Foreword

The benefit of a more effective national prevention and early intervention approach to perinatal mental health in Australia in 2008 and beyond cannot be overstated.

The beyondblue National Action Plan provides us with a blueprint to increase awareness, improve assessment, training and workforce development, effective support and responses to the emotional and psychological wellbeing of pregnant women and their families.

There are five key factors that make this action plan one of the most important health documents in Australia:

1. Every parent wants to give their child the best possible start in life.
2. The first months and years of life have proven to be critical to the future health and wellbeing of all children.
3. Pregnancy, birth and early parenthood can be greatly affected by stress, anxiety and depression and related disorders with a negative impact on the mother, wellbeing of the infant, her partner and family.
4. The high prevalence of pre and post natal depression affecting up to 9.0% of pre natal women and up to 16.0% of post natal women.
5. Effective prevention, early intervention and treatments are available, many at no or low cost. Evidence has shown that early identification of women who may experience perinatal depression and anxiety aids prevention, early intervention, treatment and recovery.

The prevalence and incidence of depression and related disorders has been shown to peak in the perinatal period. The beyondblue national postnatal depression research program (2001-2005), led by Buist and Milgrom, et al from all states and territories, addressed these key issues with the evidence substantiating the need for a targeted, national, early screening, detection and support program for women at risk of perinatal depression and anxiety.

The challenge presented by this research was how to translate this knowledge into actual practice and programs that would lead to sustainable healthcare and measurable improvement in perinatal health and wellbeing across Australia.

The development of the beyondblue National Action Plan for Perinatal Mental Health has been the response from beyondblue and its many partners to this very important challenge. It was developed by Austin et al in 2007 based on the NSW Government Strategies, in collaboration with leading experts from the peak bodies in midwifery, maternal child and family health nursing, general practice, psychology, psychiatry, pediatrics, allied health, non-government and consumer organisations, the private health sector, community and child health and obstetrics and each state and territory government. Importantly, throughout its development, it was guided by people who had experienced pre and postnatal depression, mothers, fathers and carers.

We are grateful for the personal and professional contributions and commitment. The bi-partisan and community goodwill that underpins this document is testimony to the importance of the issue and the shared understanding from all involved that Australia can, and must, do better in responding to perinatal mental health. We thank the Australian Government and all State and Territory Governments for their commitment and support to implementing the Perinatal Mental Health National Action Plan, 2008-2010.

Leonie Young
CEO
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Orientation to the Plan

The Plan consists of Four Parts and Five Appendices. Links to Appendices 2-5 are listed below.

**Part One: Overview** includes the Vision and Guiding principles of the Plan, with a brief overview of the strategic and operational aspects of the Plan located in the foldout section.

**Part Two: Background** details the background to the Plan’s development and its importance for mothers, infants, fathers/partners and families. Current policy and related initiatives are outlined, and issues specific to integration of the workforce, the private sector, and the challenges of geographical distance and cultural diversity are addressed.

**Part Three: Strategic Objectives for Implementation – Recommendations and Implications** provides a detailed outline of how each of the core strategic objectives could be implemented. It includes some Australian quality practice examples.

**Part Four: Key considerations for implementation** details key issues relating to successful, equitable and sustainable implementation of the Plan. Recommendations for achieving a coordinated approach implementation, at a national, jurisdictional and local level, are provided. Part Four also describes the enablers and barriers that will arise during implementation, and summarises the estimated costs associated with implementing the training and assessment components of the Plan.

**Appendix 1: Glossary and References** provides detailed definitions of key terms used in the Plan, and key references drawn upon in the Plan.

**Appendix 2: National Stocktake Report – Executive Summary**, though not exhaustive, provides a broad overview of perinatal mental health activity in Australia.

**Appendix 3: Literature Review** appraises the methods used for screening and assessment during the perinatal period to identify women currently experiencing or at increased risk for depression, distress, or related dysfunction.

**Appendix 4: Modelling the direct cost of establishing the assessment and training components** of the Plan outlines the broad assumptions on which the costing model is based, and summarises the definitions of cost elements.

**Appendix 5: Report on the Feasibility of Conducting a Cost-Benefit Analysis** outlines the key issues that would need to be addressed in a cost-benefit analysis of routine psychosocial assessment, subsequent treatment, and missed cases in the perinatal period. Key recommendations are provided.
Acknowledgements

Consortium
Marie-Paule Austin
Perinatal Mental Health Consortium National Director, NSW
Bryanne Barnett
Karitane: Caring for Families, Deputy Director, NSW
Anne Buist
Chair Women’s Mental Health, Austin Health, VIC
Jenny Gamble
Senior Lecturer -Griffith Health School, Griffith University, QLD
Nick Kowalenko
Director of Child and Adolescent Psychiatry, Royal North Shore Hospital, NSW
Helen Lindner
Manager, Strategic Projects and Liaison, Australian Psychological Society, VIC
Jeannette Milgrom
CEO Parent Infant Research Unit, Austin Health, National Steering Committee Co-Chair, VIC
Jonathan Rampono
Head Psychological Medicine, King Edward Memorial Hospital, WA
Anne Sved-Williams
Medical Director, Perinatal and Infant Mental Health Services, Child Youth & Women’s Health, SA
Barbara Wellesley
National Steering Committee Chair, NSW
Leanne Wells
Manager Policy & Development/ Principal Adviser Mental Health, Australian General Practice Network

Writing team
Kerry Lockhart
Nicole Reilly
Wendy Thiele

beyondblue representatives
Carol Bennett
Nicole Highet

Lead agency representative
St John of God Health Care
Ramon del Carmen – General Manager, NSW Services

