paternal PND (\$13,558 per male with PND).

In addition to the financial costs, perinatal depression equates to a loss of 20,732 DALYs in 2012, which represents a significant disease burden. Costs are broken down in Table iv and shown in Chart i. The majority of the economic costs attributable to perinatal depression result from lost productivity in the workplace. Hence, the costs for paternal AND and PND are much higher than for maternal AND and PND, because men's earnings are, on average, greater than women's, and men are more likely to work than women due to the perinatal period in the absence of disorder. These findings are consistent with other studies of the cost of depression (e.g. Greenberg et al. 1993).

It is also important to note that no additional direct health costs were included for AND (maternal and paternal), as a result of lack of data. Other data limitations are discussed where costs are estimated throughout the report.

This study faced significant limitations in data availability and reliable research on which to base cost estimates, which is likely to mean that costs have been underestimated. More primary research on perinatal depression, its costs and its treatment in Australia could support the evidence base for effective policy decision making and investment. This research may include:

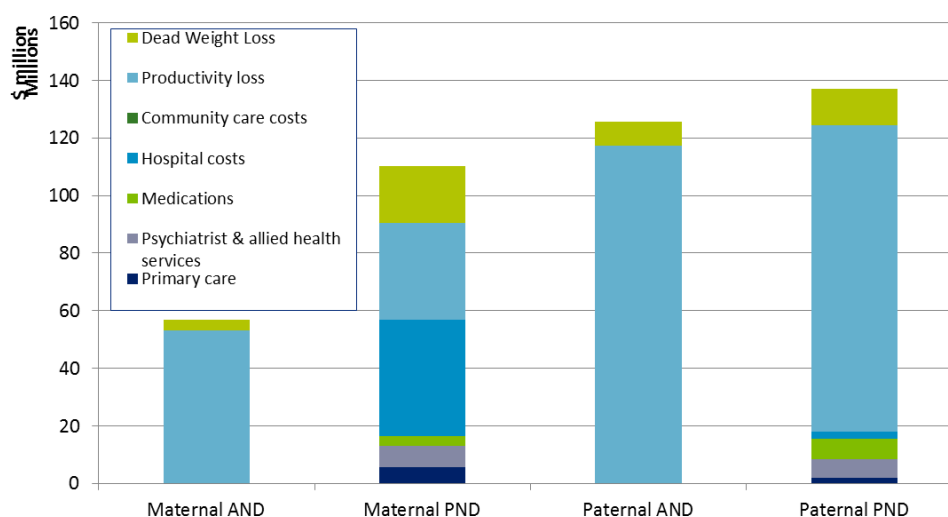
- studies of health care and other resource use by Australians with AND and PND compared with pregnant women, new mothers, and their partners, who do not suffer from depression;
- retrospective cost studies of Australians with perinatal depression to estimate the differential costs for people seeking treatment at different stages;
- randomised trials of interventions to prevent, support or treat Australians with perinatal depression, including the PANDA Helpline;
- studies of the productivity impacts and caregiver burdens for Australians with perinatal depression (rather than depression in general); and
- enhanced data collection processes for callers to the PANDA Helpline, including more detailed data capture on subsequent caller behaviour.

Table iv: Economic costs and DALYs, perinatal depression in Australia in 2012

Cost	Maternal AND	Maternal PND	Paternal AND	Paternal PND	Total
Prevalence	25,751	45,426	14,875	10,104	96,155
Financial costs (\$ million)					
Primary care	n/a	5.54	n/a	1.87	7.41
Psychiatrist & allied health services	n/a	7.53	n/a	6.38	13.91
Pharmaceuticals	n/a	3.48	n/a	7.31	10.78
Hospital costs	n/a	40.42	n/a	2.42	42.84
Community care costs	n/a	3.72	n/a	0.00	3.72
Total direct costs	n/a	60.68	n/a	17.97	78.66
Productivity loss	53.22	33.37	117.41	106.34	310.34
Deadweight losses	3.76	19.80	8.29	12.68	44.53
Total financial costs	56.98	113.86	125.70	136.99	433.52
DALYs	11,584	4,991	2,200	1,958	20,732

Source: Deloitte Access Economics calculations. Note: Totals may not add due to rounding.

Chart i: Total estimated economic costs of perinatal depression in Australia in 2012



Source: Deloitte Access Economics calculations.

Deloitte Access Economics

1 Background

1.1 Objectives

Deloitte Access Economics was commissioned to assess the costs of perinatal depression to the Australian economy. This study supports the endeavours of the Post and Antenatal Depression Association (PANDA) in raising awareness of the prevalence and impacts of perinatal depression among women (maternal) and men (paternal) in Australia, and highlights some of the benefits of PANDA's services.

The key objectives of this study were to assess estimates for 2012 of:

1. **Prevalence (Section 2)** of antenatal depression (AND) and postnatal depression (PND) among women (maternal) and men (paternal).
2. **Financial costs (Section 3, Section 5)** associated with perinatal depression, to governments and private payers (private health insurance funds and individuals), including:
 - a Direct costs related to expenditure on health care services for people with perinatal depression; and
 - b Indirect costs, including those related to productivity losses and the costs of informal care (e.g. if a partner or other family member must stay at home to care for the person with perinatal depression).
3. **Burden of disease (Section 4, Section 5)** associated with perinatal depression, measured in terms of lost quality of life among people with perinatal depression.
4. **Potential benefits associated with the PANDA National Perinatal Depression Helpline (Section 6)**, which provides support, counselling, information and referral services for people with perinatal depression.

1.2 Perinatal depression

"It is now well recognised that vulnerability to psychological distress and disorder is accentuated in the perinatal period not only for the mother, but also her infant, partner and family. Poor maternal mental health can significantly affect the emotional, social, physical and cognitive development of her child, and is associated with increased incidence of chronic disease. The perinatal phase is critical developmentally, both in terms of the attainment of parenting skills and secure parent infant attachment" (Perinatal Mental Health Consortium 2008, p. 1).

This Section discusses the aetiology and epidemiology of perinatal depression for women and men.

1.2.1 Clinical definition

Perinatal depression is a mood disorder which encompasses antenatal depression (AND), arising during pregnancy, and postnatal depression (PND), experienced during the first 12 months following childbirth (Brenda and Kaplan 2009; Gavin et al. 2005). People with AND may go on to experience PND, however this is not necessarily the case. Likewise, people with PND may not have experienced AND during their pregnancy. Symptoms may be experienced by both the mother (described in this report as maternal AND/PND) and her partner (described in this report as paternal AND/PND). People with both AND and PND present with depressed mood, feelings of hopelessness, anxiety⁵, excessive fatigue, psychomotor agitation⁶, appetite and sleep disturbance, guilt and/or feelings of inadequacy (Wylie et al. 2011, citing O'Hara and Swain 1996).

Longitudinal studies indicate that the duration of maternal perinatal depression may vary from several months for some women to up to four years for others (Campbell and Cohn 1997; Goodman 2004; Horowitz and Goodman 2004; McLennan et al. 2001); and may trigger prolonged emotional difficulties, such as recurrent or chronic episodes of depressive disorder (WHO 2008; Kumar and Robson 1984). There is limited understanding of the causes of PND (Treloar et al. 1999); similarly, the duration of the disorder may be linked to a range of factors.

Paternal PND has been associated with stress resulting from their partner's pregnancy. This may continue following the birth, as new challenges, including financial challenges, and changes to routine are faced (Wee et al. 2011, citing Condon 2006; Solantaus and Salo 2005). No estimates of the duration of paternal PND were identified in the literature.

At opposite ends of the spectrum of maternal mental health disorders are the "baby blues" and puerperal psychosis, which are both excluded from the analysis in this report.

- The "baby blues" is the least severe and is more common than perinatal depression, experienced by approximately 30%-75% of mothers (O'Hara et al. 1984). It is a temporary condition experienced in the initial period following childbirth (Henshaw 2003; Pritchard and Harris 1996) and includes feelings of anxiety, irritability and mood swings. Generally no treatment other than reassurance is required (Kennerly and Gath 1989; Pitt 1973).
- Puerperal psychosis is a serious psychiatric illness which is less common than perinatal depression (Cox et al. 1993; Oates 2000). Aetiology, severity, symptoms, treatment and outcomes differ from perinatal depression (Robertson et al. 2003). Forms include mania, severe depression with delusions, confusion or stupor and rapid changes in mood (MIND 2012).

⁵ Anxiety may be a feature of both AND and PND, however it may also be considered a separate diagnostic category. It should be noted that diagnostic classification systems (DSM-IV and ICD-10) do not distinguish between depression and anxiety in the perinatal period.

⁶ Psychomotor agitation refers to an individual performing a series of unintentional and purposeless motions – e.g. pacing around a room, wringing hands, pulling off clothing and putting it back on.

1.2.2 Cause and risk factors for perinatal depression

The cause and risk factors for perinatal depression are multifactorial and encapsulate a combination of:

- **genetic factors**, including family history of psychopathology or past personal history of depression, including AND and PND (Almond 2009; Le 2004; Marcus et al. 2003);
- **biological factors**, including hormonal influences (Parry et al. 2003; Talge et al. 2007), neurotransmitter function (Dunlop and Nemeroff 2007; Ressler and Nemeroff 2000; Delgado 2000), and nutrient deficiencies (Appleby et al. 1994; Beck 1996; Bodnar and Wisner 2005; Cooper 1996; Rogan et al. 1997) and anaemia, diabetes, and thyroid problems (Pedersen et al. 1993);
- **social factors**, including difficulties in marital and love relationships, lack of support, socio-economic adversity, infant health and temperament (Bolton et al. 1998; DaCosta et al. 2000; Field et al. 2002; Milgrom et al. 2008; NHMRC, 2000);
- **psychological factors**, including personality features, past history of trauma and loss, past history of miscarriage and pregnancy termination, expectations of the perinatal period and parenting, past family experience and stressful life events (Almond 2009; Leigh and Milgrom, 2008; Le 2004); and
- **other factors**, including altered cognitive functioning during pregnancy (Affonso and Sheptak 1989; Condon 1987; Raphael-Leff 1996).

Condon et al. (2004) suggest that the differences in aetiology between perinatal depression in men and women are unclear. Some additional causes of paternal perinatal depression that have been suggested include stress (e.g. financial strain caused by a new baby), loss of intimacy in the relationship, feeling excluded from the pregnancy/new baby, perinatal depression in the partner and the confusion brought about by perinatal depression (Davey et al. 2006; Williams 1994).

Perinatal depression is a global issue, however, risk factors and causes of perinatal depression and anxiety vary between countries and cultures, and between ethnic groups within countries (Affonso et al. 2000). In Australia, reported risk factors include living in a rural community, unemployment, and housing and financial difficulties (AIHW 2012a).

1.2.3 Classification of perinatal depression

The two main classification systems used for diagnosis of mental health disorders in Australia are the American Psychiatric Association's (APA) Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) (APA 2000) and the International Classification of Diseases (10th edition, Australian modification, ICD-10-AM) (WHO 2010). Both ICD-10-AM and DSM-IV are used for diagnosis, however Australian data is reported using ICD-10-AM.

AND and PND are not currently classified as separate illnesses in their own right in either DSM-IV or ICD-10-AM⁷. AND is excluded as a specific diagnosis from both classification

⁷Chapter 5 of the ICD-10-AM system pertains to mental and behavioural disorders. Within this, depression is classified by codes within F32 (depressive episode) and F33 (recurrent depressive disorder), with sub-classifications identifying the severity of the condition. The sub-classifications contain flags identifying whether the depression arises in the postnatal period. The sub-classifications for ICD code F33 also contain mental and behavioural disorders associated with the postnatal period.

systems (Breedlove and Fryzelka 2011) and PND is only included if it is diagnosed within a four (DSM-IV) or six (ICD-10-AM) week period after a woman gives birth (Lee et al. 2007; Mann et al. 2010). Paternal PND is not included in either classification system.

- Under DSM-IV, PND is recognised through diagnosis of an affective or mood disorder, with a temporal specifier, or “flag”, to indicate postnatal onset. To trigger this flag, the diagnosis must occur within the first four weeks after childbirth (APA 2000). The revised DSM-V is due to be released in 2013. Proposed changes to the classification of PND include increasing the time period for diagnosis from within four weeks of giving birth to within six months (Jones 2010). This should naturally increase the number of women who fall into this category.
- Similarly, under ICD-10 the episode must fall under the main diagnostic category of mental disorders, with a flag to indicate that the condition has arisen within six weeks of a woman giving birth. Outside of this definition, diagnosed AND/PND would fall under a separate category, most likely as a depressive episode or chronic depressive disorder (WHO 2008; Clare et al. 2012).

1.2.4 Symptoms and diagnosis of perinatal depression

The symptoms of maternal and paternal perinatal depression are similar to those experienced in other forms of depression (Lee and Chung 2007; Najman et al. 2000; Robertson et al. 2003). Perinatal depression may thus be identified in pregnant women/new mothers and their partners using similar diagnostic criteria as is used for depression in the general population in a clinical setting. Screening of new mothers is also increasingly available in Australia, using questionnaires based on the Edinburgh Postnatal Depression Scale (EPDS) to identify people who may have perinatal depression.

Detection is generally based on the following key symptoms: depressed mood; loss of enjoyment and energy; loss of interest or pleasure; guilt; thoughts of self-harm and suicide; lowered concentration; restlessness and agitation; pessimism; low self-esteem; feelings of unworthiness; disturbed sleep; increase or decrease in appetite; and weight loss or gain (Almond 2009). In addition, paternal perinatal depression may include anger attacks, affective rigidity, self-criticism, alcohol and drug abuse (Winkler et al. 2005).

The severity of depression relates to the number of symptoms experienced, the severity of symptoms and for how long symptoms have been present (Buist et al. 2006). The DSM-IV distinguishes between major depression and other depression. Major depression requires that at least five of these symptoms have been present almost every day for the previous two weeks; other depression relates to dysthymia, minor depression and partial remission of major depression (Hawthorne et al. 2003). This report is concerned with perinatal depression that presents as a form of major depression.

As noted in Section 1.2.3, there is no specific category for perinatal depression in either the ICD-10 or DSM-IV disease coding systems; some perinatal depression is identified within these criteria through a flag for the onset of a mental disorder in the postnatal period. This only applies to women and only if the disorder arises four to six weeks following childbirth.

There is no clear indication in the literature as to whether pre-existing depression that extends into the perinatal period should be classified as general depression or perinatal depression. The literature suggests that depression peaks in females of childbearing years

(Chojenta et al. 2012; Weissman and Olfson 1995), and that childbirth is a significant ‘life event’ which may trigger depression (Cox et al. 1993). A recent Australian study rejected sub-categorising perinatal depression on the basis of prior history of a depressive disorder, finding that the symptoms (in terms of general negative attitudes and relationship insecurity) experienced in perinatal depression were similar across women with recurrent depression, prior (but not current) depression and women with no prior history of depression (Phillips et al. 2011).

The literature suggests that a significant proportion of cases of perinatal depression are not diagnosed (see Perinatal Mental Health Consortium 2008); thus several questionnaires have been developed to screen for maternal and paternal AND and PND. These are discussed in more detail in section 1.3.

Use of a specific screening tool also assists in overcoming a particular challenge of detecting both maternal and paternal perinatal depression, in that some of the symptoms of depression are also typically associated with pregnancy and childbirth (Hostetter and Stowe 2002; Nonacs and Cohen 1998). For example, even in the absence of AND/PND, women may experience sleep and appetite disturbances, anxiety, diminished libido and low energy during pregnancy and in the period following childbirth. Similarly, men may be expected to experience symptoms of depression as a result of the changing social and financial conditions associated with having a child (Spector 2006).

1.2.5 Impacts of perinatal depression

“Depression in all populations is associated with profound decrements in quality of life, social functioning and economic productivity (Chisholm et al. 2003). However, in the case of postnatal depression, the adverse consequences are felt beyond the individual with depression. There is now considerable evidence to show that postnatal depression has a substantial impact on the mother and her partner (Boath et al. 1998); the family (Lovestone and Kumar 1993); mother–baby interaction (Murray et al. 1996) and on the longer-term emotional and cognitive development of the baby (Murray et al. 1999), especially when depression occurs in the first year of life (Cogill et al. 1986). Unfortunately, <50% of cases of postnatal depression are detected by healthcare professionals in routine clinical practice (Hearn et al. 1998)” (Hewitt and Gilbody 2009).

The impacts of maternal and paternal AND and PND include those on:

- the physical and emotional health of the sufferer;
- the physical and emotional development of the child; and
- family relationships, including the mother-partner and parent-child relationships.

Potential physical and emotional health impacts on the sufferer (i.e. the mother or father) are similar to general depression and include: reduced physical function; role limitations due to physical and emotional problems; bodily pain; reduced general health and vitality; fatigue; emotional wellbeing; and social functioning (as measured by SF-36, a generalised survey of patient health) (Hawthorne et al. 2003).

Maternal AND may have additional health impacts on the mother and unborn baby (Austin and Lumley 2003). These include increased risk of pre-eclampsia (Kurki et al. 2000), preterm delivery and placental abruption (Seguin et al. 1995; Zuckerman et al. 1989) as well as adverse obstetric outcomes (Chung et al. 2001). AND is also recognised as a powerful predictor of PND (Buist 2002; Josefsson et al. 2001).

Furthermore, similar to other forms of depression, perinatal depression in both women and men heightens the risk of other conditions, including asthma, cardiovascular disease, cancer, and diabetes (Chapman et al. 2005; Kumar et al. 1984; Nott 1987; Warner et al. 1996; WHO 2008).

Childhood emotional and cognitive development may be impacted by poorer quality interactions between parents and their children as a result of perinatal depression (Woolhouse et al. 2009; O'Connor et al. 2002). Studies have reported behaviour problems, cognitive impairments, difficulty interacting and insecurity in attachments (Murray 1999, citing: Murray 1992; Lyons-Ruth et al. 1986; Fiori-Cowley et al. 1996; Stein et al. 1991; Teti et al. 1995 and Hipwell et al. 1999).

Both maternal and paternal perinatal depression may detrimentally affect a couple's relationship, family relationships, the parent-child relationship, and the child's development⁸. Boath et al. (1998) surveyed the partners and other family members of women with postnatal depression. The responses were discussed qualitatively and include comments that reflect a significant family burden, as described in the following.

"PND was placing 'a burden on the family' and causing 'a lot of worry within the family'. Family members were worrying about financial problems: 'Haven't done overtime at work ... more attentive to my wife's needs' and 'It would be better if she was still working'...

Women 'require a lot more attention' ... 'reluctant to go out and unhappy to be alone'...'Children being shouted at. Missing school and outings'... 'Increased pressure has made a tense atmosphere in the home'... 'Worrying about our relationship'... 'Always arguing ... Things are tense in the house'... 'She's very touchy', 'flares up at the slightest thing causing arguments'...

'We don't like to see her so low and depressed'... 'I want to help her, but I don't know how.'

'She makes you feel depressed'. Family members were finding 'life generally unpleasant' and reported that this was a 'very worrying and distressing time for our family'...'Trying not to upset her, try to make life easier for her, take her worries away' (Boath et al. 1998).

⁸ This has been widely explored in the literature and findings supporting these are noted by Boath et al. 1998; Condon et al. 1987; Cooper et al. 1999; Halbreich and Karkun 2006 (citing: Leiferman, 2002; Cooper et al. 1999; Hart et al. 1998; Hobfoll et al. 1995; Wickberg and Hwang, 1997; Wolf et al. 2002; Weinberg and Tronick, 1998); Murray et al. 1996; Murray, 1992; Lovestone and Kumar, 1993; Wee et al. 2011 (citing: Cornish et al. 2008; Deater-Deckard et al. 1998; Kane and Garber, 2004; Ramchandani et al. 2005, 2008a, 2008b; Paulson et al. 2006).

The survey also reflected symptoms of paternal perinatal depression, for example a father commented:

'Sometimes I just cry with her', 'I am glad to see that someone realises that men are affected as well ... 'No help or acknowledgement that the father is affected by postnatal depression as well as the mother'... 'It's like having two babies', 'All assistance is aimed at the mother ... Fathers need help too' (Boath et al. 1998).

1.2.6 Prevention and treatment of perinatal depression

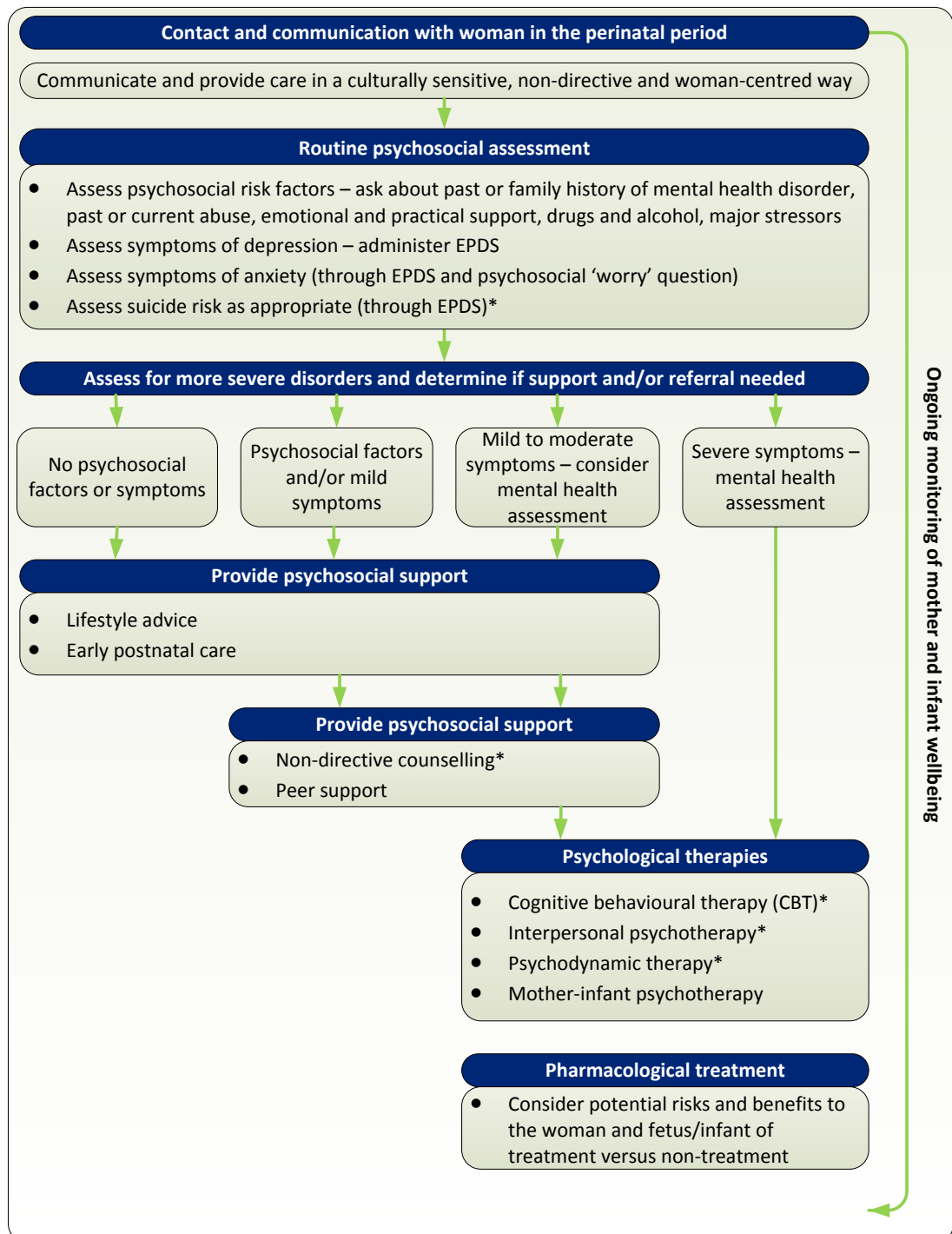
Clinical approaches to managing perinatal depression encompass both prevention and treatment of disorder. Treatment is most frequently provided by a general practitioner (GP) in a primary care setting, however the GP's role may also be as coordinator of a multidisciplinary, collaborative approach (in particular involving psychologist or counselling services) (Austin et al. 2011). Early detection and management of perinatal depression is a key factor in significantly improving outcomes (Dennis 2004; Dennis and Stewart 2004; Leigh and Milgrom 2007). Categories of intervention include psychosocial, psychological and pharmacological treatments. The preferred treatment option depends on the individual being treated and the severity of symptoms; and, as sufferers may not seek assistance for depression, screening for symptoms is also a key element (Austin et al. 2007).

Best practice recommendations for the treatment of maternal perinatal depression, as described in the *Perinatal Clinical Practice Guidelines* (Austin et al. 2011; beyondblue 2011), are summarised in Figure 1.1 (there is no similar guideline for paternal perinatal depression). These guidelines recommend that the clinician provide support to women throughout the perinatal period, including screening to identify symptoms of depressive disorder as part of a routine psychological assessment. The guidelines suggest that this approach be incorporated into any contact a woman has with a clinician throughout pregnancy and in the postnatal period.

There is a body of evidence surrounding the use of psychological therapies, including cognitive behavioral therapy (CBT), interpersonal psychotherapy (IPT) and psychodynamic therapy, to improve depressive symptoms among mothers in the postnatal period (see comprehensive discussion in the full *Clinical Practice Guidelines*, Austin et al. 2011).

The literature indicates that recurrence of depressive symptoms is observed in approximately 50% of women who undergo treatment for PND (Bagedahl-Strindlund and Borjesson 1998; Davidson and Robertson 1999; O'Hara 2002).

Figure 1.1: Overview of best practice mental health care in the perinatal period



*Evidence-based recommendation (others are good practice points, which are based on lower quality evidence and/or best-practice clinical judgement).

Source: Austin et al. 2011; beyondblue 2011.

Preventative measures are aimed at: (i) avoiding symptoms from the outset, for example through providing access to information and support services for women and allowing longer periods away from stressful environments such as the workplace; and identifying symptoms and providing earlier intervention. Boath et al. (2005) undertook a systematic review of literature related to the prevention and early intervention in relation to maternal PND. The results of 21 studies were reported under nine categories of intervention.

- **Psychological and social support interventions:** five studies of support groups and classes, with mixed impacts. The authors noted that the studies were associated with certain limitations and that the results should be interpreted with caution.
 - Two randomised controlled trials of postnatal groups/classes resulted in reduced prevalence at six weeks and three months following childbirth in association with this intervention (Elliot et al. 2000; and Matthey et al. 2004). However, the antenatal classes studied by Elliot et al. (2000) found an impact only on first time mothers. Matthey et al. (2004) found no impact on the number of cases, as only mothers with low self-esteem showed a benefit.
 - The remaining three studies, which focused on support (Stamp et al. 1995 and Brugha et al. 2000) and parenting and coping strategies (Buist et al. 1999), showed no significant reduction in PND symptoms.
- **Interpersonal therapy** – two studies (randomised controlled trials) of group intervention providing information about the postnatal period, skills training and coping, found that symptoms of depression were reduced immediately following childbirth, but longer term impacts were unclear (Zlotnick et al. 2001; Gorman and O'Hara unpublished).
- **Postnatal stress debriefing** – two studies (randomised controlled trials) of midwife-led postnatal stress debriefing did not demonstrate any success in decreasing symptoms of depression (one actually increased symptoms) (Small et al. 2000; Priest et al. 2003).
- **Information and discussion** – two studies considered the impact of the provision of information booklets provided to women. Neither found that PND symptoms were reduced (Webster et al. 2003; Nalepka and Coblentz 1995).
- **Reconfiguring midwifery and other services** – two studies (randomised controlled trials) examined the impacts of providing an extended period of specialist midwifery care. One found that depression symptoms were significantly reduced as a consequence of the extended services, the other found no significant impact (Marks et al. 2003; MacArthur et al. 2002).
- **Individual home-based care** – two studies (randomised controlled trials) randomly assigned women 'at risk of PND' to a home-based intervention immediately following childbirth (Chabrol et al.; Armstrong et al.). Both trials found that symptoms of depression were reduced when individuals received home based care, although the long-term impact was not examined.
- **Hormonal prevention** – one randomised controlled trial (Lawrie et al.) randomly assigned women to receive either synthetic progestogen or placebo within 48 hours of delivery over three months. The women taking progestogen had significantly higher rates of depressive symptoms than those taking a placebo.
- **Antidepressant prevention** – one trial (Wisner et al.) randomly assigned women to receive nortriptyline or placebo immediately after giving birth, as a measure to prevent recurrence of previous depressive symptoms. No significant differences in recurrence rates were found.

- **Other approaches** – dietary calcium-found to reduce the incidence of severe depressive symptoms (Harrison-Hohner et al. 2001) (found to reduce incidence of severe depressive symptoms) and thyroxine (Harris et al. 2002) (no significant impact). Both were randomised controlled trials.

1.3 Key issues in perinatal depression

This section provides a succinct discussion on the accessibility of support services, the additional costs and time for recovery for people with undiagnosed perinatal depression, and the risks of developing longer-term mental illness and other adverse events.

1.3.1 Accessibility of support services

Support services have been shown to be very important to the recovery of individuals diagnosed with perinatal depression (Dennis and Chung-Lee 2006). Section 1.2.6 outlined that, while a range of treatment options are available, support services such as GPs, midwifery, allied professionals and peer support groups play a key role.

Access to support services is influenced by a number of barriers and this is reflected by high numbers of people with perinatal depression who do not seek treatment. Estimates of women who are detected as depressed but either do not seek help or decline referrals range from 41 to 87% (Reaya et al. 2011, citing: Brooks et al. 2009; Smith et al. 2009; Thio et al. 2006; Woolhouse et al. 2009). In a large Australian study, Woolhouse et al. (2009) found that 55.6% of women with intense anxiety and 34.5% of women with depressed mood did not talk with a health professional.

Location and logistical factors can limit the accessibility of services. One Australian study noted that specific interventions may not be available in rural and remote areas and the cost of treatment and extended waiting times for care in those areas may limit an individual's ability to seek treatment (Buist et al. 2011). Logistical reasons may also play a part, such as time constraints, availability of childcare and transport.

Research into factors which deter women from seeking help have highlighted the role of stigma and women's preference for dealing with their own issues (Reaya et al. 2011, citing: Baker-Ericzen et al. 2008; Chew-Graham et al. 2009; Dennis and Chung-Lee 2006; Kim et al. 2010; Smith et al. 2009; Woolhouse et al. 2009). The NHMRC, which endorsed the Australian treatment guidelines for perinatal depression, group these personal barriers into:

- **knowledge barriers** – including not recognising the need for help or where to seek help;
- **attitudinal barriers** – including reluctance to undergo assessments and fear of stigma; and
- **service barriers** – including negative prior experiences, concerns about privacy and confidentiality and unwillingness to take medication.

Subsets of the Australian population, including Aboriginal people and individuals from culturally and linguistically diverse backgrounds may also face cultural and language barriers to seeking help (Buist et al. 2011).

Buist and Bilszta (2006) highlight that, while an array of services are available in Australia to support and treat people with perinatal depression, better links between services and referral paths are required. Given the frontline role GP services play, as women with perinatal depression are more likely to access help (though not necessarily for depression) it is particularly important to ensure clear referral and treatment pathways.

1.3.2 Cost and recovery time for untreated perinatal depression

Many women with perinatal depression are undetected and under-treated (Buist et al. 2007; Gaynes et al. 2005; Priest and Barnett 2008). A fundamental argument for screening women both antenatally and postnatally is to identify the women who are presenting with symptoms of depression and anxiety and provide interventions to facilitate diagnosis and improve their mental health and the wellbeing of their child and wider family.

No studies were identified that reported the relative costs of undiagnosed (vs. diagnosed) perinatal depression to the Australian economy. The studies presented in Section 3 establish health service utilisation for women who were diagnosed with PND by a hospital health care professional. Indeed, it would be difficult to identify differential costs for people who are diagnosed or undiagnosed without a large scale, retrospective cost study.

One exception is productivity losses, which can be estimated for people with general depression, based on two separate causes: (i) symptoms of distress; and (ii) due to seeking treatment, which causes them to miss work (Hilton et al. 2010, see discussion in section 3.2.1). Productivity losses due to solely to the symptoms of depression would be an indication of the cost of untreated depression.

Recovery without treatment can occur, although conclusions on the rate of spontaneous recovery are mixed. Cooper et al. (1991) concluded that the majority of depressive episodes after childbirth resolve spontaneously within three to six months. However, as discussed previously in this report, a subset of women will continue to suffer from depression throughout and beyond the first postnatal year. Milgrom et al. (2011) supported the finding that some women spontaneously recover, without specifying (quantitatively) a range.

However, individuals with untreated perinatal depression are unlikely to recover at the same rate as people who are treated. Randomised controlled trials have demonstrated the rate of recovery to be significantly greater when people receive counselling compared to no counselling (for example, Cooper et al. 2003; Holden et al. 1989; Wickberg and Hwang 1996). Similar findings have been reported for other interventions, as discussed in Section 1.2.6. No Australian studies were identified that compare treatment with no treatment, in order to estimate the comparative recovery times for people who are undiagnosed and/or untreated⁹.

Due to the suggestions that: (i) much perinatal depression is undiagnosed and thus untreated; (ii) recovery rates are lower for untreated individuals; and (iii) the largest

⁹ The only Australian studies identified compare treatment (counselling, drugs, etc) against “standard care”, or report depression scale scores before and after treatment. These studies do not provide good evidence for the impact of treatment relative to no treatment. For example, “standard care” includes primary care (and possibly other treatments) in some studies.

subset of perinatal depression costs are productivity losses (see Section 5); it is hypothesised that untreated perinatal depression may bear higher economic costs to society. This would depend on the extent to which the health care costs avoided (by not seeking treatment or identifying people with perinatal depression) are offset by greater productivity and informal care costs.

To date, these impacts have not been studied. However, the economic costs presented in this report may be conservative in not accounting for the specific costs of people who are untreated, which may be due in part to difficulties in accessing support services (see Section 1.3.1)

1.3.3 Risk of long term disorder and adverse events

This section discusses the potential long-term health consequences of perinatal depression specific to people with that condition. It is recognised, however, that perinatal depression can also impact on the health of the child.

Maternal AND, by its definition, is time limited to the period between onset and giving birth. However, AND has been shown to be a predictor of PND, and may be linked to further episodes of depressive disorder. A study of 367 Australian women in the *beyondblue* National Postnatal Depression Program found AND to be a strong predictor of PND ($\beta = .72$, $p < .001$, Leigh and Milgrom 2008).

Robertson et al (2003) identified that untreated maternal PND can have adverse long-term effects for both the mother and child. In particular, for the mother, the episode can be the precursor of chronic recurrent depression. This aligns with numerous other studies which identified that PND can continue for many years if untreated (O'Hara 1987). In addition, as identified in Section 1.2.5, asthma, cardiovascular disease, cancer, and diabetes have been associated with depression (Chapman et al. 2005).

Although these associations have been noted, no published studies were identified that formally report the relative risks for these conditions given PND. Chapman et al (2005), however, note that the risk of heart disease in people with depression or depressive symptoms is around 1.6 times the risk in non-depressed people. Care is needed when interpreting such information as causation, since there may be confounding correlation. For example, people may be more likely to be depressed because they have heart disease, and not the other way around.

Schumacher et al. (2008) note that paternal perinatal depression impacts on family relationships and child development. However, evidence on the long-term impacts of paternal PND was not identified in the literature.

This report does not consider the costs of long term consequences of perinatal depression or associated events. To this extent, the economic costs of perinatal depression presented here may be conservative.

As discussed above, perinatal depression can also impact on infant physical and mental health. In the antenatal period, undiagnosed clinical depression can contribute to adverse perinatal complications such as inadequate maternal weight gain, preterm birth, and low infant birth weight (Breedlove and Fryzelka 2011). A mother's ongoing depression through

the postpartum period may contribute to emotional, behavioural, cognitive and interpersonal problems in later life (Jacobsen 1999). As highlighted in Section 1.2.5, PND has been linked to a higher rate of mental illness and insecurity among children, as a result of the mother-baby interaction (Cogill and Caplan 1986; Hewitt and Gilbody et al. 2009; Marmorstein et al. 2004; Murray et al. 1999; Murray and Stein 1989; Stein et al. 1991). A full study of these impacts is beyond the scope of this report.

1.4 Limitations encountered in this study

This study has revealed limitations in the available data relating to the prevalence and impacts of perinatal depression (diagnosed and undiagnosed) in Australia. The key shortcomings have been referred to throughout this report and are summarised below. Some hypothetical suggestions are included in bold text as options for further study (noting that a full feasibility study would be required for each).

1.4.1 Prevalence and duration of AND and PND (see section 1.3).

Australian studies to date have utilised screening tools such as the EPDS, GHQ and BDI (the two latter primarily for men), which are subject to recording false positives and false negatives (Austin et al. 2010). Where clinical diagnosis has been applied, it is through a retrospective survey, which is also subject to reporting bias. No large Australian study was identified that used clinical diagnosis at the time of screening to assess a sample of pregnant and postpartum women and their partners for AND or PND.

Prevalence studies focus on point prevalence, i.e. establishing the prevalence at a specific point in time, usually within a six-month period around the mother giving birth, which does not provide any information about the onset or duration of the disorder.

The AIHW's *Perinatal Depression Survey*, published for the first time in 2012, is a positive step, in that it establishes a baseline dataset which can be monitored on an ongoing basis. However, its prevalence estimates face difficulty in that they are based on a survey where women (and not their partners) are asked to self-report a diagnosis of perinatal depression. Given that a large number of cases are known to go undiagnosed, this is unsatisfactory as a measure of prevalence.

Further primary research is required in order to increase the evidence base for perinatal depression and increase the accuracy of these estimates. This might include a large study of perinatal depression prevalence by clinical diagnosis – for example, a national review of pregnant women and their partners on GP referral to antenatal screening centres, with follow up every three months.

1.4.2 Health care service utilisation (see section 3.1)

Australian data on expenditure and utilisation of health care services by people with perinatal depression frequently does not identify this as the reason for accessing services. This is due to the classification system (ICD-10) that used to report BEACH, Medicare and hospital expenditure data (and the method of reporting under these classifications).

Currently, only maternal PND may be identified through BEACH, Medicare and hospital expenditure data. Maternal AND and paternal AND and PND are not covered by this classification system, and thus no health service usage as a consequence of these disorders may be identified.

Furthermore, any service usage is likely to be under-reported if GPs do not indicate this diagnosis. For example, a general diagnosis of depression may be reported or, if a patient is admitted with another condition in addition to perinatal depression, the latter may be neglected in the reporting. The implementation of a more comprehensive classification system would assist in addressing this shortcoming. Further primary research is recommended to increase the evidence base and enhance the accuracy of the estimate provided. This might include a study of health care service utilisation among pregnant women and their partners. Ideally, these should be prospective and use detailed forms to collect data on all health care contacts and treatments/interventions prescribed. By enrolling women and their partners upon confirmation of pregnancy, long term health care service usage could be compared between people who do and do not experience perinatal depression (using diaries for example).

Another area subject to data limitations relates to the carer burden for people with perinatal depression. Large carer burden studies in Australia have reported findings for categories such as “mental illness”, but not included a more specific focus on perinatal depression. The nature of perinatal depression requires that a specific study of carer impacts be undertaken. The costs of caring for the individual as well as perhaps the partner and child should be considered.

Recommended further research includes a study exploring the types and reasons for care provided to men and women with perinatal depression. Subjects could be recruited via the PANDA Helpline (collecting more detailed questions about care received), GP surgeries, or the studies suggested above.

1.4.3 Productivity impacts of perinatal depression (see section 3.2.1)

No studies focusing on the impacts of perinatal depression specifically on employment and employee productivity were identified in undertaking this study. In order to overcome this, estimates were extrapolated from studies of the productivity impacts of depression more generally. It is likely, however, that the impacts of perinatal depression differ from those of general depression (see discussion in section 3.2.1). As such, Australian data and studies relating to perinatal depression specifically would enhance the analysis.

A workplace study of people with perinatal depression is recommended to address this knowledge limitation. This would seek to identify differences in absenteeism and presenteeism, for example, between subjects with perinatal depression and the general workforce. It would be extremely difficult to identify men and women with perinatal depression through workplaces, particularly given that it is important aspect to identify the impacts for people who are undiagnosed and/or untreated. Therefore, the investigator may enrol several large companies to refer employees (or their partners) who apply for maternity or paternity leave. These subjects could be followed up to measure their productivity, employment and mental health status. Since very large

samples may be required to evaluate differences between people with or without depression, alternative study designs should be considered.

1.4.4 PANDA Helpline activity and performance (see section 6)

The PANDA Helpline currently tracks caller numbers and details, including linking to a follow up call. A full benefit assessment (as detailed in section 6) requires more information regarding longer term outcomes, including (ideally) how outcomes would have differed without the Helpline contact.

Additional data collection by PANDA would assist in future assessments of the Helpline. Although the Helpline already collects a wide range of data on initial callers, more callers could be followed up, and the questions at follow up could be linked to longer term outcomes, including improvement in symptoms and quality of life.

Ideally a large Australian randomised controlled trial could analyse the impacts of the PANDA Helpline, by comparing outcomes for a sample of people with perinatal depression who call and a sample who do not¹⁰, similar to the Canadian study conducted by Dennis (2010). The trial could prospectively collect information on PANDA Helpline contacts, diagnosis of perinatal depression, health care use, employment, and care received.

¹⁰ These people would not have perinatal depression at randomisation so large samples would be required.

2 Prevalence of perinatal depression in Australia

This section presents a discussion of prevalence rates for maternal and paternal perinatal depression in Australia. A targeted literature search using specific inclusion criteria and search terms was conducted. Internet sites and databases that cover medical, psychological and social sciences literature were interrogated..

Key internet sites and databases searched;

- Australian Institute of Health and Welfare (AIHW) resources, including published data and reports such as the 'Australia's Mothers and Babies' series, Mental Health data cubes, and Perinatal Statistics Unit collections;
- PubMed (MEDLINE), to identify relevant peer-reviewed journal publications;
- websites of relevant not-for-profit organisations, to identify key data, fact sheets, and scientific reports e.g. Beyond Blue, Black Dog Institute, PANDA; and
- other Australian government websites, including the Australian Bureau of Statistics (ABS), National Health and Medical Research Council (NHMRC), and Department of Health and Ageing (DOHA).

Searches used combinations and variations of the following primary search terms:

- postnatal, antenatal, perinatal, maternal, paternal, postpartum, puerperium;
- depression, anxiety¹¹;
- prevalence, incidence;
- cost, treatment, health care, service, use, utilisation.

A search of international studies was also conducted. The findings are summarised in Appendix A.

There is no clarity or uniformity in the Australian or international literature on the reporting of prevalence of people with maternal and paternal AND and PND.

2.1 Published methods used to estimate the prevalence of perinatal depression

Various Australian and international studies have attempted to estimate the prevalence of maternal and paternal AND and PND. The use of different scales, screening tools and other study limitations, such as self-reporting bias, mean that there is no one universally accepted prevalence figure. Prevalence estimates vary according to study parameters, including

¹¹ Anxiety where this was exclusive of perinatal depression was out of scope.

methodology and sample characteristics¹² and the timing of the assessment (Buist et al. 2008; Gavin et al. 2005; NHMRC 2000). Notwithstanding the challenges in estimating the exact prevalence, Australian and international studies have consistently found, “Significant rates of mental health disorders in the perinatal period” (Austin et al. 2011).

Due to variation in the onset and duration of depressive disorder, the timing of assessment may also influence the prevalence estimate. While we may wish to know, overall, how many people experience depression during the perinatal period (the “period prevalence”), studies typically report “point prevalence”. That is, a study will typically assess individuals at a point or several points, during the period of pregnancy and up to one year following childbirth.

The most common method for assessing prevalence of perinatal depression is through screening, by asking participants to self-report their symptoms through a survey or standardised questionnaire. Results are reported in relation to a scale, where scores above a certain level indicate the potential presence of perinatal depression. Due to differences in symptomatology, different scales are preferred for women and men.

2.1.1 The Edinburgh Postnatal Depression Scale (EPDS)

The Edinburgh Postnatal Depression Scale (EPDS) is the most commonly used scale to detect maternal AND and PND during pregnancy and following childbirth, in Australia (Buist and Bilszta 2006) and internationally (Priest and Barnett 2008). The EPDS includes ten questions, focusing on the woman’s mood during the previous seven days, including ability to enjoy life, worry, panic, ability to cope, sleep, sadness and thoughts of self-harm (Cox et al. 1987).

Responses to EPDS questions are scored and tallied and, depending on sample characteristics, used to detect potential cases of perinatal depression. The following cut-off scores are generally used:

- for maternal PND, 12 or 13 (although a range of four to thirteen has been suggested, depending on the cultural group and other characteristics of the sample) (Austin et al. 2011);
- for maternal AND, 14, to compensate for the often transient, heightened anxiety experienced during pregnancy without actually meeting the diagnostic criteria for a mood disorder (beyondblue, 2007; Bilszta et al. 2008); and
- for paternal AND and PND, 9-12 (Paulson and Blazemore 2010)¹³.

The EPDS benefits from a high level of acceptability to respondents and feasibility, in terms of practical delivery (Buist and Bilszta 2006). It also minimises the number of questions that relate to symptoms of depression that might be expected to be experienced by people in the perinatal period regardless of mood disorder (e.g. fatigue, difficulty sleeping, etc).

¹² For example, cultural and linguistic background, socioeconomic status, geographic location and number of previous pregnancies may affect prevalence rates. Other complicating factors include practical issues, such as response rates and ability to follow up survey participants.

¹³ Other scales, used to detect depression in the general population, may be preferable for paternal perinatal depression, for example the Beck Depression Inventory (BDI) (see section 2.1.2).

Prevalence rates estimated using the EPDS to screen for perinatal depression should be treated with caution for the following reasons:

- The EPDS returns false positives, as individuals may score highly in relation to the specific questions being asked, but may not actually be suffering from depression. Austin et al. (2010) assessed 1,549 Australian women aged over 18 during late pregnancy using both Composite International Diagnostic Interview (CIDI) and the EPDS, with reviews at two, four and six to eight months following childbirth. CIDI is a comprehensive, fully-structured interview for the assessment of mental health disorders, but is not generally feasible for use in screening. The study concluded that detection using the EPDS alone would only identify 53.1% of CIDI cases, but approximately 30% of cases detected using the EPDS were false positives. **Prevalence based on the EPDS underestimated the CIDI prevalence by approximately 20%¹⁴.**
- The EPDS is a self-reported measure and respondents may not provide accurate, objective responses regarding their own symptoms. Swalm et al. (2010) and Ross et al. (2003) found that **EPDS scores may be up to 50% reliant on anxiety rather than depression symptoms in the antenatal period, and that this falls, significantly, to around 38% following childbirth.** Jones et al. (2012) suggest that a higher cut-off point yields a more accurate result.
- **The EPDS does not provide a measure of severity and is not a substitute for a full clinical evaluation** – rather, a high score indicates that further assessment is warranted (Dennis 2008).
- **Although there is little agreement, the EPDS is generally not preferred for detecting paternal perinatal depression, due to the different symptoms experienced by men compared with women.** Generalised depression scales are preferred.

2.1.2 Other scales and methods

Another widely used scale, particularly to detect paternal perinatal depression, is the Beck Depression Inventory (BDI). The BDI is a 21-question multiple choice, self-report questionnaire, primarily used to detect depression in the general population (Beck et al. 1961) (Paulson and Bazemore 2010).

Some studies instead estimate prevalence based on surveys of self-reported, prior diagnosis of perinatal depression. For example, Chojenta et al. (2012) and the Australian Institute of Health and Welfare (AIHW 2012a) asked women if they had even been diagnosed with perinatal depression. These studies are likely to underestimate true prevalence of the disorder, assuming that a large number of cases of perinatal depression are not diagnosed (Reaya et al. 2011).

Schumacher et al. (2008) conducted a review of available literature about birth-related paternal depression over the period of 1980 to 2007, and concluded that more reliable tools for detecting paternal perinatal depression need to be developed.

¹⁴ This study involved some limitations, in that women were excluded from participating if they required an interpreter, the women were predominantly “middle class” (in terms of education and income) and 93.4% had a partner. These characteristics are not similar to those of the general population of new mothers. Furthermore, almost 25% of those who screened positive through the EPDS were lost to follow up CIDI.