Human Capital Alliance team
Lee Riddout
Mikki Subotic

Health Economist
David Gadiel

National Steering Committee
Yvonne Aggett
Director, Promotion and Prevention Section, Mental Health and Suicide Preventions Branch,
Mental Health and Workforce Division, DoHA, ACT
Lesley Barclay
School of Social Policy and Research, Charles Darwin University, NT
Pat Brodie
President, Australian College of Midwives, NSW
Robert Buist
President, Women’s Hospitals Australasia, NSW
Allan Carmichael
Prof of Paediatrics and Child Health, University Tasmania
Debra Creedy  
Dean (Academic), Griffith Health, Griffith University, QLD
Anne-Lyse De Guio (for David Hannaford)  
MHN, Tresillian, NSW
Alison Duffy  
A/g Assistant Director, Promotion & Prevention Section, Mental Health and Suicide Prevention Programs Branch DoHA, ACT
Jo Duffy  
President, Postnatal Depression Support Association (PNDSA), WA
Stan Goldstein  
Senior Medical Advisor, MBF, NSW
David Hannaford  
President, Australian Association of Parenting and Child Health, Inc, NSW
Barbara Hayes  
Professor Nursing, James Cook University, QLD
Charles Hayes  
General Practitioner, RACGP representative, NSW
Ian Hickie  
Executive Director, Mind & Brain Research Institute, NSW
Belinda Horton  
CEO, Post and Antenatal Depression Association (PANDA), VIC
Di Knight  
Representing the Department of Health Ageing, ACT
Evan Lewis  
Branch Manager, Mental Health Branch, Housing and Disability Group, FaCSIA, ACT
Con Michael  
Group Medical Director, St John of God Health Care, WA
Jeremy Oats  
Clinical Director Women’s Services, RWH, VIC
Greg Poyser  
Assistant Secretary, Mental Health and Suicide Prevention Programs Branch, DoHA, ACT
Allison Slykerman  
Vice President Association Maternal Child Health and Family Nursing AAMCFHN
Jan Taylor  
Senior Lecturer, Discipline of Nursing, University of Canberra
Liz Wilkes  
Professional Officer, Australian College of Midwives, QLD
David Wood  
Director of Paediatric Health Services, Mater Children’s Hospital, QLD

Commentary from Working Party members and others
Emma Adams  
Perinatal Psychiatry, ACT
Ken Armstrong  
Paediatrician, VIC
Tina Dabinett  
Children, Youth and Women’s Health Service, SA
Anne Diamond  
General Practice Division, VIC
Christina Down  
State Perinatal Mental Health Strategy, WA
Belinda Edwards  
Lyell Mc Ewin Hospital, SA
Jennifer Ericksen  
Parent-Infant Research Institute, VIC
Richard Fletcher  
University of Newcastle, NSW
Catherine Fowler  
University of Technology, NSW
Elizabeth Fudge  
Children of Parents with a Mental Illness, SA  
Sue Hendy  
Aboriginal Maternal and Infant Health Strategy, NSW  
Ursula Hopper  
Perinatal and Infant Mental Health Service, NSW  
Deb Howe  
Director Central Coast Children and Young People's Mental Health, NSW  
Sue Kruske  
Charles Darwin University, NT  
Carina Law  
Pélinal Health Committee, Macarthur General Practice Division, NSW  
Lyn Littlefield  
Australian Psychological Society  
Christine Long  
Family, Child and Youth Service, TAS  
Karen Martin  
Queensland University of Technology, QLD  
Trish Nagel  
Menzies School of Health Research, NT  
Louise Newman  
University of Newcastle, NSW  
Gordon Parker  
Black Dog Institute, NSW  
Rosalind Powrie  
Perinatal Psychiatry, Children's Youth and Women's Hospital, SA  
Rebecca Reay  
The Canberra Hospital, ACT  
Rahul Sen  
Royal Australian and New Zealand College of Obstetricians and Gynaecologists  
Catherine Turnbull  
Allied Health and Social Work, SA Health  
Jane Westley  
Australian General Practice Network  

Production team  
Marie Simmons  
Shadia Design  

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We acknowledge the foundation work that the NSW government provides through its investment in the Families NSW early intervention and prevention strategy aimed at giving children up to eight a good start in life. Specifically the recent investment in NSW Health’s ‘Supporting Families Early’ Package which includes the SAFE START model for prevention and early intervention in perinatal and infant mental health. The SAFE START model encompasses universal psychosocial assessment and depression screening for all women expecting or caring for an infant. SAFE START includes workforce training programs and the identification of integrated care pathways. This work builds on the model which was originally titled Integrated Perinatal and infant Care (IPC) and was developed in NSW from 1998 though Mental Health funding. SAFE START has been implemented throughout most of NSW over the past ten years and is currently being further implemented with attention to integrated care pathways for vulnerable families.

We similarly wish to acknowledge the very significant developments in perinatal mental health policy and clinical care in all States and Territories, in particular those developed in Western Australia, South Australia, and Victoria over the last ten years.
Abbreviations

AGPN: Australian General Practice Network
AHMAC: Australian Health Ministers Advisory Council
AIHW: Australian Institute of Health and Welfare
ANRQ: Antenatal Risk Questionnaire
APS: Australian Psychological Society
ATAPS: Access to Allied Psychological Services
BAMHC: Better Access to Mental Health Care
BOiMHC: Better Outcomes in Mental Health Care
CFHN\(^1\): Child and Family Nurse (nomenclature used in some jurisdictions)
COAG: Council of Australian Governments
CRCATH: Cooperative Research Centre for Aboriginal and Tropical Health
DoHA: Department of Health and Ageing
EDS\(^2\): Edinburgh Depression Scale
GP: General Practitioner
IPC: Integrated Perinatal Care (from June 2007 known as SAFE START)
MBS: Medicare Benefits Schedule
MCFHN: Maternal, Child and Family Health Nurse (also referred to as Child and Family Health Nurse in some jurisdictions)
MSSH: Mutual Support Self Help
NGO: Non-government organisation
NHMRC: National Health and Medical Research Council
NICE: National Institute of Clinical Excellence (United Kingdom)
NMDS: National Minimum Dataset
PANDA: Post and Antenatal Depression Association
PANDSI: Post and Antenatal Depression Support and Information, Inc
PNDSA: Postnatal Depression Support Association
PIMH: Perinatal and Infant Mental Health
PMH: Perinatal Mental Health
PIMHIC: Perinatal and Infant Mental Health in the Community
SBO: State Based Organisation

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\(^1\) For the purposes of consistency, CFHN will be referred to as MCFHN in the context of the Plan
\(^2\) This measure is known as the Edinburgh Postnatal Depression Scale (EPDS) when used in the postnatal period

Executive Summary

Context
The importance of robust mental health in the perinatal period (pregnancy and the first postnatal year) for the mother, infant and partner/father and community has been championed in Australia by a number of advocates from the fields of Mental Health, Midwifery and Maternal Child and Family Health, General Practice and Allied Health community services. It was given significant impetus by the beyondblue Phase I National Postnatal Depression Program (2001-2005). The comprehensive work done at this time demonstrated the extent of maternal psychosocial morbidity in Australia, and the widespread acceptability of routine psychosocial assessment for both consumers and health professionals in the perinatal setting. The Phase I reports, and seminal documents such as the British NICE Antenatal and Postnatal Mental Health Guidelines (2007), the Canadian Reproductive Mental Health Guidelines (2003), the Australian National Agenda for Early Childhood (2007) and National Action Plan for Promotion, Prevention and Early Intervention for Mental Health (2000), have informed the development of Phase II - the National Action Plan for Perinatal Mental Health (the Plan).