2.2 Criteria for prevalence estimates

The literature search identified studies that reported the prevalence of maternal and paternal perinatal depression in Australia and other developed countries, which may be applicable to Australia. In addition to Australian studies, the search identified prevalence estimates from Canada, Ireland, the United States (US), the United Kingdom (UK), New Zealand, Switzerland, Sweden, Norway, France, Denmark, Austria and Singapore.

These were assessed for their suitability to estimate national prevalence, based on the following criteria:

1. the study should be Australian or highly applicable to Australia in terms of respondent characteristics;
1. the study should be recent;
2. the study should have been published and widely accepted;
3. an estimate for both AND and PND should be provided;
4. definitions of AND and PND should be in line with general diagnostic categories used in Australia (i.e. ICD-10 and DSM-IV);
5. the prevalence estimate should be based on a large sample size that is representative of the general population of Australian women giving birth and their partners in 2012; and
6. the method used to determine presence of depressive symptoms should be in line with best practice for screening, including utilisation of a validated screening tool (noting that it may not be feasible to follow up with diagnostic assessment across large sample sizes).

2.3 Maternal perinatal depression estimates

2.3.1 International evidence from meta-analyses

Gavin et al. (2005) published a *Systematic Review of Prevalence and Incidence*, reviewing evidence from 28 studies undertaken in developed countries of the prevalence of perinatal depression (major and minor). Findings are summarised in Table 2.1. Combined point prevalence for AND was estimated at 11.0% in the first trimester, falling to 8.5% in the second and third trimesters, and for PND, from 6.5% at 12 months to 12.9% at three months. Period prevalence for AND was estimated at up to 18.4% and PND 19.2%, although the authors noted that these estimates had been reported with relatively high levels of uncertainty and findings were not consistent across the literature.

Table 2.1: Prevalence of maternal AND and PND, Gavin et al. 2005

	AND		PND		
	1 st trimester	2 nd & 3 rd trimester	3 months	6 months	12 months
Point prevalence	11.0%	8.5%	12.9%	10%	6.5%
Period prevalence	18.4%		19.2%		

Source: Gavin et al. 2005.

Several previous meta-analyses indicated that prevalence estimates for maternal perinatal depression ranged from 5% to more than 25% (O'Hara and Swain 1996; Llewellyn et al. 1997 and Bennett et al. 2004).

A wider, systematic review of 143 studies, which included developing countries, indicated a range from 0% to almost 60%, noting that the variation may be attributable to, "Cross-cultural variables, reporting style, differences in perception of mental health and its stigma, differences in socioeconomic environments (e.g. poverty, levels of social support or its perception, nutrition, stress), and biological vulnerability factors" (Halbreich and Karkun 2006).

The international evidence regarding prevalence rates of maternal AND and PND is inconclusive and it is difficult to generalise findings from another country to the population of Australian mothers. This is due to a range of factors, including cultural differences, differences in perception of mental health and socioeconomic environments. Studies focusing on Australian sample populations would therefore be preferred.

2.3.2 Australian prevalence estimates

The literature search identified sixteen studies that reported the prevalence of maternal perinatal depression in Australia, with the majority focusing on PND. Most used the EPDS, although the BDI and GHQ were also used. Reported prevalence rates varied widely:

- **Maternal AND** – 12% to 22% (Matthey et al. 2000; Morse et al. 2000); and
- **Maternal PND** – 6.1% at four to six weeks after childbirth to 22% at one month after childbirth (Condon and Corkindale 1997; Morse et al. 2000).

The results from a meta-analysis of 28 international studies, show variation in the point prevalence estimates for major and minor depression ranging from 6.5% to 12.9% (1.0% to 5.6% for major depression alone) at different trimesters of pregnancy and months in the first year after the birth. The period prevalence showed that as many as 19.2% of women had a depressive episode in the first 3 months postpartum (7.1% for major depression) (Gavin et al. 2005).

To date, two large-scale national studies have been conducted on maternal perinatal depression in Australia:

- a study undertaken as part of the *beyondblue National Postnatal Depression Initiative* (Buist and Bilszta 2006); and
- the Australian National Infant Feeding Survey (ANIFS) (AIHW 2012).

Both studies surveyed women across Australia, although methodologies differed in terms of subject selection, measurement tools for perinatal depression and timing of assessments. They also addressed two of the key limitations of other Australian studies, in that they included: (i) women from diverse geographic, socioeconomic, cultural and linguistic backgrounds; and (ii) large sample size. These studies are discussed in more detail in sections 2.3.2.1 and 2.3.2.2.

2.3.2.1 Buist and Bilszta (2006)

The study conducted by Buist and Bilszta (2006) was based on the results of a comprehensive screening program of 40,000 antenatal and 12,000 postnatal women¹⁵ over the period 2002 to 2005, across 43 health services in all Australian states and the Australian Capital Territory (ACT). Women were screened using a survey based on the EPDS, during pregnancy and again at six to twelve weeks following childbirth. They also provided details on current and past history of mental illness, including major life events and access to a support network.

Buist and Bilszta (2006) estimated the prevalence rate of maternal AND at 5.4%-8.9% (EPDS >12 and >14) and maternal PND at 15.7% (EPDS >9), as summarised in Table 2.2. They found that Australian rates of AND and PND were comparable to those found in other developed countries. People who exhibited certain cultural and psychosocial factors (past history of abuse, prior depression, anxiety, lack of support, lower socioeconomic status and stressful pregnancy) were at greater risk of developing perinatal depression.

Table 2.2: Prevalence rates for maternal AND and PND, Buist and Bilszta (2006)

EPDS	AND	PND	AND and PND
Above 9	19.6%	15.7%	-
Above 12	8.9%	7.6%	2.7%
Above 14	5.4%	-	-

Note: an EPDS score above 12 was used to identify AND and above 9 to identify potential PND. Higher scores did not necessarily imply more severe symptomatology; rather a greater likelihood of clinical diagnosis of depression.

Source: Buist and Bilszta 2006.

Buist and Bilszta's study meets all of the criteria outlined in section 2.3. It is Australia, conducted recently across a large sample of representative women, and utilises the EPDS, which is a validated screening tool for AND and PND. Prevalence estimates for both disorders are provided. An additional degree of validity is afforded by the fact that these results are referenced as estimates of prevalence by the NHMRC-approved *Clinical Practice Guidelines* for depression and related disorders in the perinatal period (Austin et al. 2011).

Potential limitations of the results are due to the following:

- women suffering from PND may have been less likely to participate in the survey than other women, leading to an underestimate of prevalence;

¹⁵ More than 40,000 women participated in the original EPDS survey. 35,374 of women reported an antenatal EPDS score and 12,361 women reported a postnatal EPDS score.

- use of the EPDS, which is subject to the shortcomings outlined in section 2.1.1;
- the timing of assessment in the antenatal period may not have captured the peak rate of AND prevalence; and
- assessment of point prevalence for PND at six to twelve weeks following childbirth may underestimate actual prevalence, as other studies have shown that prevalence may peak at a later point.

2.3.2.2 AIHW (2012)

Perinatal depression: data from the 2010 Australian National Infant Feeding Survey was first released by the AIHW in July 2012 and compiled data on the number of mothers who had previously been diagnosed by a health professional with depression. The survey collected information from mothers/carers of a representative sample of children aged up to 24 months, selected from the Medicare Australia enrolment database. From a sample of 52,008 children, responses were received for the mothers/carers of 28,436 children (response rate 55%) (AIHW 2012a).

The AIHW's prevalence estimates are presented in Table 2.3. Twenty per cent of mothers of children aged less than two years reported ever been diagnosed with depression. Of these, half of the mothers (10%) reported being diagnosed with depression during the perinatal period (for any of their children). Approximately 4.5% of all mothers surveyed had been diagnosed with perinatal depression around the birth of the child aged less than two years, which rendered them eligible for inclusion in the survey.

Table 2.3: Prevalence rates for depression among Australian mothers, AIHW 2012a

Prevalence	Mothers (%)	Mothers (n)
Depression (ever been diagnosed)	20.0	111,000
Perinatal depression (any child)	10.0	56,000
Perinatal depression (selected child)	4.5	24,975

Source: AIHW 2012a.

The AIHW did not report separate prevalence figures for AND and PND, other than the finding that 3.7% of mothers who responded that they had ever been diagnosed with depression stated that their first diagnosis was when they were pregnant with the child aged under 2 years (0.7% of all mothers surveyed). 18.8% of the mothers who had ever been diagnosed with depression were diagnosed for the first time in the first year following childbirth (3.8% of all mothers surveyed) (see Table 2.4). This did not capture mothers who experienced AND or PND but had also been previously diagnosed with depression.

Table 2.4: Timing of first diagnosis of depression among Australian mothers

Time of first health professional diagnosis of depression	Mothers (%)	Mothers (n)
Before I was pregnant with this child	73.4	81,474
While I was pregnant with this child	3.7	4,107
In the first year after the birth of this child	18.8	20,868
After this child's first birthday	4.1	4,551
Total	100.0	111,000

Source: AIHW 2012a.

It is interesting to note that the perinatal depression prevalence rate of 10% reported in the AIHW survey is substantially lower than the sum of the AND and PND prevalence rates reported by Buist and Bilszta (2006) despite the former being a period prevalence. The period prevalence for the child selected in the study – which is arguably the most relevant estimate – is lower still, at 4.5%.

AIHW (2012a) overcomes some of the weakness of Buist and Bilszta's study, in that:

- a clinical diagnosis is utilised, rather than a screening tool (such as the EPDS), although it also relies on self-reporting; and
- a period prevalence for perinatal depression is ascertained by asking if respondents were diagnosed any time within the antenatal period or in the first year after birth (whereas Buist and Bilszta only captured AND and PND as a point prevalence).

However, one significant limitation is that a significant proportion of perinatal depression is not diagnosed (see Chojenta et al. 2012). It is likely that this has contributed to an underestimation of actual prevalence. In light of this and the criteria identified in section 2.2, this report bases prevalence for the Australian population on those estimated by Buist and Bilszta (2006), discussed in section 2.3.2.1.

2.3.3 Maternal AND and PND prevalence estimate

The Buist and Bilszta (2006) prevalence estimates have been selected for the reasons identified above. Table 2.5 applies these to the estimated number of new mothers in Australia in 2012¹⁶.

Table 2.5: Australian maternal perinatal depression prevalence 2012

Disorder	Prevalence (%)	New mothers	Prevalence (n)
Maternal AND	8.9%	289,335	25,751
Maternal PND	15.7%	289,335	45,426

Source: Buist and Bilszta 2006 and ABS 2010.

Maternal AND is estimated to affect 25,751 Australian women (8.9%), and maternal PND is estimated to affect 45,426 Australian women in 2012, based on Buist and Bilszta (2006).

2.4 Paternal perinatal depression

2.4.1 International evidence from meta-analyses

Paulson and Bazemore (2010) conducted a meta-analysis which included point prevalence estimates for paternal AND and PND across 43 international studies. The majority of studies were from developed countries, including seven Australian studies, although some

¹⁶ These have been adjusted from ABS birth statistics ABS 2010 to take account of the projected 2012 fertility rates, multiple births and historical differences between actual births and births implied by ABS Age Specific Fertility Rates.

were also from developing countries (China and Brazil). A summary of the findings is presented in Table 2.6.

From the reviewed studies, the overall prevalence rate of paternal perinatal depression, was estimated at 10.4%, (see section 2.3.1), significant variation in the findings was observed between the included studies. Point prevalence estimates ranged from 0.7% (a UK study of paternal PND at one month following childbirth, Thorpe et al. 1992) to 34% (an Australian study at 3.75-4.5 months following childbirth, Smart and Hiscock 2007¹⁷), although higher estimates were reported with some uncertainty. Variability was attributed to the national origin of the study and differences between the data collection methodology adopted in the studies (Paulson and Bazemore 2010).

Table 2.6: Prevalence of paternal perinatal depression, Paulson and Bazemore 2010

	AND		PND		
	1 st and 2 nd trimester	3 rd trimester	<3 months	3-6 months	6-12 months
Point prevalence	11.0%	12.0%	7.7%	25.6%	9.0%
(95% CI)	(6.0%-18.0%)	(9.0%-15.0%)	(5.3%-11.1%)	(17.3%-36.1%)	(5.0%-15.0%)
Overall prevalence	10.4%				
	(8.2%-12.4%)				

Source: Paulson and Bazemore 2010.

There is a significant degree of uncertainty associated with the international estimates, and variation between countries was shown by Paulson and Bazemore (2010) that may have confounded the prevalence estimates.. It is preferable to base prevalence estimates for Australia on studies conducted with Australian sample populations. Recent studies are discussed in the following section.

2.4.2 Australian prevalence estimates

Nine studies were identified that assessed the prevalence of paternal perinatal depression in Australia. These reported considerable variation in prevalence rates, although these have generally been found to be lower for paternal perinatal depression than for maternal perinatal depression (Buist et al. 2006). Researchers have reported prevalence rates of up to 10% (Wee et al. 2011, citing: Ballard and Davies, 1996; Lunn, 2008). The ranges in the literature that meet the criteria outlined in section 2.2 were:

- **Paternal AND** – 5.2% to 12.0% (Condon et al. 2004; Morse et al. 2000); and
- **Paternal PND** – 2.9% to 17.4% (Matthey et al. 2001; Dudley et al. 2001).

Higher estimates tend to accord with identifying symptoms of “distress” rather than a likely diagnosis of depression.

Paulson and Bazemore’s meta-analysis included seven Australian studies (Condon et al. 2004; Dudley et al. 2001; Fletcher et al. 2008; Matthey et al. 2000; Matthey et al. 2001; Morse et al. 2000; Smart and Hiscock et al. 2007). The characteristics of these and two

¹⁷ Paulson and Bazemore noted that this may be due to the over-representation of high-risk individuals in the study sample.

additional studies (Fletcher et al. 2006; Giallo et al. 2012) are summarised in Table 2.70, with a brief discussion below.

- Matthey et al. (2000) assessed paternal perinatal depression in 157 couples recruited from a large longitudinal study (Ungerer et al. 1992). Men were assessed using the BDI or GHQ at four time points: antenatally, six weeks, 18 weeks, and 52 weeks postpartum. Between 2.8% and 5.3% of Australian fathers were found to experience depression across the four assessment periods¹⁸. These findings have been supported in later literature. Matthey et al. (2001) estimated prevalence at 2.9% of new fathers, using the Diagnostic Interview Schedule (DIS) to provide further insights into screening methods. Fletcher et al. (2006) stated these findings as the range of prevalence for paternal PND, at 2% to 5%.
- Condon et al. (2004) studied psychological questionnaire¹⁹ responses from 204 new fathers in South Australia and New South Wales (NSW), when their partner was 23 weeks pregnant and at three, six and 12 months following childbirth. Prevalence of paternal AND was estimated at between 4.6% and 5.2%; and paternal PND at between 1.5% and 11.3%, depending on the scale used and timing of assessment (Table 2.7).
- Fletcher et al. (2008) studied the survey responses of 307 new fathers attending antenatal classes in public and private hospitals in NSW. Psychosocial questions were derived from the EPDS. Prevalence of perinatal depression was estimated at between 5.3% and 15.5% (the higher estimate using a lower cut-off score on the EPDS, as suggested by Matthey et al. 2001).
- Giallo et al. (2012) studied data from the Longitudinal Study of Australian Children to identify depression in fathers of one cohort of infants at three ages: 1-12 months, 2-3 years and 4-5 years. The 1-12 month prevalence rate is of interest here. Participation in this sample was limited to biological fathers who were living with and caring for the child. Self-reported depression was detected using Kessler-6 (K6), a screening tool which provides a global measure of psychological distress in the past four weeks²⁰. Prevalence of paternal PND was estimated at 1.9% (clinical range, K6 score 13-24), with symptoms of distress apparent in 7.8% of new fathers (symptomatic range, K6 score 8-12).
- Morse et al. (2000) estimated prevalence at up to 12.0%, based on an EPDS cut-off score of nine for maternal and paternal PND. Prevalence of maternal AND and PND was estimated at up to 21.6%.

¹⁸ Female estimates varied between 7.7% and 12.4%.

¹⁹ Symptom measures include: General Health Questionnaire (GHQ), Mental Health Interview (MHI), Positive and Negative Affect Schedule (PANAS), Hopkins Symptom Checklist (HSCL), Self-Assessment of Irritability Scale (SAIS), EPDS, Alcohol Use Disorders Identification Test (AUDI).

²⁰ The K6 asks questions on whether the individual has felt nervous, hopeless, restless or fidgety, extremely sad, worthless and that everything is an effort (Kessler et al. 2003).

Table 2.7: Australian studies of paternal perinatal depression

Study	Time period	Depression cut-off score	No. men (women)	Prevalence rate (%)	
				Men	Women
Matthey et al. 2000	5.5 months gestation	Multiple measures used to designate cases ^c	152	5.3	12.3
	1.5 months postpartum		141	2.8	7.7
	4 months postpartum		125	3.2	9.7
	12 months postpartum		128	4.7	12.4
Morse et al. 2000	6.25 months gestation	EPDS (>9)	251	12	19.5
	9 months gestation		204	8.7	21.1
	1 months postpartum		166	6	21.6
	4 months postpartum		151	5.8	13.9
Matthey et al. 2001	1.6 months postpartum	DIS	208 (230)	2.9	10.4
Dudley et al. 2001	3.9 months postpartum	EPDS (>10)	93 (158)	11.8	47.52 ^a
		GHQ (>4)	93	46.2	
		BDI (>9)	92	17.4	
Condon et al. 2004	5.75 months gestation	EPDS (>12)	312	5.2	
		GHQ (>5)		18.2	
		MHI-5 (<17)		4.6	
	3 months postpartum	EPDS (>12)	276	1.9	
		GHQ (>5)		11.3	
		MHI-5 (<17)		1.5	
	6 months postpartum	EPDS (>12)	241	2.1	
		GHQ (>5)		11.2	
		MHI-5 (<17)		1.7	
	3.9 months postpartum	EPDS (>12)	222	2.3	
		GHQ (>5)		10.4	
		MHI-5 (<17)		3.1	
Smart and Hiscock et al. 2007	3.75 months postpartum	EPDS (>9)	59 (71)	30.0	45.0 ^b
	4.5 months postpartum	EPDS (>9)	53 (59)	19.0	15.0
Fletcher et al. 2008	Sometime during gestation	EPDS (>9)	307	5.3	
		EPDS (>6)	307	15.5	

Source: Paulson et al. (2010)

Abbreviations: BDI, Beck Depression Inventory; DIS, Diagnostic Interview Schedule; EPDS, Edinburgh Postnatal Depression Inventory; GHQ, General Health Questionnaire; MHI-5, Mental Health Index.

a EPDS > 9; b EPDS > 12; c Fathers were assessed for depression using the BDI (16 from time 1 through time 4) and the GHQ (7 at time 1 and time 4 only). Mothers were assessed using the BDI (16 at time 1, time 3, and time 4), EPDS (12 at time 2 only), and GHQ (7 at time 1 and time 4 only).

- Smart and Hiscock (2007) estimated prevalence of up to 30.0%, although this was considered by Paulson and Bazemore to relate to the study sample of high-risk individuals. Sample size was also relatively small, at 60-70 participants.

There is a lack of consistency in the reporting of prevalence estimates paternal AND or PND in Australia and internationally. This report estimates prevalence of perinatal depression based on Matthey et al. (2000). This was identified as the best estimate identified in Fletcher et al. (2006), and aligns with the range of findings in other studies of paternal PND. Furthermore, the findings have been validated based on the BDI and GHQ, rather than the EPDS, which is considered more appropriate for detecting paternal perinatal depression (see discussion in section 2.1.2).

Matthey et al.'s estimates of the prevalence rate is 5.3% for paternal AND (based on the rate at 5.5 months gestation) and 3.6%, for PND based on the average for the rates at 1.5, 4, and 12 months, weighted by time periods (see Table 2.7)²¹. This is a conservative estimate, as other studies have found that up to 10% of new fathers experience perinatal depression, including the Paulson and Bazemore (2010) international meta-analysis, discussed in section 2.4.1.

Table 2.8 applies these prevalence rates to the number of new fathers (ABS 2010) to estimate a total number of fathers with AND and PND in Australia in 2012. The number of new fathers was estimated from the number of new mothers (see section 2.3), adjusted for births where paternity has not been acknowledged (approximately 3% of births)²². This approach could potentially overestimate the prevalence of paternal PND, since there may be more fathers who are not involved with the pregnancy.

Table 2.8: Australian paternal perinatal depression prevalence, 2012

Illness	Prevalence (%)	New fathers	Prevalence (n)
Paternal AND	5.3%	280,655	14,875
Paternal PND	3.6%	280,655	10,104

Source: Matthey et al. 2000 and ABS 2010.

The prevalence of paternal AND in 2012 is conservatively estimated to be 14,875 new fathers (5.3%); while the prevalence estimates for paternal PND are 10,104 new fathers (3.6%) within the same year, based on Matthey et al. (2000).

²¹ The postnatal depression rate for fathers is assumed to increase linearly between 1.5 and 4 months, and between 4 and 12 months. The rate at 1.5 months is, however, assumed to be applicable from birth. The overall prevalence rate for paternal PND is therefore $(1.5 \div 12) \times 2.8\% + (2.5 \div 12) \times 3.0\% + (8 \div 12) \times 4.0\% = 3.6\%$

²² While the ABS does collect data on the marital status of the mother, which includes de facto relationships, this information is not reported in their annual data.

3 Economic costs of perinatal depression

The following section presents estimates of the economic costs of perinatal depression in the following categories:

- **Direct financial costs for people with perinatal depression accessing health care services;**
- **Indirect costs, including those relating to lost productivity,** from people with perinatal depression being unable to work; and
- **Deadweight welfare losses** associated with income tax revenue foregone and government funded healthcare.

Non-financial costs are also very important – the personal suffering that results from perinatal depression. Although more difficult to measure, this can be quantified through analysis of years of healthy life lost, known as the “burden of disease” (discussed in Section 4).

Economic costs, financial and non-financial, are estimated from a societal perspective, where data is available. The costs include those incurred by governments, individuals, private health insurance funds (in relation to direct health and social service costs), individuals and employers (in relation to productivity losses) and to society as a whole (in relation to deadweight losses).

3.1 Direct health care service costs

This section estimates the additional²³ costs associated with the treatment of people with perinatal depression who access health care services in Australia. These services include GPs and other medical services (including psychiatrists), allied health (including psychologists and counsellors), medications, hospital inpatient services and community and other public health services (Austin et al. 2011).

Data is only available to estimate costs where services attract government funding. Where possible, estimates of private expenditure on these services have also been included; however it was not possible to estimate costs where patients access treatment outside of government-funded programs or services. This means that the costs presented here understate the actual costs. While it is not possible to identify the magnitude of this, additional private expenditure on healthcare is potentially substantial.

Where it was necessary to make assumptions in order to calculate costs for both public and private expenditure, these always resulted in more conservative cost estimates. Other limitations in the methodology are discussed in section 3.1.2.6.

²³ i.e. Costs over and above what might be expected for women and their partners during the perinatal period.

3.1.1 Treatment pathways

Treatment pathways are assumed to align with the *Clinical Practice Guidelines* for treating perinatal depression (Austin et al. 2011), as described in section 1.2.6. Health care is primarily provided to people with perinatal depression in a primary care setting, led by a GP. In approximately 14% of cases, the GP prepares a Mental Health Treatment Plan so that the patient can access services from a psychiatrist or clinical/general psychologist (Harrison et al. 2012).

Some patients will also receive specialised mental health care in hospital, as an inpatient, in outpatient clinics and in the community. It is not always necessary that a patient receive a GP referral before attending community-based services, however these patients would be unlikely to receive any subsidies to the cost of their care through government programs (they also will not be included in government data relating to service usage).

Government policy has increasingly focused on addressing depression, improving access to services and providing specialised programs with dedicated funding in respect of perinatal depression. Public health campaigns have aimed to encourage people to seek care; and training programs for health professionals have aimed to increase detection and ensure that appropriate care will be provided. Some of the policies that have impacted on the care provided to people with perinatal depression are summarised below.

- **National Perinatal Depression Initiative (2008-2013)** – Australian Government committed \$55 million (along with a \$30 million commitment from state and territory governments, total \$85 million) to:
 - **support universal screening**, support and treatment services (contribution to state and territory governments);
 - **enhance access to psychologist services** (through Divisions of General Practice and *Access to Allied Psychological Services* (ATAPS), see below); and
 - **develop community awareness programs and training materials** for health professionals who screen and treat new and expectant mothers for perinatal depression (beyondblue 2012b).
- **Access to Allied Psychological Services (ATAPS)** – enables GPs to refer patients to specialised mental health treatment services, including psychologists, social workers, mental health nurses, occupational therapists and Aboriginal and Torres Strait Islander health workers. The program is funded and delivered through Divisions of General Practice. Patients are eligible for a maximum of 12 sessions (for example with a psychologist), per calendar year. An initial GP referral provides access to six time-limited sessions subsidised through ATAPS, and a further six sessions may be provided if the GP provides a second referral after reviewing the patient (DOHA 2012c).
- **Better Access to Psychiatrists, Psychologists and General Practitioners (Medicare Benefits Schedule, MBS)** – encourages a multi-disciplinary approach to mental health care. The team is co-ordinated by a GP and may include a psychiatrist, clinical psychologist, registered psychologist, social worker and/or occupational therapist (DOHA 2012d).
- **Mental health care plans (MBS)** – provisions within the MBS for a GP to prepare and review a plan for a patient's care, including early intervention, assessment, management and referral pathways to psychologists, social workers and occupational therapists (DOHA 2012e).

3.1.2 Direct cost estimates, maternal perinatal depression

Cost estimates are presented for:

- Primary care;
- Medications; and
- Hospital inpatient and community care.

Where available, cost estimates were based on data that clearly identified a diagnosis of perinatal depression. Under this restriction, it was only possible to directly estimate expenditure by the state, territory and Australian governments on maternal PND. Expenditure information for maternal AND was not identified in available data and it is difficult to make assumptions regarding the additional services that may be used (relative to other pregnant women). As such, estimates for maternal AND have been excluded and this section focuses solely on maternal PND.

Briefly, the methodology used to estimate direct health care service costs associated with maternal PND is summarised in this section, followed by the estimates. Limitations that were faced due to data not being available are discussed in section 3.1.2.6.

3.1.2.1 Primary care costs

Primary care expenditure was estimated from a study of BEACH²⁴ data (Charles et al. 2006), which identified episodes of GP care where maternal PND was diagnosed over the period April 1998 to March 2005. These data have been shown to be reflective of overall GP service items claimed throughout Medicare (Britt et al. 2011, cited in Harrison et al. 2012). The data indicate what care was provided by the GP, as well as any pathology ordered, prescriptions for medication and referrals to allied health professionals (this section deals with only the costs of visiting the GP and pathology, the other categories are discussed in sections 3.1.2.2 and 3.1.2.3).

Primary care expenditure is incurred by the Australian Government, through Medicare, as well as to the patient, who pays the difference between the Medicare Benefits Schedule (MBS) fee and the GP charge. The BEACH data does not provide any information regarding expenditure by patients.

Charles et al. (2006) estimated that approximately 60,000 patient encounters per annum, on average, were provided by GPs in Australia over the period April 1998 to March 2005. The majority of encounters were for women aged between 25-44 years old (79.5%), followed by women aged 15-24 years (18.3%) and women aged 45-64 (0.1%).

Growth in the number of mothers²⁵ would imply approximately 67,800 maternal PND patient encounters in 2012²⁶.

²⁴ The Bettering the Evaluation and Care of Health (BEACH) program collects information about clinical activities in general practice in Australia (see www.sydney.edu.au/medicine/fmrc/beach/). Each year, data are collected for a random sample of about 1,000 GPs, who each report details of 100 consecutive patient encounters.

²⁵ See section 2.3.

²⁶ It should be noted that recent public health campaigns regarding perinatal depression may have increased the likelihood that a woman with PND would seek treatment (and potentially that a GP would code the patient encounter as maternal PND). However, no data is publicly available to assist in understanding this impact.

GP encounters were costed at \$72.20 per encounter (excluding pathology costs). This reflects an average of the MBS fees for mental health consultations (over 20 minutes) and the preparation and review of a Mental Health Treatment Plan (DOHA 2012a), weighted by the proportion of patient encounters that involve plans²⁷ (based on an average of the proportions over 2007-08 to 2010-11, from Harrison et al. 2012)²⁸.

Pathology ordered by GPs in 2012 is assumed to be at the same rates per encounter as in the BEACH study (14% of total encounters). The most relevant tests were full blood count (3.7% of encounters), thyroid function (2.0%), iron studies (1.5%), thyroid stimulating hormone (1.5%), electrolytes and liver function (1.0%). These were costed at 85% of the 2012 MBS fees (DOHA 2012a).

It should be noted that GP and pathology services provided to concession card holders that are bulk billed attract an additional incentive payment under Medicare. This has not been costed, due to a lack of data relating to the proportion of people with maternal PND who are concession card holders.

Total costs to the Australian Government for primary care associated with maternal PND were estimated at \$5.04 million, including \$4.90 million for GP encounters and \$0.14 million for related pathology.

Patient contributions (note that private health insurance does not contribute to primary care costs) were costed according to Medicare data on bulk billing rates for quarter 2 2012²⁹ (DOHA 2012f) and information identified in a targeted search of recent literature regarding patient co-payments in 2012.

- GP visits bulk billed in 81% of patient encounters, with an average co-payment of approximately \$26.76 among patients who were charged (Sahari 2011).
- Mental Health Treatment Plans bulk-billed in 38.6% of patient encounters, with an average co-payment of \$33.72³⁰ among patients who were charged (AMA 2012).
- Pathology bulk billed in 86% of services, however no information was identified regarding average co-payment levels.

Total costs to individuals for primary care associated with maternal PND, in 2012 were estimated at \$0.50 million, excluding out-of-pocket pathology costs.

Total estimated costs of primary care, attributable to maternal PND, were \$5.54 million.

Harrison et al. (2012) found that the proportion of GP encounters related to depression (including PND) had stayed relatively stable over the period, at approximately 4%.

²⁷ The relevant MBS item numbers are 2700, 2701, 2712, 2713, 2715 and 2717.

²⁸ It should be noted that a survey conducted by the Australian Medical Association (AMA) in March 2012 suggested that 29.3% of GPs had significantly decreased the number of Mental Health Treatment Plans they prepared since changes to the *Better Access* program were introduced on 1 November 2011. A further 33.9% indicated that the number had slightly decreased. 5.9% indicated that bulk billing had increased. As the survey did not provide information on the quantum of this effect, figures stated in this report have not been adjusted.

²⁹ Other than for Mental Health Treatment Plans, for which information was sourced from the AMA survey in quarter 1 2012 (AMA 2012).

³⁰ This was calculated from a weighted average of mid-points in ranges, table 3.2.1c.

3.1.2.2 Psychiatrist and allied health services costs

Costs relating to allied health and psychiatrist services were estimated from the referrals identified in the BEACH study (Charles et al. 2006), adjusted to reflect increased uptake since the introduction of *Better Access* in 2006. The BEACH data indicate that 15% of patients were referred, to psychiatrists (3.7%), psychologists (2.4%), counsellors (2.2%), support groups (1.2%) and clinics (1.0%).

Since the data for this study were collected, *Better Access* and ATAPS have increased access to psychologist and related services. Harrison et al. (2012) found that GPs had referred 10% of patients with depression to psychologists after 2006 (on average), compared with approximately 2% of patients prior to 2006. Over the same period, the proportion of patients referred to psychiatrists for depression, stayed relatively stable. **The higher and more recent estimate of referral rate of 10% for psychologists has been used to supplement the BEACH data to estimate costs³¹. This would increase the total proportion of patients referred to 18%.**

The number of services provided to people with maternal PND in 2012 was estimated by applying these percentages to 67,800 GP encounters (see section 3.1.2.1) and the maximum number of allied health/specialist visits available through Medicare programs and ATAPS, at the stated fees³².

Total costs of psychiatrist and allied health services to governments attributable to maternal PND in 2012 were estimated at \$4.70 million.

Patient co-payments (some of which may be reimbursed through private health insurance) were estimated from the *Evaluation of the Better Access to Psychiatrists, Psychologists and GPs through the Medicare Benefits Schedule initiative* (DOHA). The evaluation found, in 2009:

- consultant psychiatrist – 63.7% of visits attracted co-payments, at an average of \$81.74;
- clinical psychologist – 65.4% of visits attracted co-payments, at an average of \$32.15; and
- general psychologist (includes counsellors) – 57.2% of visits attracted co-payments, at an average of \$37.26.

It was assumed that group therapy and clinics did not attract any patient co-payment. These costs were split between private health insurance and individuals based on the expenditure sources shown in AIHW (2012d).

³¹ This also aligns with the previous assumption that approximately 14.0% of patients receive Mental Health Treatment Plans, as these are required before psychologist services may be accessed through the MBS.

³² Once a mental health care plan is in place, GPs may refer patients to up to six sessions of psychological counselling,

Total costs to individuals and private health insurance funds (which may reimburse individual members) of accessing psychiatrist and allied health services attributable to maternal PND were estimated at \$2.83 million, \$2.14 million to individuals and \$0.69 million to PHI.

Total costs of accessing psychiatrist and allied health services to government and individuals with maternal PND were therefore estimated at \$7.53 million.

3.1.2.3 Medication costs

Expenditure on medications (in a primary care setting³³) was also determined from the BEACH data, which identified numbers of prescriptions and the medication provided across a sample of GP visits by people with maternal PND. It was assumed that all prescriptions were filled up to the lowest effective dose. Unit medication prices reflect those on the PBS and total costs are estimated from the number of GP encounters and medications prescribed. It is assumed that prescribing patterns remain in line with those found in the 1998-2005 BEACH data (see Charles et al. 2006).

Patients contributed approximately 47% of expenditure on medications in 2009-10. Private health insurance did not contribute significantly to medication costs for patients out of hospital (AIHW2012d, latest data available). It is unlikely that PHI would be contributing to the cost of medications identified in BEACH, thus PHI costs have not been included.

Total costs for medications attributable to maternal PND in 2012 were estimated at \$3.48 million. This includes costs of approximately \$1.79 million to government and \$1.68 million to patients. .

3.1.2.4 Hospital costs

Hospital inpatient expenditure by state and territory governments on patients with maternal PND was estimated from a special request of service usage data from the AIHW (2012c), identified using the ICD-10 code and flag for perinatal depression³⁴. Both public and private hospital data were included, from the National Hospital Morbidity Dataset³⁵ (NHMD) (including medications provided to hospital inpatients). Hospital expenditure from these databases accrues to state, territory and Australian governments.

Hospital data reflects separations (i.e. the number of patients discharged from hospital) and bed days spent by those patients (Table 3.1). Of 4,301 separations, 70.8% were in private hospitals and 29.2% in public hospitals; 24,438 bed days were spent 63.4% in private hospitals and 36.6% in public hospitals³⁶. The majority of services were provided to people

³³ Medications prescribed in a hospital setting, for inpatients and outpatients, are included in the estimates of hospital costs, in section 3.1.2.4.

³⁴ As discussed in section 1.2.3, this only includes maternal PND that is diagnosed within six weeks of childbirth and thus it is likely that significant costs, attributable to PND that presents at a later stage, are excluded.

³⁵ NHMD covers the diagnoses and other characteristics of admitted patients, and the care they receive in public and private hospitals. Almost all hospitals in Australia are included: public acute and public psychiatric hospitals; private acute and psychiatric hospitals; and private free-standing day hospital facilities (AIHW 2012b).

³⁶ Length of stay was, on average, longer in public hospitals than in private hospitals. This may reflect more complex cases being seen in public hospitals, as well as differences in admitted patient care and processes.

aged 30-39, which approximately aligns to the distribution of ages of mothers in Australia (ABS 2010), although the 25-29 age group is under-represented in the hospital data.

Table 3.1: Hospital separations and bed days attributable to maternal PND, 2009-10

Age group (years)	Separations			Bed days		
	Private	Public	Total	Private	Public	Total
10-19	9	56	65	25	335	360
20-24	21	161	182	196	1,084	1,280
25-29	343	303	646	1,685	2,368	4,053
30-34	1,174	374	1,548	5,565	2,511	8,076
35-39	1,079	270	1,349	6,722	1,851	8,573
40-44	322	61	383	1,090	586	1,676
45-49	76	8	84	192	138	330
50 or older	22	22	44	22	68	90
Total	3,046	1,255	4,301	15,497	8,941	24,438
%	70.8%	29.2%		63.4%	36.6%	

Source: AIHW data request, National Hospital Morbidity Database 2009-10

Note: Includes ICD-10-AM codes F32.01, F32.11, F32.21, F32.31, F32.81, F32.91, F53.0 and F53.1

Hospital inpatient services provided to people with maternal PND are calculated from the number of days spent in hospital in 2009-10 (latest data available), at average costs (in 2012) to governments of:

- \$832 per bed day in public hospitals; and
- \$451 per bed day in private hospitals.

These average costs per bed day are based on total recurrent government expenditure divided by bed days in 2008-09 (AIHW 2012b), and inflated using the AIHW's Total Health Price Index (THPI) to reflect cost increases to 2012 (AIHW 2012c).

Total government expenditure on hospital inpatient services attributable to maternal PND was estimated at \$14.42 million in 2012, \$7.44 million in public hospitals and \$6.98 million in private hospitals.

Expenditure by individuals and private health insurance funds was estimated based on the expenditure ratios given in the AIHW's *Health Expenditure Australia 2009-10* (latest release, AIHW 2012c). This implies that, for every dollar spent by government agencies³⁷:

- \$0.02 was spent in public hospitals and \$2.89 in private hospitals by private health insurance funds; and
- \$0.03 was spent in public hospitals and \$0.78 in private hospitals by individuals.

³⁷ Note that private health insurance premium rebates are excluded from the calculation of total government expenditure, as are private health insurance premiums paid by individuals.

Total non-government expenditure on hospital inpatient services attributable to maternal PND in 2012 was estimated at total of \$26.00 million, \$20.33 million to private health insurance funds and \$5.67 million to individuals. Of this expenditure, \$25.63 million was in private hospitals and \$0.37 million in public hospitals.

Total expenditure on hospital inpatient services by governments, private health insurance funds and individuals attributable to maternal PND in 2012 is estimated at \$40.42 million, \$7.81 million in public hospitals and \$32.61 million in private hospitals. It should be noted that this only includes maternal PND that is diagnosed within six weeks of childbirth and thus is likely to understate true costs.

3.1.2.5 Community service costs

Community mental health care expenditure³⁸ was estimated from a special request of data from the National Community Mental Health Care Database (NCMHCD), using similar methods to those used to estimate hospital inpatient expenditure, discussed in section 3.1.2.4. This includes only government-operated, community mental health care services (AIHW 2012b)³⁹. Any services that operate privately (for example from grant-based funding) are not captured in this data.

Table 3.2 indicates that, in 2008-09, almost 15,000 contacts with community mental health services were attributable to maternal PND, the majority of these with women aged 15-39.

Table 3.2: Community mental health contacts attributable to maternal PND, 2009-10

Age group (years)	Number of contacts
10-14	78
15-19	1,672
20-24	2,188
25-29	3,003
30-34	3,395
35-39	2,377
40-44	813
45-49	262
50 or older	1,082
Total	14,870

Source: AIHW 2012 (special data request).

Contacts were costed at an average of \$245 per contact (cost to government), based on total government recurrent expenditure per contact, from AIHW (2012c), inflated to 2012 costs using the THPI (AIHW 2012c).

³⁸ Community mental health services included in this Section are separate from those funded via the MBS and PBS (discussed in sections 3.1.2.2 and 3.1.2.3).

³⁹ Data are reported by specialised psychiatric services that deliver ambulatory services, in both institutional and community settings and/or community-based residential care. Excluded are services provided to patients who are in general (non-specialised) care who may be receiving treatment or rehabilitation for psychiatric conditions.

Private costs for community services apply only to individuals, according to AIHW (2012d). For every \$1 spent by governments, individuals spent approximately \$0.02 in 2009-10.

Total costs to government for community mental health services in 2012 attributable to maternal PND were estimated at \$3.64 million. Costs to individuals were estimated at \$0.07 million.

Total costs to government and individuals for community mental health services in 2012 were therefore estimated at \$3.72 million.

3.1.2.6 Data limitations

This methodology faces several limitations due to data availability.

- No costs are provided for maternal AND. This includes cost to treat the symptoms of depression as well as potential complications. These include increased risk of pre-eclampsia, preterm delivery, placental abruption as well as adverse obstetric outcomes (Chung et al. 2001).
- The potential costs associated with treating longer term impacts on the child as a result of AND and PND were excluded (see section 1.2.5).
- Primary care expenditure data was limited to maternal PND where a GP had clearly stated this diagnosis on the report (rather than a general diagnosis of depression, for example).
- People who have, but are not diagnosed with, PND will not be counted in the above calculations. However, the literature indicates that they may be higher users of health services than the general population (see Hawthorne et al. 2003).
- It is not possible to know whether people who are referred to allied health professionals or given prescriptions for medications actually go on to use these and incur a cost to government. Thus, the assumption that cost is equivalent to the maximum available under government programs may overstate the actual cost to government. However, this impact is not likely to exceed that of the underestimate that results from excluding patients who use services to treat perinatal depression, but do not fall under the clinical coding system for maternal PND.
- Hospital and community mental health care expenditure data is limited to patients who are diagnosed under the ICD-10-AM codes and flags for maternal PND, which, as discussed in section 1.2.3, covers only maternal PND that is diagnosed within six weeks of childbirth.
- Hospital outpatients services provided to women with PND may not be fully captured in the community mental health expenditure estimates.
- Community mental health expenditure in services that are privately operated are not captured in the datasets obtained and, consequently, the cost estimates.

It is likely that these data limitations have led to cost estimates that understate the true costs to governments, private health insurance funds and individuals of treating maternal PND in Australia. This impact is exacerbated by the exclusion of maternal AND from calculations.

3.1.3 Direct cost estimates, paternal perinatal depression

Cost estimates for paternal perinatal depression exclude AND and include only PND, for consistency with the maternal perinatal depression estimates presented in section 3.1.2. As discussed in section 1.2.3, clinical coding systems do not identify paternal PND as a separate classification; any treatment that is sought for paternal PND would likely be classified under the general depression categories.

No studies were identified that reported the direct costs specifically of paternal PND in Australia. Cost estimates in this section are therefore derived from a recent Australian costing study related to general depression (Hawthorne et al. 2003). This study was based on a sample of 3,010 people (men and women) in South Australia, who were assessed using the Primary Care Evaluation of Mental Disorders (PRIME-MD) mood module for symptoms of depression. Health costs were determined from interviewees' service usage over the previous four weeks, supplemented by AIHW data.

Depression and associated service usage and costs were classified under two categories: major and other depression. Cost estimates in this section are based on the costs estimated by Hawthorne et al. for major depression, which aligns with the definition of paternal perinatal depression given in section 1.2.1.

The costs estimated by Hawthorne et al. reflect additional costs that are incurred by people with depression – i.e. over and above that which is incurred by the general population and are therefore attributable to the depressive disorder; and these are the costs that are focused on in this section. All costs have been inflated to reflect 2012 costs by the THPI (as for maternal PND, see section 3.1.2, AIHW 2012c).

3.1.3.1 Primary care costs

Primary care costs to government, inflated to 2012 costs, were estimated to be \$151 per case. AIHW (2012d) indicated that for every \$1 spent by governments on medical services, including primary care, \$0.22 was spent by private sources⁴⁰ in 2009-10 (latest data available).

For 10,104 people with paternal PND in 2012 (see section 2.4), this would imply total costs for primary care of \$1.53 million to government. Private costs were estimated at \$0.34 million.

Total costs (governments and private) for primary care attributable to paternal PND in 2012 were estimated at \$1.87 million.

3.1.3.2 Psychiatrist and allied health services costs

Psychiatrist and allied health services costs to government, inflated to 2012 costs, were estimated to be \$279 per case for specialists and \$101 per case for allied health professionals. Private costs are calculated from AIHW (2012d):

⁴⁰ Private health insurance does not cover GP visits, however the average contribution of private sources is used because no separate breakdown is given for GPs and other medical services. The impact is shared across primary care and specialist services (section and is therefore appropriate, on average).

- for specialists, data for medical services were used, as for primary care costs (see section 3.1.3.1); and
- for allied health services, individuals spent \$1.43 for every \$1 spent by governments in 2009-10 and private health insurance funds spent \$0.44.

Total costs to government for psychiatrist and allied health services attributable to paternal PND were estimated at \$3.68 million in 2012. Private costs were estimated at \$2.52 million, \$0.90 million to private health insurance funds and \$1.63 million to individuals.

Total costs (governments and private) were estimated at \$6.38 million.

3.1.3.3 Medication costs

Medication costs to government associated with an average case of paternal PND were estimated at \$375 in 2012. This is based on Hawthorne et al.'s "annual excess cost per case of depression". Additional private costs are estimated from AIHW (2012d), which indicated that, 2009-10, for every \$1 spent by governments on medications, \$0.01 was spent by private health insurance funds and \$0.92 by individuals.

Total costs to government for medications attributable to paternal PND were estimated at \$3.79 million in 2012. Private costs were estimated at \$3.52 million, \$0.04 million to private health insurance funds and \$3.48 million to individuals.

Total costs (governments and private) were estimated at \$7.31 million.

3.1.3.4 Hospital costs

Hospital costs to government reported by Hawthorn et al. and inflated to 2012 costs were \$2,772 per case for hospital inpatients and \$175 per case for outpatient services. Only outpatient services were found to be significantly higher for people with depression than the general community; hence inpatient services have been excluded from cost estimates.

Applying the expenditure source information from AIHW (2012d) implies that private health insurance funds spent \$48 per case for hospital outpatients in 2012 and that individuals spent \$16 per case⁴¹.

Total costs to government for hospital services attributable to paternal PND were estimated at \$1.77 million in 2012, relating to outpatient services only. Private costs were estimated at \$0.65 million, \$0.48 million to private health insurance funds and \$0.16 million to individuals.

Total costs (governments and private) were estimated at \$2.42 million.

⁴¹ These reflect an average of expenditure in public and private hospitals, weighted by the relative numbers of bed days indicated for maternal PND (see section 3.1.2.4).

3.1.3.5 Community services costs

Community mental health service costs were not separately identified by Hawthorne et al. (2003), and have been included under other cost categories.

3.1.3.6 Data limitations

The cost estimates for paternal perinatal depression presented in this section are subject to a significant degree of uncertainty and should be treated as indicative only. Some limitations in the data are described below.

- As for maternal perinatal depression, the costs of paternal AND were excluded.
- Use of a study from 2003 to estimate costs in 2012 does not reflect changes in services available under the MBS, including Mental Health Treatment Plans and increased access to psychiatrist and allied health services, through the *Better Outcomes* and *Better Access* programs (see section 3.1.1. Also, public health campaigns may have increased treatment seeking behaviour among people with paternal PND. It was not possible to adjust costs (for example in line with the findings of Harrison et al. (2012), discussed in section 3.1.2) because Hawthorne et al.'s costings were presented per case per year, and did not separately identify numbers of services.
- Hawthorne et al. (2003) did not report costs by gender, thus costs for paternal PND represent an average of the sample of both male and females. Also, more females in the sample were classified as having major depression than males (8% vs. 5%). The literature suggests that health care use may be higher for females than for males (Parslow and Jorm 2000).
- The study was conducted in South Australia, and it is not known if health service utilisation would be similar across states and territories. This is mitigated to some extent because costs were predominately based on the MBS and PBS, which set standardised fees across Australia.
- Hospital inpatient costs were excluded because Hawthorne et al. (2003) did not find any significant difference in service usage between the depressed and non-depressed people in the sample, however other studies have indicated that hospital service usage may be a consequence of depression, particularly where depression is more severe (see Edeka et al. 2011).
- Costs were estimated based on the prevalence rates in section 2.4, which involved a significant degree of uncertainty, as discussed.

3.1.4 Summary of total direct costs, maternal and paternal perinatal depression

A summary of total direct costs estimated for maternal and paternal perinatal depression are presented in Table 3.3. These costs are associated with PND only, as no data was available to assess the costs of AND.