The implementation of this Plan, in keeping with the current Council of Australian Governments National Action Plan on Mental Health (2006-2011), requires a whole of government and whole of community approach. While the Plan has arisen from within the health sector, it interfaces with the consumer, carer and non-government sectors (particularly early childhood). The Plan is embedded within the need for broad community awareness, health promotion and education about perinatal mental health (PMH) and wellbeing, its effect on the infant, father/partner and family, warranting a whole of family approach to care.

Scope of the problem
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.

Scope of the Plan
The Plan provides a population health approach to improving the PMH and well-being of women and their relationship with their infant. While the long-term goal is to also improve the mental health and wellbeing of infants, fathers/partners and families, the Plan does not provide recommendations to address their particular needs. Addressing issues for rural and remote communities and the respectful engagement of Aboriginal and Torres Strait Islander people and culturally and linguistically diverse communities remains an ongoing priority as the Plan progresses.

Plan overview (see Tables 1-3 for further details)
The Plan outlines the implementation of three strategic objectives:

• Universal, routine psychosocial assessment by primary health care professionals as part of mainstream perinatal care: addressing the skilled identification of both current distress and depressive symptoms and a range of demographic, psychological and social factors (including anxiety) known to affect perinatal mental health for both mother and infant. The assessment is not intended to predict postnatal depression or to replace clinical diagnosis by mental health professionals.

• The roll-out of workforce training and development to attain the core competencies required for adequate psychosocial assessment and early interventions: a quality workforce that is trained, skilled and well supported is fundamental to achieving this Plan. Training simultaneously targeting those who will undertake assessment and those who will provide intervention and care for the mother, for the whole family including the infant, requires a range of programs varying in length, level of knowledge and skill, delivered in environments promoting collaborative, coordinated care.

• The identification of quality local pathways to care underpinning the implementation of universal psychosocial assessment: to address the care and intervention needs of women identified as being at risk, experiencing mild or moderate difficulties through to women experiencing complex and or severe mental illness. The wide range of services and sectors required involves developing a system of care that is effectively networked, collaborative and responsive to the whole family.
Underpinning these objectives is a consultation and communication strategy that engages partners/fathers, the Australian community and key stakeholders, to understand and respond to women’s mental health needs and those of infants in the perinatal period.

The Plan identifies a number of key activities, supported by a National governance structure, to be undertaken in the first three years of implementation for full roll-out and evaluation:

1) Communication and consultation strategies targeting key stakeholders and the community
2) Detailed mapping of existing services at jurisdictional level
3) Development and endorsement of National PMH Guidelines
4) Establishment of a National PMH database for evaluation and benchmarking
5) Development and endorsement of an Aboriginal and Torres Strait Islander PMH Plan
6) Development of training and clinician packages
7) Commencement of Plan implementation aiming at long-term sustainability across Australia

Resources and Implementation

While the primary health care workforce (General Practice, Maternity and the Early Childhood Services) is the key vehicle for universal, routine psychosocial assessment, the Plan will only be viable if the mental health care sector provides the necessary access to secondary and tertiary services as well as ongoing supervision and support. The challenge for implementation is that while there is recognition of PMH as an emerging priority within mental health, this recognition is not as developed within Maternity and the Early Childhood sectors. The Plan is a unique opportunity for the mental health and primary health care sectors to jointly support an initiative that has the potential to deliver outcomes in terms of prevention, early intervention and health promotion from the earliest phase of the life cycle. To achieve this outcome will require a degree of re-orientation from both sectors, and better interfacing between the two. The recent introduction of the Better Access to Mental Health Care Medicare items will facilitate this process in terms of provision of mental health pathways for the perinatal population, most of who are, and will continue to be, managed in the community. Implicit in this process is the degree to which privately funded systems embrace the Plan and the maintenance of collaborative partnerships and practices that are a critical influence for sustained change.

Current status of Perinatal Mental Health in Australia

In addition to the Plan, our PMH Consortium was charged with the compilation of a National Perinatal Mental Health stocktake examining each aspect of the Plan. The stocktake revealed some examples of high quality perinatal mental health service provision, evidence of implementation of routine psychosocial assessment plus adequate workforce training packages in a number of centres in urban Australia (and occasionally rural Australia). There was acceptance of the value of routine perinatal psychosocial assessment of some form as long as adequate pathways to care and training were available. Great variation was identified between the antenatal and postnatal settings, and across jurisdictions, with pathways to care not always adequate or well integrated. Not surprisingly, the biggest gaps identified were the lack of services and available workforce in remote and rural settings and Aboriginal and Torres Strait Islander communities. At this stage the population coverage of current services is not known.

Through extensive engagement of many of its key stakeholders, the Plan delivers a broad mapping of current PMH activity in Australia, and identifies resources and structures (both at policy and operational level) required to implement universal, psychosocial assessment, training and workforce development, and pathways to care perinatally.

Concluding Statement

Poor mental health in the perinatal period is not only a significant issue for parents and infants but is also associated with a large financial burden for the Nation. The perinatal period offers us a unique window of opportunity for promotion, prevention and early intervention in mental health, enabled by the routine contact all women in Australia have with primary health care services at this time. While successful intervention strategies and assessment tools exist, there is currently a gap within existing systems in the coverage of training, assessment and pathways to care. This Plan addresses these critical links. We acknowledge that all jurisdictions are sensitised to the needs of PMH and that many are developing policies to reflect this. The time is therefore right for National Action towards effective early intervention, and the PMH plan provides such a stimulus.
Part One: Overview

Vision, Mission and Goal of the Plan

Vision
To optimise the mental health and well being of all Australian mothers, infants fathers/partners and families in the perinatal period

Overall Mission
To develop and provide beyondblue: the national depression initiative with a comprehensive National Action Plan to address perinatal mental health.

Guiding Principles

The principles underpinning the Plan lay the foundation on which the strategic objectives and priority activities are built, and highlight the key areas to be addressed to achieve sustainability of the Plan’s vision.