Table 3.3: Summary of direct costs of perinatal depression* in Australia (\$ million)

Cost category	Maternal PND				Paternal PND**				Total PND			
	Govt	PHI	Ind	Tot	Govt	PHI	Ind	Tot	Govt	PHI	Ind	Tot
Primary care	5.04	n/a	0.50	5.54	1.53	0.25	0.10	1.87	6.57	0.25	0.60	7.41
Psychiatrist & allied health services	4.70	0.69	2.14	7.53	3.84	0.90	1.63	6.38	8.54	1.59	3.77	13.91
Medications	1.79	1.79	1.68	3.48	3.79	0.04	3.48	7.31	5.58	1.83	5.17	10.78
Hospitals	14.42	20.33	5.67	40.42	1.77	0.48	0.16	2.42	16.20	20.82	5.83	42.84
Community services	3.64	n/a	0.07	3.72	n/a	n/a	n/a	n/a	3.64	n/a	0.07	3.72
Total	29.60	21.02	10.07	60.68	10.93	1.67	5.37	17.97	40.52	22.69	15.44	78.66

Source: Deloitte Access Economics calculations.

Notes:

*No costs were estimated for AND, due to data limitations

**Cost estimates for paternal PND are indicative only, due to data limitations.

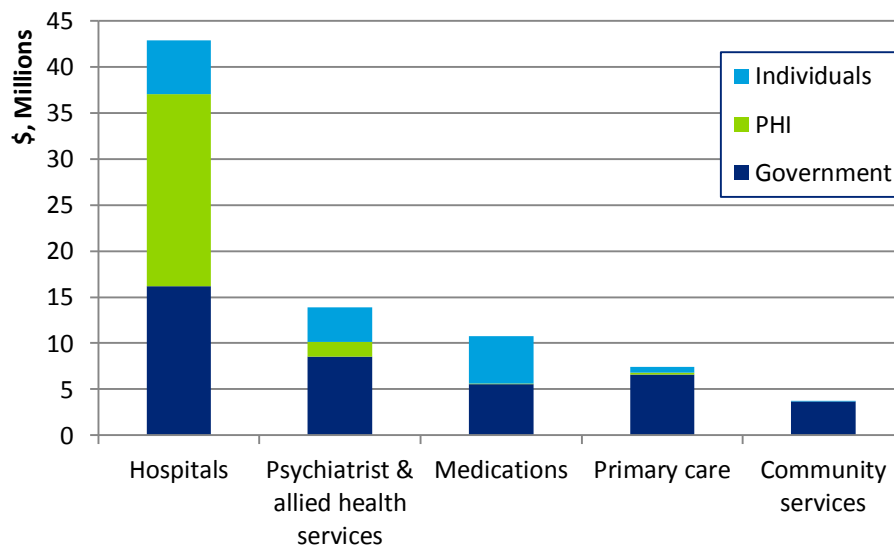
PND=Postnatal Depression; Govt=governments; PHI=private health insurance; Ind=Individuals; Tot=Total.

All cost estimates are subject to the caveats outlined in sections 3.1.2.6, 3.1.3.6 and 3.2.3.

Total costs to government that are attributable to maternal and paternal PND were estimated at \$40.52 million in 2012. Private costs were estimated at \$38.13 million, including \$22.69 million to private health insurance funds and \$15.44 million to individuals.

Total costs (governments and private) were estimated at \$78.66 million.

The highest cost category across all payers and in total was hospital services, which were estimated to cost \$42.84 million in 2012. This was followed by psychiatrist and allied health services (\$13.91 million), medications (\$10.78 million), primary care (\$7.41 million) and community mental health services (\$3.72 million). Total estimated costs, by payer, are shown in Chart 3.1.

Chart 3.1: Estimated cost of perinatal depression in Australia, 2012, by payer

Source: as identified in text; Deloitte Access Economics calculations.

3.2 Indirect costs

3.2.1 Costs related to lost productivity

Lost productivity as a result of perinatal depression may arise from two sources:

1. increased risk of mortality - although there are reported associations between depression and suicide, published data identifying the link between perinatal depression and mortality is mixed (see further discussion in section 4.2); and
2. absence from ("absenteeism") and presenting to work while suffering symptoms of depression ("presenteeism").

The discussion in this section focuses on the second of these, absenteeism and presenteeism related to perinatal depression. Symptoms such as fatigue, impaired attention, decreased concentration and poor memory can affect employee performance. Treatment of disorders has been shown to improve worker productivity (Hilton et al. 2010).

The costs of productivity losses are based on people with maternal and paternal perinatal depression who would be expected to be in the workforce in the absence of the disorder. Costs are estimated using the human capital approach, from the perspective of the Australian economy overall. This assumes that an employee cannot easily be replaced from the pool of the unemployed population. Thus, absence from work results in a loss of productivity for the full period of that absence, and is valued at average weekly earnings in Australia (ABS 2012a).

The methodology used to estimate the costs of productivity losses due to perinatal depression involved:

- assessing the literature to determine the average value of lost earnings (cost to the individual) and paid leave (cost to the employer), due to maternal and paternal perinatal depression;
- assessing the number of pregnant women / new mothers and their partners in Australia who were, or would be expected to be, in the workforce in 2012, in the absence of the disorder;
- making an adjustment for pregnant women / new mothers and their partners who were working part-time; and
- calculating the total impact of perinatal depression on lost earnings and paid leave.

These steps are discussed below, followed by the estimate of the costs of lost productivity.

3.2.1.1 Average value of productivity losses associated with perinatal depression

No studies estimating the productivity costs of perinatal depression were identified in the targeted literature search. Productivity losses associated with depression (more generally) were therefore used to estimate those associated with perinatal depression. This is in line with the studies that indicate similar symptomatology (see Lee and Chung, 2007; Najman et al. 2000; Robertson et al. 2003).

Productivity losses attributable to perinatal depression were estimated from a large Australian study conducted in 2009 (Hilton et al. 2010), based on the results of a survey of more than 60,000 full-time employees from 58 large companies.

Estimates related to absenteeism (time away from work) and presenteeism (reduced productivity while at work). Symptoms of psychological distress and the presence of depressive disorder were screened using the Kessler-6 (K-6) scale. Lost productivity was considered both as a direct result of psychological distress and due to treatment-seeking behaviour (e.g. when a person visits a psychologist during work hours).

Hilton et al.'s cost estimates were adjusted to 2012 figures, based on increases in average annual earnings (ABS 2012a). This gives an estimated total cost of lost productivity due to all forms of depression in Australia of \$6.7 billion in 2012. These costs were divided by Hilton et al.'s reported numbers of people with moderate and high psychological distress and treatment seeking behaviours, to give an average cost per individual of \$11,856 per male employee and \$5,690 per female employee over the course of one year.

3.2.1.2 People with perinatal depression in the workforce

Pregnant women / new mothers and their partners may not be employed over the perinatal period (during pregnancy and for 12 months following childbirth), regardless of whether they have perinatal depression; thus total productivity losses need to account for those that would not be in the workforce. This is particularly relevant for the mother, who would typically be provided with a substantial period of maternity leave immediately prior and following childbirth (up to 18 weeks paid leave is provided by the Australian Government, Maternity Leave Australia 2012).

A survey conducted by the ABS in 2005 found that approximately 63% of women had worked during their pregnancy; when surveyed again during the 24 months following

childbirth, the proportion fell to 38.8%. Women typically preferred to return to part-time work. The partners of these new mothers were also surveyed in relation to work hours during following the birth of the child. 93% were working after the birth⁴², assuming the same distribution 95% were working during the pregnancy, with the majority remaining in full-time work.

Assumptions regarding the population of pregnant women / new mothers and their partners in the workforce were based on the results of this survey, as outlined in Table 3.4.

Table 3.4: Hours of work per week, pregnant women / new mothers and partners

Usual employment	Women		Men	
	Antenatal	Postnatal	Antenatal	Postnatal
Not working	37.0%	61.2%	5.2%	8.4%
Working	63.0%	38.8%	94.8%	91.6%
Full time (>37.5 hours)	30.8%	6.9%	88.9%	85.9%
Part time	32.1%	31.7%	5.9%	5.7%
25-34 hours	8.1%	4.5%	n/a	n/a
16-24 hours	12.0%	10.1%	n/a	n/a
<15 hours	12.0%	17.3%	n/a	n/a

Source: ABS 2005.

Time of return to work was also accounted for. Based on the ABS survey, 41.4% of mothers returned to work within three months of childbirth, 23.8% after 3-6 months, 27.1% after 7-12 months and 7.7% after 12 months.

3.2.1.3 Estimated cost of lost productivity associated with perinatal depression

These estimates were applied to the 2012 prevalence estimates (see section 1.3), i.e.: 25,751 people with maternal AND; 45,426 with maternal PND; 14,875 people with paternal AND and 10,104 people with paternal PND.

The total costs of lost productivity due to perinatal depression in 2012 were estimated to be \$310.34 million.

This includes: \$86.59 million attributable to maternal perinatal depression (\$53.22 million AND and \$33.37 million PND); and \$223.75 million attributable to paternal perinatal depression (\$117.41 million AND and \$106.34 million PND).

The major factor influencing the substantially higher costs attributable to paternal perinatal depression is the higher average earnings for men relative to women in Australia, in addition to higher rates of workforce participation among new fathers than new mothers. Similarly, the reason that maternal AND is associated with greater productivity losses than maternal PND relates to the greater workforce participation of pregnant women, relative to new mothers.

⁴² Excluding couples where the partner was not the same partner during pregnancy.

3.2.2 Informal care costs

Informal carers provide care to others in need of assistance or support on an unpaid basis. Generally, informal care is provided by family or friends of the person receiving care. While informal care is provided free of charge, it is not free in an economic sense, as time spent caring is time that cannot be directed to other activities such as paid work, unpaid work or leisure. Informal care for perinatal depression is two-fold, for example maternal PND can adversely affect a women's ability to care for her infant in addition to her having increased care needs herself (Logsdon et al. 2004).

Logsdon et al. (2004) describes the caretaker role of caring for an infant as labour intensive and involves meeting the infant's basic physiological and safety needs. Tasks include feeding, changing nappies, soothing the babies crying, doing household jobs and ensuring adequate sleep. Beck et al. (1996) identify that numerous studies identify that the intensive nature of caretaking can be very stressful for the mother.

The extended family of a person suffering from perinatal depression can be impacted by severe depression during pregnancy or after the birth (Buist et al. 2011). For example, grandparents may be required to take on the role of carer for the infant and/or other children. Clarke (2008) and Mihalopoulos et al. (2011) note that depression is associated with a considerable financial burden on carers. Thus, maternal PND creates informal care costs to meet both the infant's and the mother's needs.

In 2009, the ABS published the Survey of Disability, Ageing and Carers (SDAC) data. This is a national survey which estimates the number of carers and provides information about people who care for older people and people with a disability. The information collected includes the condition of the person requiring care, including mental illness. However, the SDAC does not report the number of carers specifically for people with depression. The broad category of 'mental illness' contains conditions such as Alzheimer's disease, and thus is considered too broad to apply to AND and PND.

Informal carers provide care to others in need of assistance or support on an unpaid basis. Generally, informal care is provided by family or friends of the person receiving care. While the carer may not charge for the service they provide, they may have to forgo paid employment in order to fulfil their role as carer. Indeed, the value of lost leisure time would also represent a cost to the carer. However, the targeted literature search did not identify a reliable source of Australian or international data regarding carers for people with perinatal depression. As a result, the informal care costs of AND and PND for women and men were excluded from this study.

3.2.3 Data limitations

Estimated indirect costs were subject to the following data limitations:

- Productivity losses are estimated based on averages across the population and across people with depression (in terms of average earnings and the impact of depression on absenteeism and presenteeism). This may not be reflective of people with perinatal depression. It is not possible to assess whether this would lead to an understatement or overstatement of actual productivity losses.
- To estimate the difference in productivity for pregnant women / new mothers vs. people with perinatal depression, comparisons were made with the general population

(using the ABS survey, ABS 2005). The general population would include people with perinatal depression, which would reduce the average productivity of the general population. This would likely result in an underestimate of actual productivity losses.

- Informal care costs have been excluded and may result in a substantial understatement of total indirect costs.

3.3 Costs to the wider economy

This section considers the additional economic costs associated with government expenditure on health and related services that are provided to people with perinatal depression.

The government raises taxes in order to fund expenditure on health services⁴³. While the direct transfer of funds from tax payers to the government is not considered an economic cost in itself, the transfer is. For example, income taxes increase the price of working, relative to leisure activities, and create a disincentive to work. This disincentive creates deadweight loss, or, an excess burden of tax⁴⁴.

The Productivity Commission (2003) has estimated a marginal cost of 28.75 cents per dollar of additional tax revenue that is raised (27.5 cents attributable to lost efficiency and 1.25 cents attributable to administration by the Australian Taxation Office).

This marginal cost was applied to the two costs with impacts on government finances – i.e.:

- the direct health service costs of perinatal depression in 2012 (section 3.1); and
- the lost income tax revenue as a result of productivity losses due to perinatal depression in 2012 (section 3.2.1).

Total direct health service costs were estimated to be \$78.66 million.

Lost income taxation revenue is calculated by estimating the average annual income tax paid per capita in Australia, and applying this to the estimated cost of lost productivity⁴⁵. Average income tax per capita is calculated as a proportion of the average annualised wage (\$73,055) to be 24.6%. Thus with a productivity loss of \$310.3 million, the government is losing \$76.2 million in lost taxation revenue per annum due to perinatal depression⁴⁶.

⁴³ This implicitly assumes funds have not been directed from some other area of the health care system.

⁴⁴ The costs associated with deadweight loss will depend on the method used to raise additional taxation revenue. Studies that have evaluated the marginal welfare cost of raising additional tax revenue – the marginal cost of public funds (MCPF) – mostly relate to the United States (Browning 1976; Browning et al. 1987; Ballard et al. 1985; Stuart 1984). Estimates have ranged from zero marginal cost to well over 100%. This wide range has been due to the alternative models used (partial versus general equilibrium), alternative parameter estimates, and assumptions on the adjustment of employment relative to changes in tax rates (labour supply elasticity).

⁴⁵ To estimate the average annual income tax per capita, the total income tax raised by the Australian government (\$204.9 billion in 2010-11 [ABS 2012b]) was divided by the estimated labour force (ABS 2011). This equates to an average of \$17,512 per capita being paid in income tax in the 2010-11 financial year.

⁴⁶ Income tax has been assumed to remain constant between 2010-11 and 2011-12 as there is not clear trend in income tax. Income tax between 2009-10 and 2010-11 increased by 6%, however it decreased by 2% between 2008-09 and 2009-10.

Table 3.5: Estimated costs to the wider economy of perinatal depression in 2012, \$ million

Cost category	Maternal AND	Maternal PND	Paternal AND	Paternal PND	Total
Direct costs – health services	n/a	60.68	n/a	17.97	77.69
Lost taxation revenue – productivity losses	13.07	8.20	28.84	26.12	76.24
Total government costs	13.07	68.88	28.84	41.10	153.93
Costs to the wider economy (deadweight losses), 28.75% of total government costs	3.76	19.80	8.29	12.68	44.53

Source: PC 2003; Deloitte Access Economics calculations.

Costs to the wider economy were calculated at 28.75% of the costs to government, resulting from direct expenditure on health services for people with perinatal depression (see section 3.1) and lost taxation revenue due to lost earnings (productivity losses). This results in costs of \$44.53 million.

3.4 Total indirect costs and costs to the wider economy

Indirect costs were estimated in relation to lost productivity among people with perinatal depression and costs to the wider economy associated with lost government taxation revenues and expenditure on health services. There would also be costs for informal care, as people opt out of employment or other activities in order to take care of a person with perinatal depression (unpaid), however it was not possible to estimate these costs, due to lack of data.

Total indirect costs and costs to the wider economy were estimated at \$354.87 million, predominantly attributable to productivity losses (\$310.34 million).

Table 3.6: Estimated indirect costs of perinatal depression in 2012, \$ million

Cost category	Maternal AND	Maternal PND	Paternal AND	Paternal PND	Total
Productivity loss	53.22	33.37	117.41	106.34	310.34
Informal care	n/a	n/a	n/a	n/a	n/a
Costs to the wider economy (deadweight losses), 28.75% of total government costs	3.76	19.80	8.29	12.68	44.53
Total Indirect Costs	56.98	53.17	125.70	119.02	354.87

Source: PC 2003; Deloitte Access Economics calculations.

3.5 Total financial costs

Total financial costs were estimated at \$433.52 million. Costs are summarised in Table 3.7.

Table 3.7: Estimated financial costs of perinatal depression in 2012, \$ million

Cost	Maternal AND	Maternal PND	Paternal AND	Paternal PND	Total
Primary care	n/a	5.54	n/a	1.87	7.41
Psychiatrist & allied health services	n/a	7.53	n/a	6.38	13.91
Pharmaceuticals	n/a	3.48	n/a	7.31	10.78
Hospital costs	n/a	40.42	n/a	2.42	42.84
Community care costs	n/a	3.72	n/a	0.00	3.72
Total direct costs	n/a	60.68	n/a	17.97	78.66
Productivity loss	53.22	33.37	117.41	106.34	310.34
Deadweight losses	3.76	19.80	8.29	12.68	44.53
Total financial costs	56.98	113.86	125.70	136.99	433.52

Source: Deloitte Access Economics calculations.

4 Burden of disease from perinatal depression

People who experience perinatal depression may experience a considerable loss in quality of life. This section estimates the value of this lost quality of life among Australians with perinatal depression in 2012.

4.1 Methodology

The methodology is based on that used to estimate burden of disease. This was developed by a consortium commissioned by the World Health Organisation (WHO), as a comprehensive measure of mortality and disability from diseases, injuries and risk factors for populations around the world (Murray and Lopez 1996). It uses a non-financial approach, where pain, suffering and premature mortality are measured in terms of **Disability Adjusted Life Years (DALYs)**.

DALYs are a measurement unit that quantify the impacts of morbidity and premature mortality associated with various diseases and injuries (Murray and Acharya 1997). The total burden of disease associated with a condition is calculated from estimates of years lost due to disability (YLD) and years of life lost due to premature mortality (YLL):

The DALY framework allows comparisons of the overall mortality and disability burden associated with different diseases in a given population.

- YLL represents the difference in life expectancy for a person with a particular condition compared to the general population.
- YLD is estimated by multiplying the average duration of the condition (to remission or death) by a measure of severity of the disease, a disability weight. Disability weights are measured on a scale of zero to one, where a zero represents a year of perfect health and a one represents death. A disability weight of, for example, 0.395 for people who survive a heart attack, is interpreted as a 39.5% loss in the quality of life relative to perfect health following the heart attack (Mathers et al. 2000).

YLL and YLD relating to perinatal depression are discussed in 4.2 and 4.3.

4.2 Years of life lost due to premature mortality associated with perinatal depression

Suicide was considered an indirect cause of death in the postnatal period until 2009, when the WHO successfully advocated for it to be included as a direct cause⁴⁷, related to the pregnancy, in people with perinatal depression (Gentile et al. 2011). Gentile et al., conducting a review of the literature related to suicide in the postnatal period, suggested that, while suicidal thoughts have been found to be relatively common for women with maternal AND⁴⁸, the frequency of actual suicide attempts and the rate of death by suicide during pregnancy and in the postnatal period are low⁴⁹.

An Australian study (Buist et al. 2006) found that maternal suicide is rare, and that the presence of the infant may help prevent suicide in some women with depression. However, Kildea and Sullivan (2007) and Buist et al. (2007) have suggested that maternal mortality associated with psychiatric illness in the perinatal period may be under-reported, due to limitations in the methods of detection and the scope of the data collected.

There is a lack of conclusive evidence that would indicate mortality rates associated with perinatal depression, due to suicide or other causes. Therefore, premature mortality was excluded from the calculation of DALYs lost due to perinatal depression. That is, the YLL associated with perinatal depression was assumed to be zero⁵⁰.

4.3 Years of life lost due to disability associated with perinatal depression

Estimating YLD involves x steps, to:

- determine appropriate disability weights that represent lost quality of life due to perinatal depression;
- determine duration of the disorder, during which disability is experienced; and
- multiply disability weights by duration and the number of people with perinatal depression in Australia in 2012.

These steps are addressed in the following.

⁴⁷ An indirect maternal death includes conditions which are not directly related to an obstetric cause but were worsened by the pregnant status. Examples include cardiac disease and mental disorders. A direct cause is a result of a complication during pregnancy or the postnatal period.

⁴⁸ Citing: Frautschiet al. 1994; Freitas and Botega 2002; Gausia 2009; Hallbreich 2008; Kumar and Robson 1984; Newport et al. 2007; Sundstrom et al. 2001),

⁴⁹ Citing: Barno 1967; Bødker et al. 2009; Christiansen and Collins 2006; Dannenberg et al. 1995; Department of Health 1998; Gandhi et al. 2006; Gissler et al. 2005; Marzuk et al. 1997; Parson and Harper, 1999; Rochat et al. 1988; Turner et al. 2002.

⁵⁰ This is not expected to lead to a significant under-estimation of DALYs because the link between perinatal depression and mortality is considered minimal. Suicide is more often associated with perinatal psychosis, which has been excluded from this study (NHMRC 1999).

4.3.1 Disability weights

The burden of disease literature identifies disability weights for a range of conditions, including depression, but not specifically perinatal depression (see Andrews et al. 2000; Kruijsaar et al. 2005; Mathers et al. 2000; Melse et al. 2000; Murray and Lopez 1996; Sanderson and Andrews 2001). For the purposes of estimating YLD, it was assumed that the disability weights applicable to perinatal depression were equivalent to those for depression (see discussion in section 3.2.1 regarding similar symptomatology of these conditions). These weights were applied across maternal and paternal AND and PND.

Table 4.1 provides a comparison of disability weights for depression calculated in burden of disease studies.

Table 4.1: Published international disability weights for depression

Study	Description	Method of deriving DW	Severity Classes	Distribution across classes	Overall DW
Stouthard, 2000	Dutch Public Health Status and Forecast study	Person trade-off	Mild; Moderate; Severe; Severe with psychotic features	Expert estimation	See Table 4.2
Murray and Lopez, 1996	1990 global burden of disease in established market economies-Netherlands	Person trade-off	Treated versus untreated	Expert estimation	0.469
Mathers et al. 2000	Australian national burden of disease study	Dutch disability weights study; person trade-off and interpolation	Mild; Moderate; Severe;	Short form-12 health survey cut-off scores in Australian survey*	0.41 (Males) 0.37 (females)
Melse et al. 2000	Dutch national burden of disease calculation	Dutch DW study: person trade-off and interpolation on a person trade-off calibrated disability scale	Mild; Moderate; Severe; Severe with psychotic features	Expert estimation	0.266
Andrews et al. 2000; Sanderson and Andrews, 2001	Australian study	Person trade off	Mild episode; Moderate episode; Severe episode	Short form-12 health survey cut-off scores in Australian survey*	0.417
Kruijshaar et al. 2005	Dutch study	Expert valuations. Interpolation on a person trade-off	Mild Moderate to severe Severe with psychotic features	Dutch survey data**	0.459

Source: Kruijshaar et al. 2005.

* Data collected during the Australian National Mental Health and Wellbeing Survey (Andrews et al. 2001).

** Data were derived from the Netherlands Mental Health Study and Incidence Survey (Kruijshaar et al. 2003).

Two Dutch studies Kruijshaar et al. derived disability weights tailored to prevalence data, utilising a Dutch community survey of depression and expert valuations for the disability weights for depression. The authors conclude that their disability weight calculations are

similar to others except for the 1994 Dutch Burden of Disease study, which was based on expert panel valuations. Table 4.2 compares the disability weights derived.

Table 4.2: Disability weights for depression from two Dutch studies

Major Depression	Kruijshaar et al. 2005		Dutch disability* weight study	
	DW	95% CI	DW	95% CI
Mild	0.19	0.16-0.22	0.14	0.09-0.19
Moderate to severe	0.51	0.46-0.55	-	-
Moderate	-	-	0.35	0.27-0.42
Severe	-	-	0.76	0.56-0.97
Severe with psychotic features	0.84	0.80-0.88	0.83	0.75-0.92

Source: Kruijshaar et al. 2005.

*Reported in Stouthard et al. 2000.

The Australian studies included in Table 4.1 use actual or derived weights from the WHO's Global Burden of Disease study (Murray and Lopez 1996) and Netherlands disability weights study (Stouthard et al. 1997), although they use different methods to obtain proportional distributions between the severity classes.

Australian burden of disease studies have derived disability weights that take into account Australian population data on severity distributions for depression (Begg et al. 2007; Mathers et al. 2000). The 1999 burden of disease study reported individual disability weights for diseases grouped under mental disorders, using a range of sources including Australian expert opinion (Mathers et al. 2000). However for major depression and anxiety the study used the unaltered Dutch disability weights (Table 4.2).

The 2007 burden of disease study instead grouped all anxiety disorders (panic, agoraphobia, social phobia, generalised anxiety disorder, obsessive-compulsive disorder, post-traumatic stress disorder and separation anxiety disorder) and unipolar depressive disorders (major depression and dysthymia) into a single disease category (Begg et al. 2007). Since the current study is estimating the burden of perinatal depression only, the disability weights reported in the Australian studies are not applicable.

The disability weights for perinatal depression used in this study are based on the weights derived by Kruijshaar et al. (2005), i.e. 0.51, for moderate to severe depression. This reflects the AIHW preference to use Dutch disability weights for depression in Australia (Begg et al. 2007; Mathers et al. 2000). The choice of moderate to severe aligns with the definitions used to estimate prevalence in section 1.3.

4.3.2 Duration of perinatal depression

Little conclusive evidence is available regarding the duration of maternal and paternal AND and PND. Kruijshaar et al. (2005) defined the duration of depression at one year. Findings from a targeted literature search are discussed below, along with stated assumptions regarding duration. Where duration was uncertain, assumptions were conservatively applied. It is important to note also that treatment of the disorder has been shown to reduce duration.

- Maternal AND – Rochat et al. (2011) found that little is known about the onset, course and duration of AND. A systematic review conducted by Bennett et al. (2004) found that it was not possible to assess the duration of AND, although incidence peaks in the second and third trimester. **Based on these results, duration of maternal AND is assumed to be 20 weeks (the time from the mid-point of second and third trimesters to childbirth).**
- Maternal PND – duration varies, with longitudinal studies indicating that the disorder may last between months and up to four years (Campbell and Cohn, 1997; Goodman 2004; Horowitz and Goodman, 2004; McLennan et al. 2001). A literature review by WHO (2008) vaguely identified PND as lasting between ‘weeks and months’. Estimates of duration are not consistent (Gavin et al. 2005). Australian studies suggest that most people typically remit within two to six months; however untreated cases may persist throughout the first year (Cooper et al. 1988; O’Hara 1997). **Duration of maternal PND is assumed to be six months.**
- Paternal AND – Schumacher et al. (2008) note that for many males, anxiety peaks in the third trimester; Morse et al. (2000) found paternal AND may continue into the early postnatal period. **Duration of paternal AND is therefore assumed to be 15 weeks (the time between third trimester and early postnatal period).**
- Paternal PND - Ballard et al. (1994) found that at six weeks postpartum, 5.4 % of fathers have depressive symptom, which are still present at 6 months. This was supported by a Canadian study by Zelkowitz and Milet (2001). **Based on these findings, duration of paternal PND is assumed to be 20 weeks.**

4.3.3 YLD due to perinatal depression

YLD was calculated by multiplying the prevalence numbers for maternal PND, maternal AND, and paternal PND (estimated in section 1.3) by the disability weight for moderate to severe depression (0.51) and the duration of the disorder. Table 4.3 summarises the YLD estimates.

4.4 Estimated burden of disease

Table 4.3: DALYs due to perinatal depression in Australia in 2012

Disease	Prevalence	Disability weight	Duration	YLD	YLL	DALY
Maternal AND	25,751*	0.51	0.38	4,991	0	4,991
Maternal PND	45,426*	0.51	0.50	11,584	0	11,584
Maternal perinatal depression				16,574	0	16,574
Paternal AND	14,875**	0.51	0.29	2,200	0	2,200
Paternal PND	10,104**	0.51	0.38	1,958	0	1,958
Paternal perinatal depression				4,158	0	4,158
All perinatal depression				20,732	0	20,732

Source: Deloitte Access Economics calculations.

*See Table 2.5

**See Table 2.8

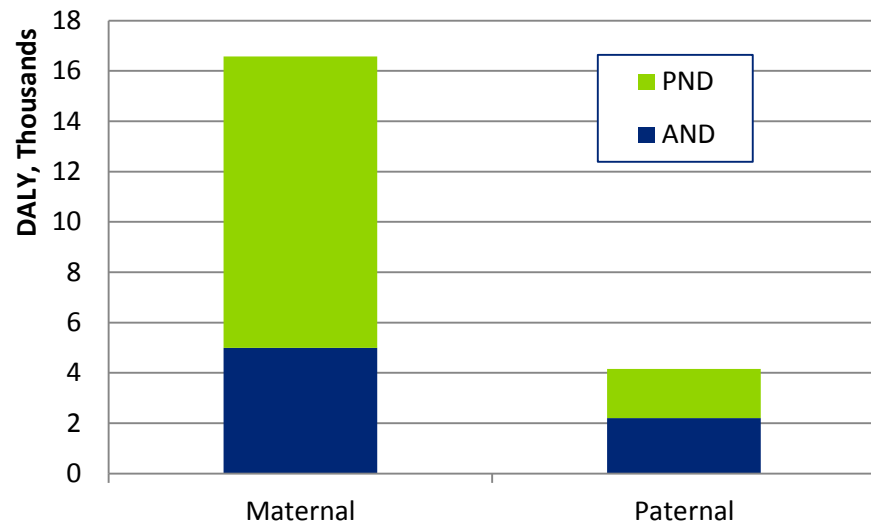
Total DALYs attributable to perinatal depression in Australia in 2012 were estimated at 20,732. This includes: 4,991 from maternal AND (24.1%); 11,584 from maternal PND (55.9%); 2,200 (10.6%) from paternal AND; and 1,958 (9.4%) from paternal PND. This is also shown in Chart 4.1.

Maternal PND accounts for the majority of DALYs, as a result of higher prevalence estimates and assumed longer duration. Opposite reasons lead to lower DALYs for AND (lower prevalence estimate and shorter assumed duration).

Paternal AND accounts for slightly more DALYs than paternal PND, reflecting a higher estimated prevalence.

Uncertainty regarding the prevalence and duration of perinatal depression meant that a conservative approach was taken to applying assumptions for these. As such, the calculated burden of disease (DALYs) is likely to understate the true burden.

Chart 4.1: YLDs from perinatal depression in Australia, 2012



Source: Deloitte Access Economics calculations.

5 Total economic costs of perinatal depression

This chapter draws on the findings from sections 2 to 4, to present the total economic costs of perinatal depression in Australia in 2012.

5.1 Total costs of perinatal depression in Australia

The total economic costs of perinatal depression were estimated across: direct health care costs; indirect costs, including productivity losses; and costs to the wider economy (deadweight losses), for maternal and paternal AND and PND.

Perinatal depression is estimated to cost the Australian economy \$433.52 million in 2012, in financial costs only (\$4,509 per person with perinatal depression). Of these total costs: \$56.98 million is attributable to maternal AND (\$2,213 per woman with AND); \$113.86 million is attributable to maternal PND (\$2,506 per woman with PND); \$125.7 million is attributable to paternal AND (\$8,451 per male with AND) and: \$136.99 million is attributable to paternal PND (\$13,558 per male with PND).

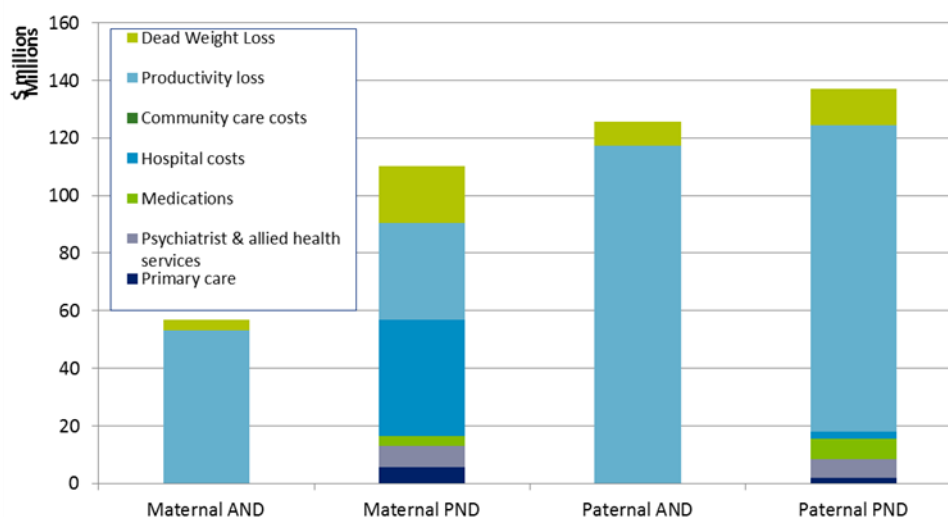
In addition to the financial costs, perinatal depression equates to a loss of 20,732 DALYs in 2012, which represents a significant disease burden. Costs are broken down in Table 5.1 and shown in Chart 5.1. The majority of the economic costs attributable to perinatal depression result from lost productivity in the workplace. Hence, the costs for paternal AND and PND are much higher than for maternal AND and PND, because men's earnings are, on average, greater than women's, and men are more likely to work than women due to the perinatal period in the absence of disorder. These findings are consistent with other studies of the cost of depression (e.g. Greenberg et al. 1993).

It is also important to note that no additional direct health costs were included for AND (maternal and paternal), as a result of lack of data. Other data limitations are discussed where costs are estimated throughout the report.

Table 5.1: Economic costs and DALYs, perinatal depression in Australia in 2012

Cost	Maternal AND	Maternal PND	Paternal AND	Paternal PND	Total
Prevalence	25,751	45,426	14,875	10,104	96,155
Financial costs (\$ million)					
Primary care	n/a	5.54	n/a	1.87	7.41
Psychiatrist & allied health services		7.53		6.38	13.91
Pharmaceuticals	n/a	3.48	n/a	7.31	10.78
Hospital costs	n/a	40.42	n/a	2.42	42.84
Community care costs	n/a	3.72	n/a	0.00	3.72
Total direct costs	n/a	60.68	n/a	17.97	78.66
Productivity loss	53.22	33.37	117.41	106.34	310.34
Deadweight losses	3.76	19.80	8.29	12.68	44.53
Total financial costs	56.98	113.86	125.70	136.99	433.52
DALYs	11,584	4,991	2,200	1,958	20,732

Source: Deloitte Access Economics calculations. Note: Totals may not add due to rounding.

Chart 5.1: Total estimated economic costs of perinatal depression in Australia in 2012

Source: Deloitte Access Economics calculations.

5.2 Comparisons with other studies

There is currently a paucity of Australian literature regarding the economic costs of perinatal depression; thus results cannot be compared to previous Australian estimates. As discussed in Section 3.1, two studies from the United Kingdom, one estimating the economic costs of maternal PND (Petrou et al. 2002) and the other paternal PND (Edoka et al. 2011), were identified. No studies estimating the costs of AND (maternal or paternal) were identified.

Care should be taken when comparing studies from different countries due to the differences in population demographics, health care delivery and health care financing between countries. It is also important to note the differences between included and excluded cost categories from this study.

Petrou et al. and Edoka et al. focused on the direct financial costs of PND, adopting a similar framework for the inclusion and exclusion of costs (maternal over the first 18 months following childbirth / paternal over the first 12 months, respectively). Specifically, included were: hospital inpatient, day care and outpatient costs (for both mental and physical conditions); psychiatrist, allied health and community care services; and some healthcare costs for the child. Medication costs were included in the maternal study, but not the paternal study. Both studies excluded: non-medical direct costs (such as travel and child care); indirect costs (including productivity); and intangible costs (lost quality of life) or informal care.

Costs were reported per case (including costs pertaining to the child's care) and compared with samples of new mothers / fathers without PND. Only the costs of psychiatrists, allied health and other community care services were found to be significantly higher by both studies, however a mean cost difference ("excess cost") was reported.

- Petrou et al. estimated the total economic burden of maternal PND in the UK to be £35.7 million per year in 2000 (sensitivity range of £34.4-£43.3 million) in 2000. This was based on an excess cost of £392.10 (A\$1,023.12⁵¹) per woman with PND and a prevalence rate of 13% among UK mothers. Inflating this cost to 2012 prices⁵² gives an excess cost in 2012 of A\$1,364 per case. This is similar to the estimate given in section 3.1.2, of A\$1,336 per case of maternal PND.
- Edoka et al. estimated an excess cost in 2008 of £159 (A\$347⁵³) per man with PND. In 2012, this is equivalent to A\$375, considerably less than the direct cost difference of A\$1,758 for paternal PND, estimated in section 3.1.3. When the costs of medications are excluded from the estimate in section 3.1.3 (as they were by Edoka et al.), the estimate falls to approximately A\$1,000 per case, which remains relatively high.

It is difficult to make conclusions regarding the comparisons of the costings conducted for maternal and paternal PND in the UK versus the estimates presented in sections 3.1.2 and 3.1.3. This is primarily due to differences in the structure of service delivery and funding arrangements, as well as entitlements to public health services between the two countries. Nevertheless, the estimates presented in this study do diverge widely from those given in the two UK studies.

⁵¹ Converted based on an average exchange rate in 2000 of 0.3836 GBP/AUD (RBA 2012a).

⁵² Inflated based on CPI (RBA 2012b).

⁵³ Converted based on an average exchange rate in 2008 of 0.4584 GBP/AUD (RBA 2012a).

6 PANDA National Perinatal Depression Helpline: a benefits assessment

PANDA is a leading provider of support and information to women and men who may be experiencing AND and PND in Australia. Services include:

- **National Perinatal Depression Helpline** (“PANDA Helpline”), providing peer support, counselling, information and referral services (making and receiving approximately 500 calls per month in 2012);
- dissemination of information and education materials through a **website⁵⁴**, **fact sheets**, and **speaking events**; and
- management of an **information and professional development network for group facilitators** who operate perinatal depression support groups.

PANDA’s website was ranked highest in 2009-10 for mothers with postnatal mental illness, based on extensive criteria, in a systematic review of international postnatal mental health websites (Moore and Ayers 2011). The PANDA Helpline telephone number and services feature prominently on PANDA’s website.

This section discusses the PANDA Helpline and the benefits it provides to callers. It is difficult to estimate a dollar value for the benefit of the PANDA Helpline in 2012, due to data limitations in the following areas:

- availability of follow up data for callers;
- lack of control data (i.e. what happens to people with perinatal depression who do not call); and
- lack of a full dataset for 2012.

6.1 PANDA Helpline activity

Annual numbers of initial callers to the PANDA Helpline (i.e. the number of different callers each year) over 2007 to 2012 (based on a half year of data) are presented in Table 6.1. Annual caller numbers have risen between some years and fallen between others, but have increased overall in the past five years, and steadily increased over the previous three years. The number of initial calls made and received in 2012 was assumed to be twice the number in the first six months of the year (1,189 calls)⁵⁵.

⁵⁴ See www.panda.org.au.

⁵⁵ Note that the benefits analysis is based on caller information in 2011, as a full dataset was not available for 2012.

Table 6.1: Initial support calls to PANDA per year, 2007-2012

Year	Callers
2007	1,352
2008	1,164
2009	898
2010	1,477
2011	1,806
2012	2,378*

Source: PANDA data on file.

*Estimated from data available to June 2012.

Due to lack of a full dataset for 2012, the analysis below was based on 2011 data. The numbers of callers with AND or PND in 2011 was estimated using data from two fields in the caller record:

- 'condition', which is completed for all callers and is based on the PANDA Helpline counsellor's assessment; and
- 'diagnosis status', which is not a mandatory field, but relates to any professional diagnosis previously received by the caller and reported to the counsellor.

In 2011, there were 608 initial calls (33.7%) where the caller's condition was recorded as PND (or anxiety), and 124 initial calls (6.9%) where it was recorded as AND (or anxiety).

Diagnosis status was only reported for 910 of the 1,806 callers. The missing data may be cases where the counsellor did not indicate a pre-specified diagnosis (free text responses may have been included but were not analysed). In total, 272 (29.9%) callers and 41 (4.5%) callers with available data were given a diagnosis status of AND or PND (or anxiety), respectively.

These proportions are quite similar to the condition field, but slightly lower as they are based only on professional diagnoses and exclude cases of anxiety without depression. It is important to consider anxiety in the current assessment because one benefit of the PANDA Helpline is to provide early intervention for people at risk of developing perinatal depression, as well as providing support to people who already have it (of which anxiety is an indicator).

Demographic data specifically for callers with perinatal depression were only available when the condition field, and not the diagnosis status, was used to identify cases, due to limitations with the reporting capacity of the software program. However, given the similarity between the proportions of people recorded as having AND or PND under either field, these data are considered appropriate.

Demographics for callers with AND or PND (or anxiety) are presented in Table 6.2 and Table 6.3, respectively. Age and gender information was not recorded for all callers. It is assumed that the likelihood of calling is not related to the caller's age or gender. Hence, this demographic distribution should be representative of all callers with AND or PND.

Almost all PANDA Helpline users are women, with numbers peaking in the age group 25-30 years. The age distribution of callers appears to be similar to the age distribution of

new mothers (ABS 2010), which suggests that the likelihood of deciding to call the PANDA Helpline is not age-dependent.

Table 6.2: Demographic information for PANDA Helpline callers with AND, 2011

Age	Female	Male	Total
Less than 18 years	1 (2%)	0 (0%)	1 (2%)
18-24 years	7 (14%)	1 (100%)	8 (16%)
25-30 years	19 (39%)	0 (0%)	19 (38%)
31-35 years	6 (12%)	0 (0%)	6 (12%)
36-40 years	11 (23%)	0 (0%)	11 (22%)
41-45 years	5 (10%)	0 (0%)	5 (10%)
46-50 years	0 (0%)	0 (0%)	0 (0%)
Over 50 years	0 (0%)	0 (0%)	0 (0%)
Total	49 (100%)	1 (100%)	50 (100%)

Source: PANDA helpline data on file.

Table 6.3: Demographic information for PANDA Helpline callers with PND, 2011

Age	Female	Male	Total
Less than 18 years	0 (0%)	1 (17%)	1 (1%)
18-24 years	14 (10%)	0 (0%)	14 (9%)
25-30 years	52 (36%)	2 (33%)	54 (36%)
31-35 years	40 (28%)	2 (33%)	42 (28%)
36-40 years	24 (17%)	0 (0%)	24 (16%)
41-45 years	11 (8%)	1 (17%)	12 (8%)
46-50 years	0 (0%)	0 (0%)	0 (0%)
Over 50 years	2 (1%)	0 (0%)	2 (1%)
Total	143 (100%)	6 (100%)	149 (100%)

Source: PANDA helpline data on file.

6.2 Caller outcomes

Limited data on caller outcomes was available, due to the nature of the PANDA Helpline and limited ongoing access and face-to-face contact with callers. PANDA records information on the number of follow up calls made by counsellors, including:

- call outcomes after the follow up call – whether or not the caller had contacted new services and/or arranged a further follow up call;
- whether the caller informed or updated their GP, and if not why not;
- whether the caller established lifestyle changes, and if not why not; and
- whether the caller had maintained contact with their counsellor, and if not why not.

Data for 2011 was used in the analysis due to a lack of a full dataset for 2012, acknowledging that this is likely to reflect an underestimate of caller numbers within this year based on half year results for 2012. In total, 7,677 follow up calls were made in 2011. This includes multiple follow up calls to the same initial caller including where there was no response (e.g. the counsellor left a voice message). Data for the first six months of 2012

highlight that there have been 3,981 follow up calls, which extrapolates to 7,962 calls over 12 months.

Available data on follow up call outcomes is very limited. Table 6.4 shows the proportion of responses to each specific question that were recorded as 'yes'. The total number of responses differed by question.

Table 6.4: Follow up call outcomes

Follow up call outcome	Yes (n)	Yes (%)
Caller has contacted new services?	82	85
Caller linked in with/updated GP?	68	83
Caller established lifestyle changes?	49	71
Caller linked in with/maintained contact with counsellor?	56	82

Source: PANDA Helpline data on file

Note: Percentages are of the total number of responses to that specific question. The number of responses differed by question.

These data represent only a small proportion of all follow up calls. It is possible that people who respond to a follow up call and answer the above questions may be more likely to be proactive. Hence, the percentages reported in Table 6.4 could overestimate the rates of proactive behaviour across all PANDA Helpline callers. In the absence of further data this is not assumed to be the case, although the results should be interpreted with some caution.

Extrapolating the outcomes in Table 6.4 to all 1,806 initial callers in 2011, it is estimated that currently each year the PANDA Helpline leads to:

- 1,535 people contacting new services;
- 1,499 people contacting their GP;
- 1,282 people establishing lifestyle changes; and
- 1,481 people contacting their counsellor.

There are some further limitations to these data for the current analysis.

- It is impossible to say without a controlled study whether these callers would have been similarly proactive if they had not contacted PANDA. However, the PANDA Helpline may well be an earlier or first point of contact for many people, because, for example, it is free of charge and may be less intimidating than visiting a GP (due to anonymity and ease of accessing the service from home, particularly relevant when there is a new baby to care for).
- Due to the small sample size, follow up call outcomes for women with perinatal depression are based on all callers to the PANDA Helpline regardless of their condition. Nevertheless, many callers had PND or a related condition.
- The overlap in women responding positively to each of the four follow up questions cannot be established with current data. However, **it can be observed that between 71% and 85% of women took some proactive step toward accessing further help following their initial call to the PANDA Helpline.**

6.3 Benefits of the PANDA Helpline in 2012

6.3.1 Previous studies

Only one previous published study of a telephone helpline for people with perinatal depression was identified in the targeted literature search, a study conducted in Canada of a peer-support service (Dennis, 2010). This study reported the impacts of the helpline on women's depressive symptoms and satisfaction with the service only – i.e. no impacts on health service utilisation, productivity, or other economic costs were measured.

Wider research does suggest that peer-to-peer telephone support can have positive mental health effects, particularly when combined with proactive follow up of callers. A controlled study comparing a Canadian telephone-based peer-support program with standard care concluded that telephone support, “May effectively decrease depressive symptomatology among new mothers” (Dennis 2003). This finding was based on significantly fewer new mothers having an EPDS score greater than 12 at eight weeks post-randomisation. This was also the only study included in a 2008 Cochrane review of telephone support services for PND (Dennis and Kingston 2008). An extension of this study reported that telephone support services that proactively contact new mothers may prevent later development of PND (Dennis 2010). Dennis (2010) findings illustrate the importance of the PANDA Helpline, given a key activity is caller follow up.

These findings reflect research on help-seeking barriers for women with PND, which include a new mother's inability to disclose her feelings (often reinforced by family and health professionals' reluctance to respond to their needs) and a lack of knowledge about PND. The same research found that women prefer ‘talking therapies’ with someone non-judgmental rather than pharmacological intervention (Dennis and Chung 2006).

6.3.2 Indicative benefit of the PANDA Helpline

In 2011, approximately 608 women with PND (and anxiety) and 124 women with AND (and anxiety) contacted the PANDA Helpline (see section 6.1). Of these women, follow up data indicated that up to 85% would take positive steps towards managing their condition after their initial call (see section 6.2). **This suggests that more than 600 women with perinatal depression may have benefited from the PANDA Helpline in 2011. Based on increased caller numbers over the first half of 2012, even more people with perinatal depression may have benefited in 2012.**

Potential economic benefits of the PANDA Helpline derive from providing people with perinatal depression with access to information regarding treatment and early intervention. For example:

- by facilitating sooner return to work for people with perinatal depression; and
- by encouraging treatment at an early stage, and avoiding a potential requirement for more intensive or emergency treatment at a more advanced stage of the disorder. This may include avoiding hospital admissions and long term pharmacological treatments, which are more expensive than early stage treatments such as GP and psychologist visits (across all payers for healthcare – government, private health insurance funds and individuals).