Principle 1: Equity of Access and Outcome
- The Plan is based on the principles of equity of access, flexibility and sustainability of service, ensuring that proposed models can be adapted locally and modified to meet the needs of specific communities and population groups
- The Plan acknowledges that full and adequate engagement of Aboriginal and Torres Strait Islander Peoples and culturally and linguistically diverse stakeholders is required to be effective for these groups
- That government, non-government, private agencies, consumer-led services and community approaches will underpin equity of access. This requires the establishment and maintenance of collaborative partnerships for service delivery across sectors

Principle 2: Evidence-based
- The Plan has been constructed on current evidence and/or quality practice models within existing structures of care and service delivery
- There will be a national approach to implementation, monitoring and evaluation of outcomes of the Plan
- The Plan acknowledges that perinatal mental health is recognised as a specialty area of clinical practice and research activity

Principle 3: Family and Community Engagement
- That perinatal mental health impacts not only on mothers but on infants, fathers/partners and families, and the Plan is informed by their experience
- The Plan acknowledges:
  - that families and their members have a right to privacy
  - that the strengths of parents and families need to be acknowledged and supported and they have a right to care that is responsive to their differing needs
  - that infants and children have a right to the protection, support and care necessary for their wellbeing

Principle 4: Comprehensive approach
- That health promotion, prevention, early intervention and recovery are essential components of a comprehensive plan
- That to be effective, professional disciplines must collaborate in the delivery of care
- That a comprehensive, coordinated range of services in primary, secondary and tertiary care settings inclusive of geographical distance and cultural diversity is essential for the Plan to be effective

Principle 5: Workforce and Service Integration
- The Plan is based on providing the most efficient services to meet client needs, and as such deployment of workforce and resources must be integrated across disciplines and service sectors to be effective
- The Plan acknowledges that perinatal mental health requires specific and specialist knowledge and therefore workforces and service providers will require appropriate training, strengthening of undergraduate education, public awareness and specific information made available to women and families
Future Directions

Robust mental health in the perinatal period for both mother and father/partner is critical for emotional and physical development in infants (particularly the brain) and to optimise parenting, nurture and care capacity, and family formation. This critical need for robust mental health in all parents/primary caregivers, the role and importance of fathers/partners in identifying and supporting women, and their involvement in service delivery and planning, has been highlighted.

The importance of robust mental health in mothers for infant development is well researched and there is a growing body of evidence linking the mental health and wellbeing of fathers/partners to infant and child outcomes.

A systematic, long term approach to the development of specific strategies to address the promotion of infant mental health, the mental health needs of the father/partner and consideration of siblings in the perinatal period are important future directions requiring specific and specialised knowledge, strategic planning and reform.

Similarly, the respectful and sensitive engagement of Aboriginal and Torres Strait Islander peoples and culturally and linguistically diverse communities will be an ongoing priority as the Plan moves towards solutions that require more complex reforms.

As outlined in Strategic Objective 2: Universal Routine Psychosocial Assessment, there is a need to identify and develop universal and routine assessment procedures for groups with specific needs, where this has not yet occurred. Fostering a greater evidence-base built on further research among culturally and linguistically diverse communities and Aboriginal and Torres Strait Islander peoples will enhance planning, capacity building and policy decisions in these contexts.

While there is still much work to be done, one cannot underestimate the importance of the vision of this current initiative. Without the application of universal and routine perinatal psychosocial assessment, accompanied by the development of care pathways and ongoing training for health professionals, much perinatal depression and psychosocial morbidity will go undiagnosed and untreated. Early identification and effective intervention where appropriate, can improve maternal and child health and wellbeing with resultant benefits for the whole family and ultimately the community.
Part Two: Background

The development of the National Action Plan for Perinatal Mental Health, Phase 2 of beyondblue’s Postnatal Depression Program, represents the driver on which improved outcomes for women, infants, fathers/partners and families can begin to be put into action. Phase 3 (2008-2010), the implementation phase, will require detailed state mapping and planning in the set-up and early stages of implementation.

The substance of the Plan has been informed by the expertise of the Consortium, National Steering Committee and Working Parties, a literature review of screening and assessment in the perinatal period, national and international literature, and the findings of the beyondblue National Postnatal Depression Program (2001-2005). The Plan has also been informed by a national stocktake that utilised key stakeholder and consumer interviews, survey distribution and electronic searches to highlight current best and quality practice initiatives, and gaps and barriers at state and national jurisdictional levels. Projecting the costs of implementing the assessment and training components of the Plan was undertaken by a health economist.

The importance of identifying maternal mental health and wellbeing has been seen to be of lesser consequence than physical health and birthing outcomes for women. An emerging evidence base indicates the importance and complexity of mental health and the inter-relationship between physical health and mental health. Maternal mental health difficulties whether mild, moderate or severe are known to impact critically on all aspects of a woman’s life. In addition the effect of such problems on foetal development, birthing outcomes, the establishment of good emotional health and attachment relationships, the physical and social development of infants and the effect on fathers/partners and family systems is highly significant.

Supporting Australian women, infants and families to achieve optimum mental health and wellbeing in pregnancy and the first postnatal year requires that consideration be given to the medical/physical requirements and the psychological and social issues facing women, infants and families. The key vehicle taking this vision forward will be the provision of universal, routine psychosocial assessment accompanied by health promotion and early intervention that is delivered by a well trained and supported workforce and the provision of local pathways to care. This vision is inclusive of Aboriginal and Torres Strait Islander peoples and those from culturally and linguistically diverse communities, whether living in metropolitan, rural or remote areas of Australia.

“Lisa”: I was sick of being a corporate bitch and was really looking forward to a totally new me as a mother. I had read a lot and I felt that I knew a lot and was looking forward to getting our baby into a routine after she was born. Those first few weeks I spent with my fists clenched, my jaw clenched and a rage inside me that I could barely contain. It wasn’t the way I thought it would be.

Research evidence and clinical experience indicate it is critical that psychosocial assessment begin in the antenatal setting to optimise early detection for mental health and wellbeing (Austin and Priest, 2004).

Many authors (e.g. Buist et al, 2005; Barnett et al, 2005) have argued strongly that integrating mental health care with routine maternity care allows for the provision of services to women with perinatal mental health difficulties in the most acceptable and accessible manner.

The vision is underpinned by a population health model (Mrazek & Haggerty 1994) consisting of targeted community awareness activities (to be undertaken by beyondblue), universal routine assessment for emotional and social risk, provision of health promotion information and early intervention, and ready access to appropriate treatment. Fig 1 (left) adapted from Mrazek & Haggerty (2004) outlines this model.
**Importance of the Plan for mothers, infants, fathers/partners and family**

Across all cultures, women have almost twice the depression incidence of men, longer episodes and lower rates of remission with first onset peaking in the childbearing years. The highest risk of hospitalisation for mental illness perinatally is in the first 3 months post birth.