These potential benefits were not valued due to data limitations, which include those listed below (also highlighted in section 1.4.4).

- The number of callers has increased in 2012 compared to 2011, however there is no complete set of information regarding callers in 2012.
- Not all callers with AND or PND have their diagnosis recorded in their PANDA Helpline file and thus would be excluded from the data (there were more than 1,800 callers to the PANDA Helpline in total in 2011, thus those diagnosed only represent approximately 40% of total callers).
- PANDA Helpline data does not provide cost information for callers, or control information – i.e. the actual costs that would have been incurred by callers had they not received help through the PANDA Helpline vs. the costs incurred⁵⁶.
- The data did not indicate severity of depression at the time of the call and hence the balance of healthcare costs triggered and avoided (preventative).
- BEACH data, on which many of the direct cost estimates in section 3.1 are based, report the total number of GP encounters including multiple encounters for the same patient. Therefore, the primary care cost per woman could only be approximated.
- PANDA Helpline data do not provide any indication regarding likelihood of return to work, with or without a person having called.

6.3.3 Implications

It is estimated that approximately 2,500 women will contact the PANDA Helpline in 2012, 40% of whom are diagnosed with perinatal depression (while men represent a significant proportion of the burden of perinatal depression in Australia, data indicate that they are much less likely than women to call the PANDA Helpline).

Based on limited follow up data, up to 85% of these women will seek further support from health professionals after calling the PANDA Helpline. As a result, they may be better able to manage the disorder, potentially avoiding the use of more intensive or emergency health care services later on and assisting them in returning to or continuing to work.

Approximately 70,000 women and 25,000 men in Australia are estimated to have perinatal depression at any one time (see sections 2.3 and 2.4). However, callers to the PANDA Helpline represent:

- approximately 1-3% of women with perinatal depression or an associated condition; and
- a handful of male callers.

Thus, there may be scope for the PANDA Helpline to reach out to more women and men with perinatal depression.

⁵⁶ AIHW (2012b) reported that 84% of women with perinatal depression sought treatment from a health professional, of which 70% contacted a GP. This suggests that many women would seek some type of assistance anyway, although it is unclear whether this is timely, effective intervention. It should be noted that the AIHW only examined women diagnosed with perinatal depression; other studies examining treatment seeking behaviour in women detected as depressed estimate that 41 to 87% of women do not seek treatment (Reaya et al. 2011, citing: Brooks et al. 2009; Smith et al. 2009; Thio et al. 2006; Woolhouse et al. 2009).

If more people with perinatal depression were identified at an earlier stage, then there may be an opportunity to avoid some of the economic costs reported in Section 5. Whilst the early intervention itself would involve costs (for GPs, psychiatrist and allied health services and so on), it would also aim to prevent men and women from taking time off work due to the progression of their symptoms and, potentially, reduce longer term health impacts (for example for hospital inpatient services, which are more costly than primary care services).

6.4 Recommendations for the PANDA Helpline

Given the considerable difference between current prevalence and caller numbers, it is suggested that increased funding for the service and associated promotion activities would enable the PANDA Helpline to reach out to more people with perinatal depression.

This could be achieved via:

- greater promotion of PANDA and the PANDA Helpline at maternity clinics, other family services centres and through all forms of media and social media to reduce stigmas and encourage people to seek earlier treatment;
- more resources and counsellors to deal with incoming calls and follow up with callers;
- increased focus of promotion activities on men;
- greater integration of PANDA with primary care services in Australia (e.g. direct referrals); and
- enhanced data collection.

These are discussed briefly in this section.

6.4.1 Greater promotion of PANDA and the PANDA Helpline

Suggested media include radio and television adverts, social media and printed materials visible (and available for taking away) at family planning centres and antenatal clinics. These media would encourage people to recognise the early signs of AND and PND (such as anxiety), and to seek treatment for themselves or others as soon as possible.

Specific focuses on men and women is recommended. Paternal perinatal depression constitutes a large proportion of all perinatal depression and its costs. The possible adverse mental health effects of pregnancy and having a young baby should be promoted more extensively in men's magazines, workplaces, and family/financial planning service centres.

This study suggests that, currently, only a small proportion of all people with perinatal depression contact the PANDA Helpline. Increased advertising of PANDA and the PANDA Helpline is recommended to put more 'at risk' people in touch with Helpline counsellors. Again, it is suggested that the PANDA Helpline be promoted through services used by prospective parents, including GP surgeries and antenatal clinics.

6.4.2 More resources and counsellors

In conjunction with increased promotion of the PANDA Helpline, more funding and resources are recommended to deal with the (hopefully) increased number of calls each

year. Research should be undertaken as to whether men would feel more comfortable speaking with male counsellors, as this may have resource implications.

6.4.3 Increased focus on paternal perinatal depression in promotion activities

Sections 3 and 4 highlighted a large cost burden due to paternal perinatal depression, however, as noted in section 6.3, men rarely call the PANDA Helpline. Increased focus on paternal perinatal depression in promotion activities may encourage treatment seeking and assist in alleviating this burden.

Some activities would involve promotion of the mental health effects on men of pregnancy in men's magazines, workplaces, family and financial planning services. Research could also be undertaken as to whether men would feel more comfortable speaking with male counsellors, as this may have implications for the operation of the PANDA Helpline

6.4.4 Greater integration of PANDA with primary care services in Australia (e.g. direct referrals)

PANDA provide a valuable service to the community for people at risk of perinatal depression and their families. It is believed that these benefits would be enhanced by increased integration of the PANDA Helpline with primary care. For example, it may be beneficial to increase the scope of referrals that can be made by PANDA Helpline counsellors to GPs and other primary care services. Similarly, greater awareness of the among GPs would enable more of them to recommend the PANDA Helpline to their patients, where required.

6.4.5 Enhanced data collection

This study has faced significant limitations in estimating the benefits of the PANDA Helpline, primarily because there is limited information regarding: (i) whether it was the PANDA Helpline call that caused the individual to seek treatment, at all or at an earlier stage; and (ii) whether the caller went on to complete treatment and the impacts of this. The latter of these could be assisted through data collection, particularly in follow up calls.

Appendix A: International prevalence estimates

Maternal perinatal depression

Mann et al. (2010) conducted a recent systematic review of earlier reviews on the prevalence and incidence of PND in the first 12 postnatal months. Mann identified one systematic review (Gavin et al. 2005) and four other reviews (Goodman 2004; Halbreich and Karkun 2006; O'Hara and Swain 1996; Ross and Dennis 2009). Of these five reviews, two reviews reported quantitative summary estimates of prevalence (Gavin et al. 2005; O'Hara and Swain 1996).

Gavin et al. (2005)'s review of 28 primary studies⁵⁷ found prevalence estimates for perinatal depression to vary widely—from 5% to more than 25% of pregnant women and new mothers (Bennett et al. 2004; Llewellyn et al. 1997; O'Hara and Swain, 1996). For both major and minor depression at three postnatal months, the combined 'best estimate' point prevalence and period prevalence was 12.9% and 19.2% respectively.

O'Hara and Swain (1996) estimated the mean prevalence of PND from 59 primary studies. The authors divided the number of all women identified with PND by the total number of participants across the included studies. This method estimated a mean prevalence of PND identified via self-reported measures (28 studies) of 14% (95% confidence interval [CI]: 13.1%, 14.9%) and via standardised clinical interview methods (31 studies) of 12% (95% CI: 11.3%, 12.7%). Mann et al. (2010) note that this approach equally weights studies of difference sizes, which may be inappropriate. Further, the methodological quality of the review was relatively poor compared to Gavin et al. (2005).

A review of current studies on the prevalence of AND suggests that that prevalence of AND might be up to 20% (Bowen and Muhajarine 2006; Marcus et al. 2003). A systematic review by Bennett et al. (2004) included 21 articles and reported prevalence rates of 7.4%, 12.8%, and 12.0% for the first, second, and third trimesters, respectively. These are likely to be conservative estimates as depressed women are less likely to participate in research studies (Brenda and Kaplan 2009).

A number of studies and reviews have been conducted on maternal perinatal depression since Mann et al.'s (2010) review. However, these studies have been specialised and are considered not generalisable to the Australian population. Most studies since 2009 have investigated the prevalence of perinatal depression among specific population groups or geographic areas. Examples include first time older mothers (McMahon et al. 2011), women in metropolitan NSW (Eastwood et al. 2011), indigenous women (Hayes et al. 2010b) and immigrants (Bandyopadhyay et al. 2010), and a review of common perinatal

⁵⁷ The authors note that due to significant heterogeneity identified between the primary studies, six studies were excluded as outliers and a revised meta-analysis was conducted to produce best estimates.

mental disorders among women living in low- and lower-middle-income countries (Fisher et al. 2012).

Paternal perinatal depression

Paternal perinatal depression estimates in the first year following the birth of a child vary considerably, ranging from 1% to 25% (Giallo et al. 2012, citing: Goodman 2004; Paulson and Bazemore 2010; Ramchandani et al. 2005). Giallo et al. (2012) identify that for anxiety disorders, estimates range from 10% to 17% (Ballard and Davis, 1996; Harvey and McGrath, 1988; Matthey et al. 2003). Whether these rates differ from the general adult male population and if or how they vary within the population and overtime is not known (Giallo et al. 2012)

Paulson and Bazemore (2010) conducted a meta-analysis of 43 studies, involving 28,004 participants, reporting paternal depression in fathers⁵⁸. Paulson and Bazemore (2010) report a meta-estimate of 10.4% (95% CI: 8.5%-12.7%). Converse to other studies (Fletcher et al. 2008), Paulson and Bazemore (2010) found that the highest rates of depression are reported in the three to six month period postpartum. Further, Paulson and Bazemore (2010) conclude that the correlation between paternal and maternal depression is positive and moderate in size.

A number of studies have been conducted on paternal perinatal depression since the Paulson and Bazemore (2010) review. As for maternal perinatal depression, these studies have been specialised and are not considered generalisable to Australian population. Clare et al. (2012) reviewed the definition and characteristics of postpartum depression in fathers, but drew on earlier findings from Ramchandani et al. (2005: cited in Paulson and Bazemore 2010) to conclude that PND is experienced in 8-25% of fathers.

⁵⁸ Time period of studies included were between the first trimester and the first year postpartum.

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Limitation of our work

General use restriction

This report is prepared solely for PANDA. This report is not intended to be used or relied upon by anyone else and we accept no duty of care to any other person or entity. The report has been prepared for the purpose of estimating the prevalence and cost of perinatal depression in Australia in 2012 and the benefits of the PANDA National Perinatal Depression Helpline.

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Impact Assessment

Summary Final Report

SPP, October 2018

PANDA plays a critical role in providing
perinatal mental health services in
Australia

Introduction

PURPOSE

- This report has been developed to provide PANDA with a better understanding of the impact it makes in the lives of those experiencing perinatal anxiety and depression, their family and networks, and the broader economy
- The report focuses on the National Helpline, which is PANDA's core service. However, it also provides a broader commentary of PANDA's activity in the perinatal anxiety and depression space

LIMITATIONS

- This report outlines the impact of PANDA's National Helpline Service. The impact numbers and benefit streams represent one approach to quantifying and estimating benefit and is not an exhaustive representation
- This is the first time a detailed benefits assessment has been undertaken on the National Helpline data. While subsequent data gathering can be informed by this model, the inputs to this version are based on data that is already available. As such, there are instances where caller categories relevant for each benefit stream are not immediately clear, and assumptions have had to be made
- Where data specific to perinatal anxiety and depression in Australia are unavailable, general mental health assumptions and/or global assumptions have been used
- Where required, assumptions have been made regarding the magnitude or effectiveness of the benefit. These have been estimated on the conservative side

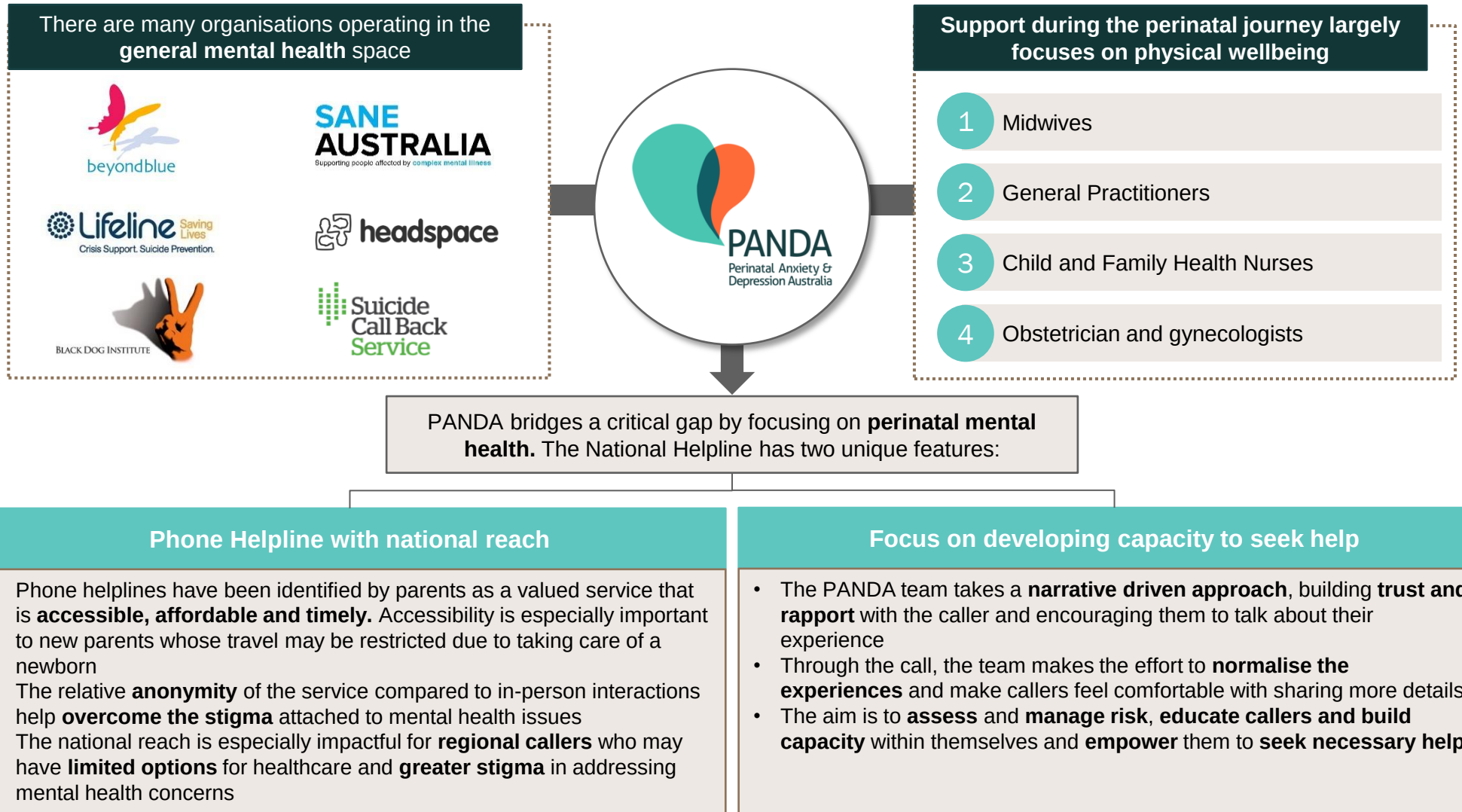
Executive Summary (Extract)

- PANDA plays a critical role in the perinatal anxiety and depression (PAND) space.
- The PANDA model works by normalising PAND and building capacity in the caller to seek help as required. PANDA also plays a specialist role in the PAND space, with frontline healthcare workers turning to PANDA for advice and support in addition to referring families.
- The National Helpline provides benefits to callers, their children, their partners, their family and network as well as the broader economy. In FY2017/18 the National Helpline supported ~2500 families.
- Overall, the National Helpline delivers three key benefits. For FY2017/18 these benefits have been estimated at:
 - **~\$57.5m p.a.** in increased economic output (enabled by a healthy population that is fully able to participate in the workforce);
 - **~\$12.3m p.a.** reduced burden on the Australian health system (enabled by reducing the need for emergency intervention, reducing the severity of the condition and supporting better utilisation of health services) and;
 - **~2,500 reduction** of Disability-Adjusted Life Years (DALYs) p.a. in improved wellbeing and awareness (enabled by a better quality of life and family dynamics)
- In addition, PANDA also delivers a significant intergenerational impact. Early intervention helps remove stigma around seeking help for mental health issues, empowers parents to draw on supportive relationships and helps develop a positive model for parenting, all of which will impact the child's development and their coping mechanisms in the future.
- Sector professionals strongly appreciate PANDA's expertise on PAND and feel that it is filling a critical gap in health services.
- PANDA is continuing efforts to increase reach and accessibility and a key element of this is the planned introduction of an online peer support forum and other online capabilities.

The National Helpline brings expertise
to an underserved segment

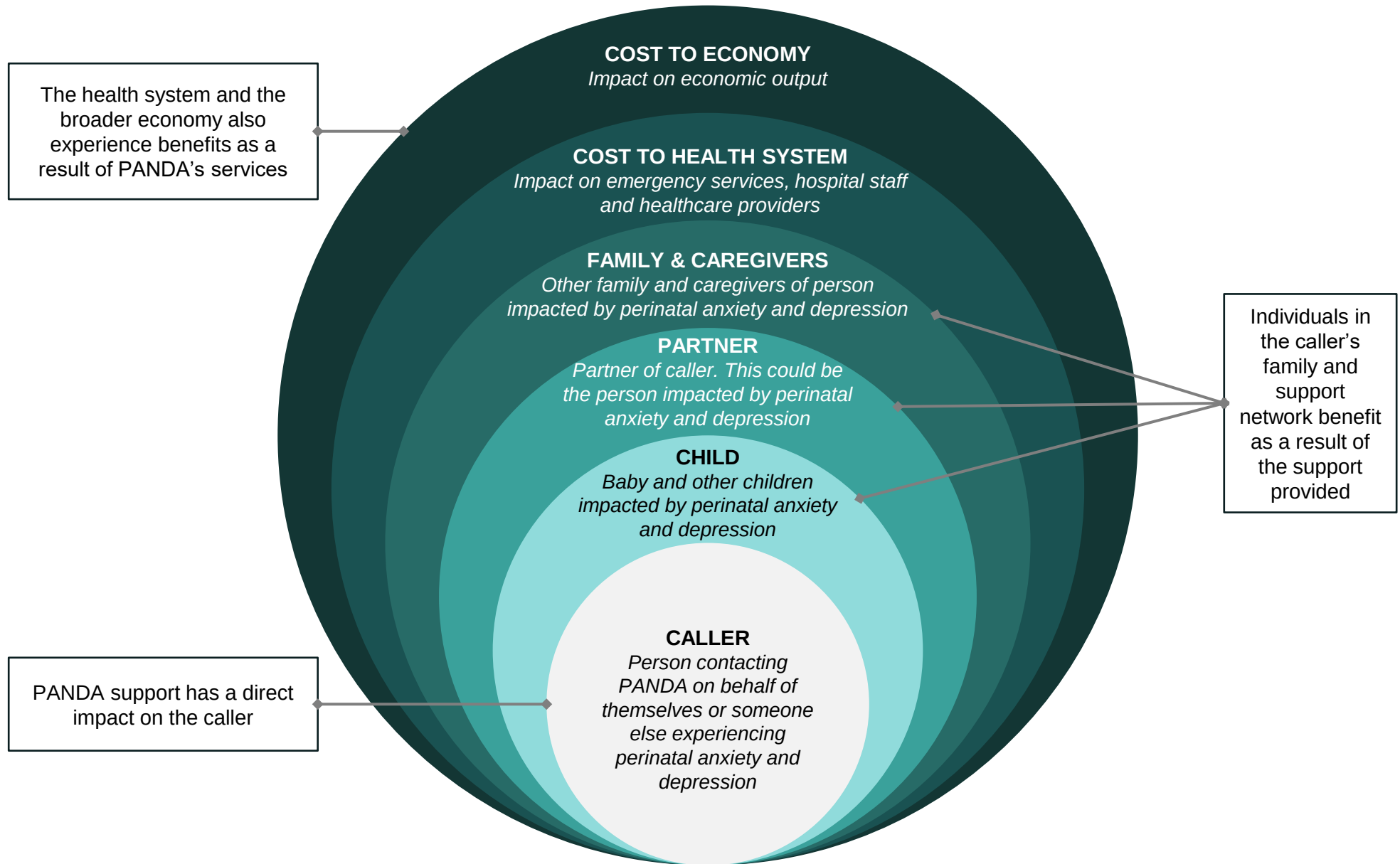
The National Helpline is a unique service

As a specialist perinatal mental health service, PANDA operates in a space that is largely underserved by existing health services.



The National Helpline provides a broad
range of benefits

The Helpline provides benefits to groups beyond the individual seeking support



A broad range of benefits underpin the three impacts of PANDA's National Helpline

The National Helpline has three impacts

Increased economic output

Reduced burden on the Australian health system

Improved wellbeing and awareness

The three impacts are the culmination of a number of benefits

Reduced severity of illness
Increased workforce participation
Increased workforce productivity
Reduced likelihood of chronic diseases
Prevention of injury
Reduced adverse impact on older children
Enhanced parent/child & partner relationship
Improved family dynamic
Improved quality of life
Reduced fatalities
Reduced emergency hospital visits
Reduced need for other emergency services (police, child protection)
Reduced impact of anxiety and depression during pregnancy
Reduced impact of anxiety and depression during early childhood
More effective utilisation of health services

The impact of the National Helpline drives lasting intergenerational benefits



- The benefits on the left relate to **the impact at the time of delivery** of PANDA services to the caller
- Over the longer term, these combine to deliver strong **intergenerational benefits** that impact the caller, their children and their support network

Benefit streams have been assessed based on how they impact each beneficiary group

This approach provides a clearer view of impact and ensures there is no double-counting of benefits.

Impact	Caller	Child	Partner	Network	Economy + Providers
Reduced severity of illness	✓				✓
Increased workforce participation	✓		✓	✓	✓
Increased workforce productivity	✓		✓	✓	✓
Reduced likelihood of chronic diseases	✓		✓	✓	✓
Prevention of injury	✓	✓	✓		
Reduced adverse impact on older children	✓	✓	✓	✓	
Enhanced parent/child & partner relationship	✓	✓	✓	✓	
Improved family dynamic	✓	✓	✓	✓	
Improved quality of life	✓	✓	✓	✓	
Reduced fatalities	✓	✓	✓	✓	✓
Reduced emergency hospital visits	✓	✓	✓	✓	✓
Reduced need for other emergency services (police, child protection)	✓	✓	✓	✓	✓
Reduced impact of anxiety and depression during pregnancy	✓	✓			✓
Reduced impact of anxiety and depression during early childhood	✓	✓			✓
More effective utilisation of health services	✓		✓	✓	✓

Source: SPP analysis.

Legend:	 Quantitative impact assessment	 Qualitative impact assessment	 Quantitative and qualitative impact assessment
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The National Helpline delivers
significant benefit to the economy

PANDA's National Helpline delivers \$69.8m of financial benefit and the equivalent of ~2,500 DALYS in improved quality of life

The National Helpline contributes \$57.5m p.a. of economic output, saves \$12.3m p.a. through reducing the burden on the public health system and contributes to a reduction of ~2,500 DALYS* per p.a.

Benefits
generated
by PANDA
each year

Increased economic output

PANDA support enables increased workforce participation and productivity as individuals and their carers feel more capable of a return to normal working life

\$57.5
million



Reduced burden on the public health system

PANDA support reduces inefficient health services utilisation by mitigating the need for emergency services and empowering callers to effectively utilise mental health services

\$12.3
million



Improved wellbeing and awareness

PANDA support improves the individual's quality of life – whether that be the caller, partner, child or family of the caller

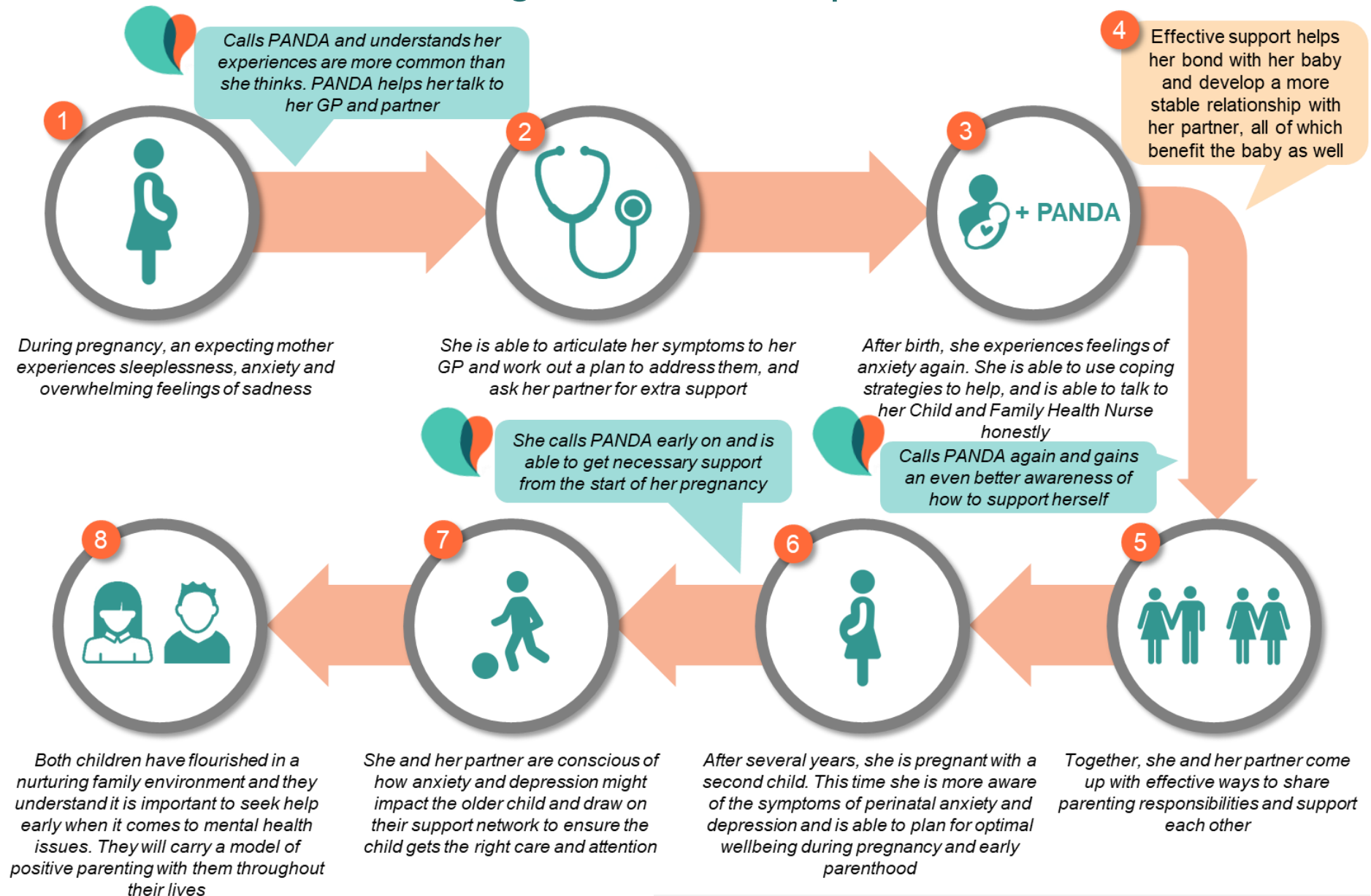
~2,500
DALYS*

These financial benefits measure the impact at a point in time. In addition, there are significant intergenerational benefits that occur over a longer period of time

*Disability-Adjusted Life Years (DALYs) are a quantification of the burden of disease, as recognised by the World Health Organisation. One DALY can be thought of as one lost year of "healthy life"

Intergenerational Impact

Note: This is an example of one of many possible pathways for intergenerational impact to happen



Note: This is an example of one of many possible pathways for an intergenerational impact

The National Helpline supports callers to participate fully in the economy

Increased economic output

**\$57.5
million
p.a.**



Increased workforce
participation

\$40m

Increased workforce
productivity

\$17.5m

\$40m in increased workforce participation is the equivalent of 885 FTE returning to or remaining at work, without having to take additional time off to manage mental health issues

Note: 885 FTE have been estimated based on the number of individuals with PAND and others in their network who will not have to take extended time off work. The average time taken off work to manage mental health illness is ~15 weeks

Source: PANDA Impact Assessment Model

Observations from practitioners in the field:

Perinatal anxiety and depression and anxiety felt by one partner could have a **strong impact on the other partner**, even if they themselves do not have any degree of PAND. This can impact their productivity or presence at work

Mental health can have a significant adverse impact on a person's emotional, social and **workplace contributions**

In many instances, **PAND could impact the whole network**. The partner, parents or other carers may need to take **time off work** to provide care for the person with PAND or for the baby

Single parent families or families with both parents taking time off work may feel significant pressure around **financial security**

Source: Consultations with sector professionals with experience at state (VIC, SA, NSW) and national level

The National Helpline saves lives and helps callers find the support they need

Reduced burden on the public health system

**\$12.3
million
p.a.**



Reduced fatalities	\$1.26m
Reduced need for emergency services	\$650k
Reduced emergency hospital visits	\$249k
Reduced impact of stress and anxiety during pregnancy	\$2.2m
Reduced impact of stress and anxiety during childhood	\$2.4m
Effective utilisation of health services	\$194k
Reduced likelihood of other chronic diseases	\$4.6m
Reduced severity of illness	\$824k

Source: PANDA Impact Assessment Model

Observations from practitioners in the field:

Giving those with PAND **options to seek and access support** is key to **empowering** them to take control of their lives again

New parents with PAND may delay seeking help as they may attribute symptoms to normal challenges of parenthood. Many people may **reach crisis point before seeking help**. Early intervention is critical to ensure support can be given before there is an adverse impact on their health and relationships

When a **mother experiences PAND**, the **baby is impacted** as well. They start having feeding and settling problems, which are the **first signs of distress**. Left unaddressed, this could start a **cycle of physical and mental development issues**. However, if PAND is **identified early**, both the **mother and the baby** can receive the care required and the **trajectory can change completely**

Fathers sometimes take on the **burden of stability**. They feel like they **need to be strong and be there for their partner** and can in instances, suffer from **delayed detection and intervention** until the mother is doing better

Source: Consultations with sector professionals with experience at state (VIC, SA, NSW) and national level

The National Helpline supports families to build stronger relationships

Improved wellbeing and awareness

~2,500
DALYs
p.a.

Improved quality of life

2,475
DALYs

Number of DALYs attributable to callers benefiting from improved wellbeing and awareness

1,140

Number of DALYs attributable to children of callers benefiting from improved wellbeing and awareness

668

Number of DALYs attributable to partners & family of callers benefiting from improved wellbeing and awareness

667

Note: Total calculated DALYs are at 6,188. With a 40% impact attributed to PANDA, this is equivalent of ~2,500 DALYs. Please refer Appendix C for attribution assumption

*Disability-Adjusted Life Years (DALYs) are a quantification of the burden of disease, as recognised by the World Health Organisation. One DALY can be thought of as one lost year of "healthy life"

Source: PANDA Impact Assessment Model

Observations from practitioners in the field:

Parenthood is **perceived to be a joyous occasion**. Those experiencing PAND can feel **shame and stigma** regarding the **negative feelings** they have and feel reluctant to seek help

Partners may **want to help but not always understand** how best to support a person with PAND

A lack of awareness of PAND results in the inability to understand or contextualise symptoms, resulting in many people **not being able to enjoy parenthood**

In heterosexual families, fathers play an **important role** in the child's development and if they experience PAND, they are **not fully and positively involved** with their baby, which could adversely **impact their development** in formative years

PAND can impact the entire family dynamic and affect the relationship between partners and the relationship between the parents and child. Early intervention is critical to ensure these adverse impacts are stemmed early

Source: Consultations with sector professionals with experience at state (VIC, SA, NSW) and national level

The National Helpline also delivers benefits which cannot be directly quantified

Prevention of injury

- The National Helpline staff coordinate emergency services and provide crisis management to diffuse situations where there is the possibility of the child, mother, partner or anyone else suffering physical or psychological harm
- In addition, callers to PANDA are supported to develop coping strategies and draw on their network for help, thus reducing instances where tension could escalate resulting in physical harm
- The Helpline provides additional ongoing support to mothers during pregnancy and after birth

Reduce adverse impact on older children

- When a parent experiences PAND, there is strong focus on them and the baby. In those instances, the needs of any older children may not be properly met
- The parentification of older children results in their developmental needs not being met in addition to them taking on responsibility beyond their capability
- PANDA takes a whole of family view to ensure older children's needs are met

Enhanced parent/child & partner relationship

- PAND can impact parent-child bonding, which in turn can have an adverse impact on the child's development. PAND and a lack of proper understanding about it can also lead to greater tension between partners
- PANDA support enables those with PAND to effectively seek support early on, preventing damage to family relationships

Improved family dynamic

- PANDA enables callers to draw on their broader network for help. For most callers, this would include letting their partner and other family members know what he/she is going through and identifying how they can best provide support and share responsibilities
- Family members become more aware of how to effectively support someone with PAND and how to get help if PAND occurs again. This supportive environment improves family relationships and overall wellbeing

APPENDICES

APPENDIX A: Purpose and Audience

This report establishes an approach to identifying the benefits provided by PANDA's flagship service

IMPACT ASSESSMENT TOOL

ACTIVITY REPORT		Number calls by Program / State							
ACTIVITY REPORT		Number calls by Program / State							
Mild / 3		Number calls by Program / State							
Moders 4		Counselling: Initial		Counselling: Follow up		Intake / Advocacy / Research / Case notes			
Moders 5		2428		5345		8867		49 1283 3652	
Moders 6		Moderate / High							
Moders 7		Moderate / High							
Moders 8		Moderate / High		Amount		Level		Value	
Moders 9		Moderate / High		Stakeholder		100,000 100%		High 500,350	
Moders 10		Moderate / High		Lorem		50,000 34%		High 30,094	
Moders 11		Moderate / High		Ipsum		25,000 56%		High 100,302	
Moders 12		Moderate / High		Dolor sit		13,000 84%		Medium 4,400,930	
Moders 13		Moderate / High		Amet		45,930 45%		Medium 212,203	
Moders 14		Moderate / High		Consectetur		23,410 66%		Low 1,220	
Moders 15		Moderate / High		Adipiscing		123,900 32%		High 12,020	
Moders 16		Moderate / High		Dolor magna		12,704 84%		Low 23,300	
Moders 17		Moderate / High		Cillum dolore		123,009 33%		Medium 22,201	
Moders 18		Moderate / High		Cupidatat		676,400 56%		Low 2,229	
Moders 19		Moderate / High		Ipsum		13,000 56%		High 4,400,930	
Moders 20		Moderate / High		Ipsum		45,930 84%		High 212,203	
Moders 21		Moderate / High		Dolor sit		23,410 45%		High 1,220	
Moders 22		Moderate / High		Amet		123,900 32%		Medium 1,220	
Moders 23		Moderate / High		Consectetur		12,704 84%		Low 12,020	
Moders 24		Moderate / High		Adipiscing		123,009 34%		Medium 23,300	
Moders 25		Moderate / High		Dolor magna		100,000 56%		Low 30,094	
Moders 26		Moderate / High		Cillum dolore		50,000 66%		Low 100,302	
Moders 27		Moderate / High		Cupidatat		25,000 32%		High 23,300	
Total time									

- Develop a robust methodology to identify and measure social and economic benefit of a core service

REPORT



- Clearly outline the approach and rationale that guided the benefits assessment
- Develop a clear, compelling narrative that helps internal decision making and raises PANDA's profile externally

The report is geared towards both internal and external audiences

The purpose of this report is to provide internal and external audiences with a clearer view of the value of the National Helpline.

Internal

- **Target Audience.: PANDA staff and leadership team**
- The report will be used internally to help the PANDA team gain a better understanding of the impact of the work they do
- It will also be used by the leadership team to identify potential opportunities that can be explored further and to guide decision making regarding service delivery

External

- **Target Audience.: Federal and State Government, sponsors and donors**
- This report will help establish the impact of PANDA's services on the economy and on individuals and families, providing PANDA with a compelling narrative for funding support
- It will also be useful in raising PANDA's profile which will help diversify its funding sources

Source: SPP approach.

APPENDIX B: Impact Assessment Approach

A few key principles have guided the impact assessment

Avoiding an overly complex methodology

- The impact assessment methodology has been developed with a focus on simplicity to ensure the impact can be quickly and easily communicated, and not overshadowed by a complex approach

Supporting some benefits through qualitative case studies

- Where benefits are not easily quantifiable or attributed with confidence, they have been supported through qualitative case studies. This helps to acknowledge and bring the benefit to life even if it cannot be accurately quantified

Moderating benefit attribution

- Benefit attribution has been moderated where relevant. This recognises the fact that mental health and wellbeing can be impacted by a variety of factors, and the National Helpline is one of a number of influences on this

APPENDIX C: Methodology and Assumptions

Four elements are considered when quantifying each benefit stream

Size of benefit

X

- This is either the benefit to an individual (caller, child, partner, family & network) as well as the economy as a whole
- This can be calculated as a benefit gained (e.g.: Earnings available as a result of increased workforce participation) or a cost avoided (e.g.; Avoiding the need for emergency services)

Number of people impacted

X

- This identifies how many people the size of the benefit can be applied to
- In the model, this is calculated by identifying relevant caller categories from the caller data

Reach of impact

X

- This element accounts for the fact that the caller is not the only person impacted by PANDA
- While PANDA's support is likely to have the most significant impact on the caller, others such as the child, the partner and the family & network are secondary beneficiaries
- *A detailed look of how this is applied is provided overleaf*

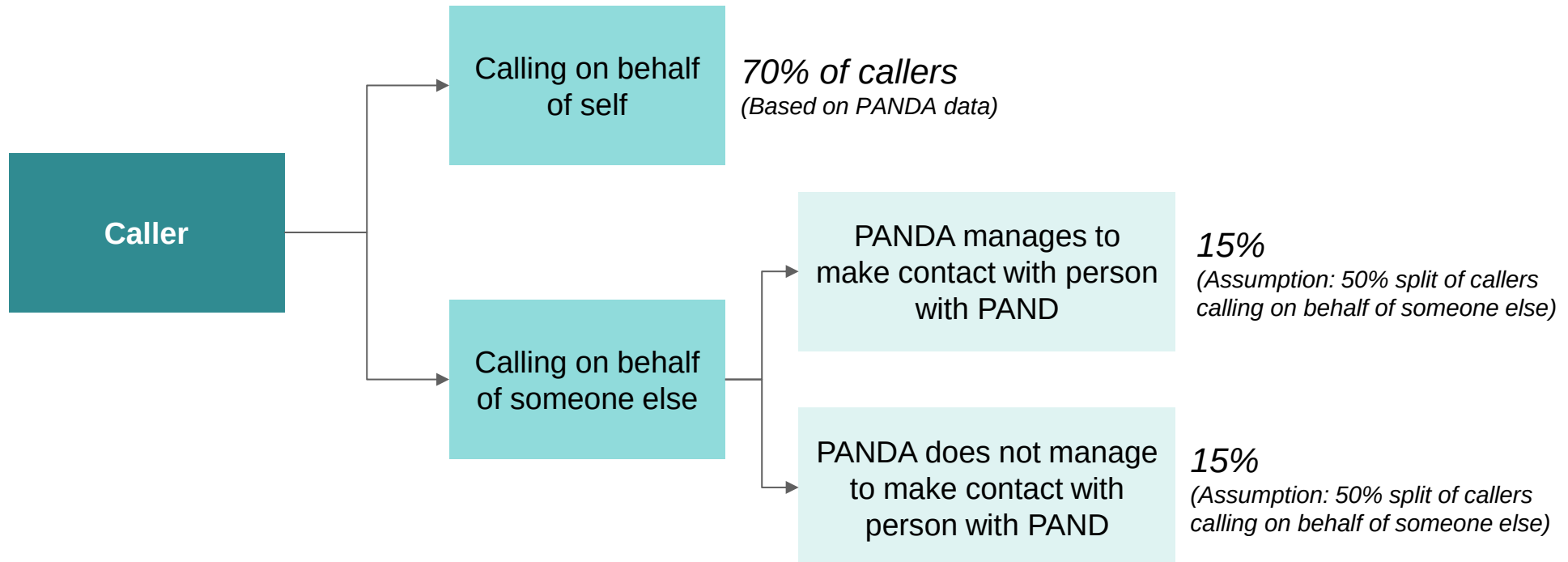
Benefit attributable to PANDA

- This element addresses the fact that not all callers will experience similar levels of success
- It also acknowledges that PANDA may not be the only reason for a caller to overcome PAND
- For the purpose of this model, we have assumed 40% of benefit attributable to PANDA (*see note below*)

Note: 40% benefit attribution is a conservative estimation based on limited available data. (This data relates to phone helplines in general as there insufficient data regarding effectiveness of mental health helplines specific to Australia). In the "Effectiveness of telephone counselling: A field based investigation - Journal of Counselling Psychology, April 2002, 30% of respondents said they feel "A Lot Better" due to telephone counselling. In the "Parent Know How Telephone Helplines and Innovation Fund Strands Evaluation Research Report 2009", 45% of parents said they were helped "a lot" by the helpline service. This model uses the average of respondents who answered "A Lot Better" (30%) and "Helped a lot" (45%) across the two studies (average is 37.5%, rounded up to 40%)

Magnitude of impact can be further clarified

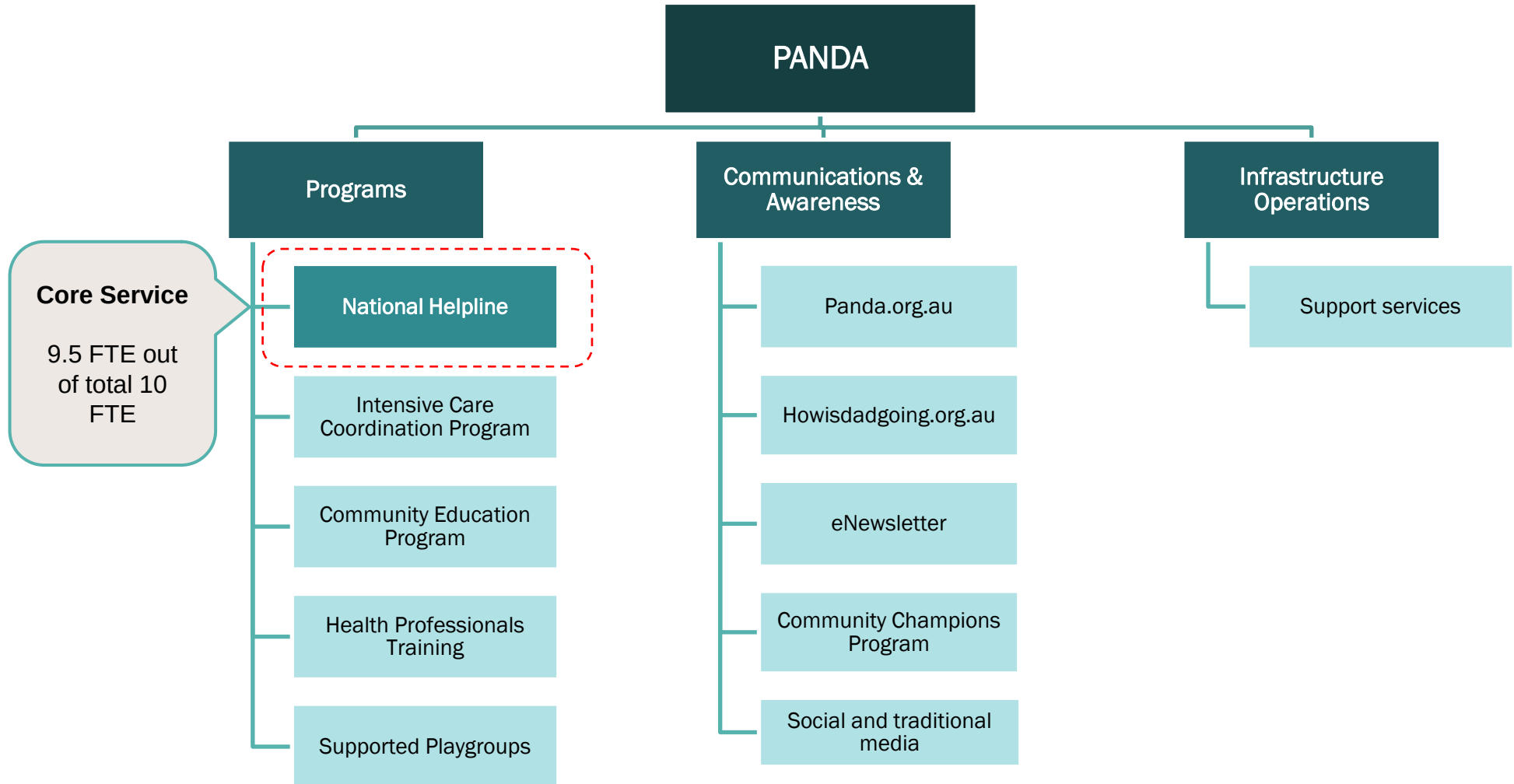
Magnitude of impact



APPENDIX D: Additional Content

PANDA offers a range of services for families impacted by perinatal mental health issues

The National Helpline is the core service offered by PANDA.



Source: Consultation with PANDA team, PANDA report to DoH.

Three main categories of benefits have been identified

The National Helpline delivers a variety of benefit streams, which contribute towards three main benefit categories.

Increased economic output

- A number of benefits result in greater economic output. For example, better mental health and family relationships will encourage greater workforce participation and productivity

Reduced burden on the Australian health system

- Addressing perinatal anxiety and depression has a direct impact on the health system through early intervention which can reduce the severity and duration of the illness
- It also educates callers to better utilise existing health services, leading to greater efficiencies

Improved wellbeing and awareness

- There is a broad range of benefits created through better perinatal mental health and wellbeing
- This includes better parent-child bonding, a stable family environment and an increased awareness and resilience around mental health wellbeing

Source: SPP analysis.

The National Helpline contributes to a range of benefits

Benefit stream	Description of benefit
Reduced severity of illness	Educate and empower callers to seek help before the illness becomes worse
Increased workforce participation	As callers feel better they are more likely to be able to return to work
Increased workforce productivity	Reduction in depression and anxiety enables callers to focus on work and be more productive
Reduced likelihood of chronic diseases	Anxiety and depression increase the likelihood of other illnesses such as heart disease and stroke. Support in managing anxiety and depression can help reduce the impact of other related illnesses
Prevention of injury	Crisis management by the PANDA team can result in diffusing situations where there is a risk of physical and/or psychological injury to the mother/father or child
Reduced adverse impact on older children	Perinatal anxiety and depression can hamper parenting abilities resulting in older children stepping into the parent role. By empowering the parent to manage their illness, this likelihood is reduced
Enhanced parent/child & partner relationship	Perinatal anxiety and depression can cause strain on family relationships. PANDA's approach enables the caller to effectively draw on the support network for help
Improved family dynamic	A better understanding of the illness by the caller and the partner results in an enhanced ability to effectively support each other
Improved quality of life	The ability to better understand and manage their illness as well as the improved social dynamics all contribute to improved quality of life
Reduced fatalities	The PANDA team intervenes where necessary to prevent loss of life by suicide or infanticide
Reduced emergency hospital visits	The PANDA team will work with the caller to help them feel more in control, eliminating the need for them to call on emergency services
Reduced need for other emergency services (police, child protection)	The PANDA team will work with the caller to ensure the safety of the caller and baby and reach out to support network if necessary, reducing the need for emergency services to get involved
Reduced impact of anxiety and depression during pregnancy	Stress and anxiety during pregnancy negatively impacts the fetus and can cause development delays. The support by the PANDA team can help minimise the severity and duration of anxiety and depression
Reduced impact of anxiety and depression during childhood	Higher levels of stress and anxiety can hamper parent/child bonding and result in development delays. The support by the PANDA team can help new parents recognise and manage the illness better
More effective utilisation of health services	PANDA provides callers with the knowledge, language and guidance around how they can utilise existing services