The term ‘depression’ or ‘postnatal depression’ (PND) is often used as a generic term to cover a range of perinatal mental health difficulties that includes anxiety. Whilst becoming a more acceptable and less stigmatising term for women and the community generally, its generic use by professionals can be problematic if such generalisations in terminology impact adversely on the care and support women receive.

A recent review of perinatal maternal mortality in Australia (Austin et al, 2007) reported significant rates of maternal suicide in both pregnancy and the postnatal period, with the majority occurring by violent means. A linkage study in the UK identified psychiatric illness as the leading cause of indirect maternal death in the perinatal period (Oates, 2003, Lewis, 2004). Within Aboriginal and Torres Strait Islander populations national birthing outcomes - perinatal morbidity and mortality rates – have been poor for many years and indeed are worse than for indigenous mothers in New Zealand, the United States and Canada (ABS, 2003).

The literature review (Appendix 3) highlights the broad impact and adverse effects of compromised mental health and wellbeing in the perinatal period. These include impact on pregnancy and foetal development, such as intrauterine growth retardation, spontaneous preterm birth, lower birth weight infants, and altered regulation of cortisol levels in response to both stress in pregnancy and postnatal depressive symptoms. Postnatal depression and anxiety can cause impairment in work and family settings, can impact on a woman’s ability to care for, nurture and respond to her infant, and is correlated with the ability of infants to regulate sleep, emotions and impulsivity. Reciprocally, these issues for infants may impact on a mother’s mental health and wellbeing, setting up a cycle of mother-infant relationship difficulties.

Infants raised in circumstances of compromised parenting through mental illness, co-morbid drug and alcohol issues, significant health issues in infancy (e.g., prematurity or intellectual impairment), social issues such as family violence, or where the parent herself has experienced compromised parenting, have a less than optimal health, mental health and social developmental trajectory.

Largely unrecognised or not considered are the emotional and health needs of fathers/partners in this period, their ability to assist in the recovery process for mothers and build resiliency in infants, an increased burden of care they may experience, or, conversely, their influence or contribution to maternal distress and illness. It is well established that parents with mental health problems can often experience challenges that result in adverse outcomes for their child’s mental wellbeing and/or their child’s safety. Where young people provide primary care for their parents with a mental illness their education opportunities and development may also be restricted.

Emotional and mental health and reactivity in mothers therefore enhances the social, emotional and physical development of infants and the maintenance of the family unit, while impairment in this area has significant impact on the wider social and community context. Robust mental health in mothers enhances these aspects and thus builds community capacity in the long term, while conversely impairment in this area can have a significant adverse impact. Thus, health promotion and increased awareness in this area will make a difference for future as well as current generations. Nevertheless, enhancing public and professional awareness and understanding of the range of difficulties and appropriate interventions will require engagement well beyond the health sector. Health promotion and awareness in this area will make a difference for this generation and future generations.
The consumer context

Navigating the emotional experience of pregnancy and early parenting within this social context for a woman and her family is seldom a simple or smooth process. Where emotional distress or mental illness are present a broader understanding of the support and services required to provide women, infants, fathers/partners with the best start is required.

Often of primary importance to maternal mental health and wellbeing are the mother-infant and the mother-father/partner relationships, as outlined in the section above. Other significant factors that can contribute to this social context and mental health and wellbeing include biology, individual resilience, mental health of the father/partner, family of origin issues and experiences of parenting, cultural practices and values, stigma related to mental illness and societal views of pregnancy, birth and mothering/parenting, and adverse events in both childhood and as adults.

In the development of this Plan and indeed in the governance, structure and delivery of any relevant health care system, the needs of the woman, her infant and her family are central. Women and their infants cannot be viewed in isolation from their social context: their father/partner, family, friendships, community and environment. Indeed it is this very social context that can support the woman’s mental health and wellbeing or contribute to emotional distress and mental health problems.

Consumer-led, self help, support and advocacy services and resources are the first or only point of call for some women, their partner, family or friends concerned about emotional distress and mental health and wellbeing. These services provide vital support, education, information and advocacy through a range of activities including providing assistance in accessing and understanding the formal health and mental health systems.

The increasing move toward consumer-led recovery from mental illness has led to the development of well-trained and supported peer specialists and facilitators located within health and community services. Services based on the expertise and the lived experience of women and families form a key service sector in increasing community awareness and destigmatisation, and in health promotion, prevention, identification, support and recovery of women experiencing perinatal distress or mental illness. These important services are complementary to mainstream mental health services for women and their families at any point on the continuum of conditions from mild, moderate to severely unwell.

Current policy context and related initiatives

There are several relevant policies and strategies at national and state levels in Australia which relate to the mental health and wellbeing of women in the perinatal period and which include children and families in their target populations. In addition, there are policy directions and work being undertaken at an international level that inform and support the Plan.

The Plan does not seek to replace these, but rather, utilise them to strengthen links between related initiatives and activities which work towards achieving optimal mental health and wellbeing as well as highlighting any gaps and overlaps that may exist.

National context

The Australian government, in its third National Mental Health Plan (2003-2008), highlights the importance of promotion, prevention and early intervention strategies to invest in the mental health future of Australians and identifies the primary mental health care sector as a priority area for funding. This plan for investment in mental health has been supported by wide-ranging strategies and most recently through the Council of Australian Governments (COAG) National Action Plan on Mental Health 2006-2011. Similarly the National Agenda for Early Childhood (2007) provides a framework for optimal child health, wellbeing and development that begins in pregnancy.
While some of these strategies focus only on children of 3-8 years families, there are existing policies and initiatives which specifically address mental health and wellbeing needs in pregnancy and the first postnatal year. Examples of relevant policies and initiatives are provided in the Stocktake Executive Summary (Appendix 2).

**Further examples of relevant/related National plans and funded activities include:**

- The National Suicide Prevention Strategy
- The National Pregnancy Support Helpline
- MBS items for non-directive pregnancy support counselling
- Pregnancy Lifescripts for general health addressing the management of risk factors foetal health – smoking, alcohol use and nutrition
- Better Outcomes in Mental Health Care
- MBS items under the new Better Access to Mental Health initiative
- Stronger Families and Communities Strategy 2004–2009, an initiative of the Australian Government which specifically focuses on early childhood and aligns with the National Agenda’s four action areas
- Healthy Children – Strengthening Promotion and Prevention across Australia – a National Public Health Strategic Framework for Children endorsed by all Health Ministers in July 2005
- Growing up in Australia: Longitudinal Study of Australian Children

**Specifically for rural and remote areas**

- More Allied Health Services program (MAHS)
- Mental Health Services in Rural and Remote Areas initiative

**Specifically for Aboriginal and Torres Strait Islander Peoples**

- Footprints in Time: Longitudinal Study for Indigenous Children
- the Strategic Framework for Overcoming Indigenous Disadvantage
- the National Aboriginal and Torres Strait Islander Health Strategic Framework
- the National Strategic Framework for Aboriginal and Torres Strait Islander Peoples’ Mental Health and Social and Emotional Wellbeing 2004-2009
- MBS item for Aboriginal Health Workers
- Western Australian Aboriginal Child Health Survey: The Social and Emotional Wellbeing of Aboriginal Children and Young People 2005

**Specifically for Culturally and Linguistically Diverse Populations**

- Cultural Competency in Health: A guide for policy, partnerships and participation 2005

**International perspectives in perinatal mental health**

In keeping with the World Health Organisation Millennium Development Goal focusing specifically on maternal health, the Plan identifies maternal mental health and wellbeing as a priority for Australia. The United Nations Population Fund (UNFPA) emphasises that mental health is important and should be addressed routinely as part of sexual and reproductive health services and that ‘screening’ can assist in detecting mental health issues.

We are not aware of a similar National Action Plan for perinatal mental health at an international level although several countries have been active in improving maternal and infant outcomes during the perinatal period. The American College of Obstetrics and Gynaecology endorses routine use of the Edinburgh Depression Scale (EDS; Cox et al 1987) both antenatally and postnatally, and the Scottish Intercollegiate Guidelines Network (2002) recommends routine antenatal assessment of psychosocial risk factors for postnatal depression and puerperal psychosis. The Canadian Colombia Reproductive Care Program (2003) details guidelines for identification and assessment of psychosocial risk and the full spectrum of mental health disorders in the perinatal period. The recently released UK ‘Antenatal and Postnatal Mental Health: the NICE Guideline for Clinical Management and Service Guidance’ (2007) focuses on the detection of severe mental illness and the prediction of depression only, but does provide some useful conceptual frameworks.

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3 This measure is known as the Edinburgh Postnatal Depression Scale when used in the postnatal period.
of service provision and integration based on the principle of stepped care (Figure 2 below, adapted from NICE, p249.)

Figure 2: Stepped care model of service provision (adapted from NICE 2007)

Integration of workforce and services
As detailed in Figure 2 above, care pathways for women and other members of her family requires a coordinated and integrated approach, linking the range of services and professionals involved in providing care in the perinatal period. These encompass consumer-led, hospital, community, specialist, Non-Government and private sector services. Further detail about care pathways can be found in Part Three (Strategic Objective 3: Pathways to Care).

Underpinning service delivery is the primary health care sector provided by primary health care professionals, maternity services, GPs and consumer-led services. The vast majority of pregnant women will have contact with the primary health care sector in pregnancy, birth or postnatally and these professionals are best placed to identify early signs of mental health and wellbeing concerns.

The role played by community awareness activities as well as supports provided to mothers through social networks in supporting perinatal mental health and wellbeing should not be underestimated. Opportunities to strengthen and support community aspects should be kept in the forefront for funders and service providers alike.

The Plan has been developed with an integrated, coordinated approach across the service spectrum and utilises a model of assessment and care provided by a well trained and supported workforce and a well informed, pro-active Australian community (see Figure 3). This long term approach requires services and
service planning to occur on a range of levels, to be integrated and inclusive of dedicated specialist mental health services.

![Figure 3: A model for addressing perinatal mental health and wellbeing](image)

<table>
<thead>
<tr>
<th>Approach</th>
<th>Health promotion</th>
<th>Prevention, Identification and Early Intervention</th>
<th>Secondary and Tertiary Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Context</strong></td>
<td>All communities incl. Aboriginal &amp; Torres Strait Islander peoples, Culturally and Linguistically Diverse communities, Rural &amp; Remote</td>
<td>Primary health care professionals and complementary service sectors: Midwives, Maternal Child and Family Health Nurses, Edinburgh Depression Scale; Obstetricians, Allied Health professionals, primary care providers Aboriginal Health Workers, Culturally and Linguistically Diverse, Not For Profit, volunteers and consumer-led services</td>
<td>Edinburgh Depression Scale, Allied Health services, Community Health, Mental health systems</td>
</tr>
<tr>
<td><strong>Focus</strong></td>
<td>Mental health and wellbeing</td>
<td>Psychosocial distress</td>
<td>Mental illness</td>
</tr>
<tr>
<td><strong>Activity</strong></td>
<td>Identification, increased awareness and support within the community</td>
<td>Assessment and early intervention</td>
<td>Diagnosis and treatment</td>
</tr>
<tr>
<td><strong>Human Resources</strong></td>
<td>Families and communities <em>beyondblue</em></td>
<td>Midwives, Maternal Child Family Health Nurses, Edinburgh Depression Scale, Obstetricians, Allied Health professionals, Family support workers, Aboriginal Health Workers, Culturally and Linguistically Diverse workers consumer-led support workers and volunteers, Not For Profit</td>
<td>GPs, Psychologists, Psychiatrists, Allied Health professionals, Mental Health Nurses</td>
</tr>
</tbody>
</table>
Private sector workforce

The Australian Institute of Health and Welfare (AIHW) reports that 31% of women who give birth in hospitals choose to do so in private hospitals, ranging from 19.2% in the Northern Territory to 41.1% in Western Australia (AIHW, 2004). It should be noted that in addition to private hospitals, private sector providers include Medical Practitioners (General Practitioners, Psychiatrists, Obstetricians, and Paediatricians), Midwives, Mental Health Nurses, Psychologists, Social Workers, and Occupational Therapists. Sufficient time must be allocated to allow full engagement with this important sector.

St John of God Health Care, as a key partner working within the private sector, demonstrates the real potential for collaborative partnerships to promote broader uptake of the Plan within private settings.

Likewise other partner agencies within the private sector such as the Australian General Practice Network (AGPN) and the Australian Psychological Society (APS) provide infrastructure and programs that will assist the implementation phase, strengthening collaborative partnerships with the private sector.

Infrastructure and programs within AGPN that can support quality routine perinatal mental health care in the primary health care sector include: delivery of perinatal mental health education and training; clinical support and enhancement of perinatal mental health knowledge and skills for General Practitioners, Psychologists, Allied Health professionals and nurse practice staff; health promotion through the Pregnancy Lifescripts tool kit; support for uptake of related MBS Mental Health items and numbers; development and promotion of linkages; and systematic referral pathways.

These existing national systems of primary health and mental health care are essential components in local training, assessment and delivery of perinatal mental health care. In addition, local branches of the APS can be used as a means of identifying appropriate care pathways, and the Better Access to Mental Health Care items enable women and their families to access services from Psychologists, Social Workers and Occupational Therapists.

It is recognised that many families choosing the private sector for birthing and other services will, at times, also require the resources of the public sector to support their care. To achieve this, the formation and maintenance of collaborative partnerships between public, private and Non Government Organisation service providers will be necessary to assist the delivery of appropriate care and support to ensure that privately insured women or those who birth in the private sector receive equally high quality mental health care and can move easily between services and sectors. Appropriate and timely information transfer, and careful consideration of privacy principles, will be essential.

Like the public sector, as private sector providers work to meet the emerging challenges of addressing perinatal mental health issues there is a significant impact on the capacity of these workforces to undertake universal, routine assessment, access quality training programs, identify relevant pathways to care, and ensure organisational and professional policies exist to support these activities. These activities along with the development and endorsement of national standards for perinatal mental health will need to be incorporated into private sector evaluation and continual improvement processes in fulfilling accreditation requirements.

Australia: Challenges of geographical distance and cultural diversity

There are specific needs and approaches required to address perinatal mental health and wellbeing for population groups marginalised either by distance, culture or both. Population based health funding models do not provide the resources to address these issues and the Plan is mindful that these needs have not been addressed at this time. There is a strong commitment by stakeholders to engage with and prioritise these population groups in the implementation of this Plan.
Regional, rural and remote area context

Approximately 30% of the Australian population live in regional, rural and remote areas, covering vast distances. Most remote area women across Australia are required to birth away from their communities which brings particular hardships for women and their families. Extra financial costs (accommodation and travel), lack of emotional and practical support, isolation, lack of integrated care between systems, inappropriate and at times culturally unsafe health care, and temporary separation from older children are part of the burden for families.

For those women who are required to travel for antenatal care or to give birth, issues of assessment and support of mental health and wellbeing become complex. Service integration and communication is often poor, women birthing ‘out of area’ return to their community with little or no communication or plans for follow-up care established. Indeed the range of pathways to care options and support are limited and often short term in nature. Issues of confidentiality and stigma also prevent women from seeking and receiving care at this time. There is significant potential for re-orientation of maternity services to enable women to birth closer to their local area. The effect on the mental health of women who have to travel away from family and community for birth is significant and the morbidity associated with this dislocation requires greater recognition.

These issues are compounded for Aboriginal and Torres Strait Islander women in remote areas who often have English as a second or third language (if at all), and who are from more traditional communities where cultural birthing practices are unable to be practised, creating additional emotional distress.

Similarly these issues exist for women from other cultural minorities living in rural and remote areas who have English as a second language, and where social isolation, and differences in culture and birthing practices are also significant stressors.

Recruiting and supporting existing quality skilled workforces in rural and remote area communities is costly and is a common difficulty across Australia. In particular health and community workforces are usually responsible across many fields of practice where maternal and infant care is only one small part of their work load.

Decision makers and funders of rural and remote services are generally based in metropolitan settings where models of care established in relatively resource-rich settings are expected to be implemented in resource poor settings and do not take into consideration distance, local community context, workforce capacity and community priorities.

However regional, rural and remote communities have many resiliency factors, where community and volunteer support for families can be harnessed, and where the commitment of workers can greatly foster the integration and partnership between community services.

In this context, structural change and implementation of new programs requires more time, consultation and long term investment as communities increasingly become sceptical of short-term funded pilot programs, where pathways to care are few and those services piloted do not receive sustained funding to build long term infrastructure and local workforce capacity. Effective implementation of the Plan in regional, rural and remote areas will require the mutual support of state-wide services and the maintenance of links with existing national initiatives and service programs, such as Better Access to Mental Health care for Rural and Remote areas. Cohesive partnerships within General Practice, Aboriginal Health Services, Country Health Services, and the Not-For-profit sector, for example, will be essential, as will the long-term support of rural and remote area staff through regional networks, regional hubs and service centres.
Aboriginal and Torres Strait Islander peoples

Anecdotal reports and evidence such as high rates of maternal and infant morbidity and mortality, and high rates of Aboriginal and Torres Strait Islander infants taken into care within the first year of life, support the notion that rates of perinatal emotional distress and mental illness are high and the burden of care significant for Aboriginal and Torres Strait Islander communities.

A plan that is inclusive of addressing the mental health and wellbeing needs of Aboriginal and Torres Strait Islander women in pregnancy and the first postnatal year must be a National priority. However, in the establishment of methodologies to inform and underpin the development of the Plan for Aboriginal and Torres Strait Islander women it became clear that the vision of this Plan for an early intervention program for all pregnant and postnatal women, undertaken by a well trained and supported workforce and clear pathways of care was not achievable for Aboriginal and Torres Strait Islander women in the time frame and funding parameters.

More specifically:

• The timeframe for the development of the Plan did not allow for ethical, culturally respectful and a well planned process for engagement of Aboriginal and Torres Strait Islander peoples, balancing the need for service provision with a consultation process that sets the groundwork for any future implementation of recommendations (NHMRC, 2003; Cultural Respect Framework 2004; CRCATH 2002 & 2003; Penman, 2006).

• The initiative is the first attempt to address the perinatal mental health and wellbeing needs of Aboriginal and Torres Strait Islander pregnant and postnatal women, their infants, fathers/partners and families as a coordinated strategy and as such requires a full consultation process for this group of Australian women that is culturally sensitive and acknowledges complexity and diversity (Penman, 2006).

• In order to engage respectfully with Aboriginal and Torres Strait Islander communities appropriate methodologies should be used, including the design and consultations which are established in partnership with Aboriginal and Torres Strait Islander communities and organisations with the involvement of Aboriginal and Torres Strait Islander staff (CRCATH 2003, 2002 Series 2, Cultural Respect Framework, 2004, Penman, 2006).

• Any recommendations arising from the development of the Plan will need to be made ensuring a ‘good fit’ with policy development and decision making processes to maximise uptake of the recommendations (CRCATH 2002 Series 4).

The lack of available research, knowledge, skills and resources and the complexity of identifying and intervening with Aboriginal and Torres Strait Islander women across wide cultural and social bounds within this population group require that a more considered view be taken. Research is required, for example, to validate mainstream psychosocial assessment tools in remote Aboriginal and Torres Strait Islander communities.

Initial consultations undertaken with Aboriginal and Torres Strait Islander organisations and some communities in this phase, work undertaken under Phase 1 of beyondblue, the experiences of large consultation processes such as the Footprints in Time: Longitudinal Study for Indigenous Children, and those with experience in working in this area, re-iterated the limitations of Phase 2 and led to the identification of the need to address this component of the Plan utilising a culturally sensitive approach as a matter of urgency.

A priority strategy in the implementation of this Plan is the recommendation that a National Perinatal Mental Health Action Plan for Aboriginal and Torres Strait Islander women be developed. This will require a full consultation process to identify current, quality and promising programs and services, service gaps and community need relating to mental health and wellbeing in pregnant and postnatal Aboriginal and Torres Strait Islander women. These consultations will particularly target rural and remote areas, ensuring culturally sensitive and respectful engagement of key Aboriginal and Torres Strait Islander communities and organisations. Consultations will include those organisations outside the health sector such as early childhood services and initiatives where Aboriginal and Torres Strait Islander families are often best engaged, to better inform the development of a culturally respectful and sensitive Plan.
Culturally and linguistically diverse communities

The Australian population is enriched by people from a range of cultural and linguistic backgrounds. This diversity embraces differences in religious, cultural and political beliefs, and educational and socioeconomic circumstances. Although women from culturally and linguistically diverse populations experience the same general difficulties with mental health and wellbeing in the perinatal period as do women in society’s mainstream, there are additional and specific factors that require consideration. These factors can both heighten risk for, and become barriers to the detection and management of, depression and other difficulties.

These factors may include: isolation due to language and culture; lack of literacy; inaccessibility or unacceptability of health services; cultural issues regarding male health providers; extreme stigma regarding mental illness, particularly in the maternal role; cultural value placed on the gender of the baby; lack of usual female family and peer support systems; conflict between traditional practices around childbirth and postnatal care and mainstream health services; lack of cultural competency among mainstream health workers; history of grief, loss and trauma, in addition to migration; lack of entitlement to free health care; and lack of suitable resources e.g. female interpreters (McCarthy et al, 1996).

A growing body of literature and the multicultural data from Phase 1 of the beyondblue Postnatal Depression Program suggests that (i) specific attention to the above items and (ii) production of culturally and linguistically specific resources is warranted. Various organisations, including beyondblue, have made commendable efforts on both items, and experience from several jurisdictions suggests that with careful and respectful attention to the aspects noted above, the assessment and other processes recommended in the Plan are acceptable to women from a range of backgrounds.

The difficulties in adequately consulting and engaging with the diverse cultures that enrich the Australian population within the time constraints of the current planning process mirror those outlined for Aboriginal and Torres Strait Islander peoples above. Issues specific to those communities will require particular and sensitive attention in the implementation of the Plan, laying an adequate foundation for assessment, training and identification of resources.

Screening’ or ‘Assessment’: clarification of terminology

It has long been recognised that a range of factors – biological, psychological, and social – can impact on mental health and wellbeing. Population health early intervention programs can however differ in purpose, with some focusing on the detection of probable current illness and others the identification of those at risk of developing a condition in the future. Two key terms have been used, at times interchangeably, in the perinatal mental health literature, “screening” and “assessment’ and these require clarification.

Screening is an epidemiological term which, narrowly defined, refers to the examination, typically by means of an inexpensive, harmless, diagnostic test, of a group of usually asymptomatic people to detect those with a high probability of currently having a clearly defined disease or disorder for which there is an effective remedy. Thus, in the context of perinatal mental health, the term screening should strictly be reserved for the identification of probable depressive illness, through the use of a validated scale such as the Edinburgh Depression Scale (EDS; Cox et al 1987).

Assessment is a term used to refer to the broad clinical evaluation of the client, her medical, psychological and social history and current status, including risk and protective factors, and which may be enhanced by the use of relevant screening tools. Assessment is essential to the provision of comprehensive, quality clinical care, and devising a good management plan requires that the clinician have a thorough grasp of the client and her context, in particular: her present circumstances and past history, including psychological health, social (including cultural) circumstances, as well as physical health. In the case of depression, a comprehensive assessment may require accurate diagnosis of a clinical condition.
Confusion with respect to these terms has evolved in part because the terms have sometimes been used interchangeably, and because the Edinburgh Depression Scale has been used for both screening and assessment purposes, depending on the particular research or primary care program of interest. It must be recognised, however, that the authors of the Edinburgh Depression Scale did not intend that it be used as a diagnostic tool, but rather as a means to assist clinicians in identifying major and minor depressive illness in order to provide appropriate clinical care.

The intention of universal routine psychosocial assessment as outlined in the Plan is neither to predict postnatal depression nor to replace clinical diagnosis by mental health professionals. Nor does it aim simply to identify likely current depressive illness. Rather, the focus is upon the skilled identification by primary care health professionals of a range of psychological and social issues (including depression and anxiety) known to affect perinatal mental health for both mother and infant. The consultation should include validated measures for depression, such as the Edinburgh Depression Scale, but should supplement such measures with relevant questions relating to broader psychological and social factors. Thus, in the context of the Plan, ‘psychosocial assessment’, rather than screening, will be used when referring to the various processes by which the mental health and wellbeing of perinatal women is considered.

This approach highlights the importance and role of universal application of a routine psychosocial assessment strategy as a population health initiative. Once women are identified as either at significant psychosocial risk or as currently symptomatic, it is incumbent on the service to provide adequate pathways to care.

It is in light of this approach that the strategic objectives of the Plan have been developed. The key components of universal, routine psychosocial assessment, training and workforce development, and integrated pathways to care are clearly intimately linked. Implementation incorporating each objective will need to occur in a streamlined and coordinated fashion across all settings, accompanied by increased promotion and awareness of perinatal mental health in the community and among key stakeholders.
Part Three: Strategic Objectives for Implementation – Recommendations and Implications

Community Awareness and Health Promotion

The engagement of the Australian community, key stakeholders and partners to understand and respond to the perinatal mental health and wellbeing needs of all family members provides the foundation on which consistent and timely responses can be established. An aware community and workforce will contribute to the building of a safety net that surrounds families during this time.

The success and sustainability of the three Strategic Objectives outlined in this section, and indeed the vision of this Plan, necessitates community awareness and health promotion activities about perinatal mental health to justly provide a whole of family and community approach to supporting the mental health and wellbeing of pregnant and new mothers. These activities, coordinated by beyondblue and undertaken in tandem with the implementation of the Plan, should also be ongoing activities. A considered approach to the communication and consultation strategies is outlined below.

Two primary strategies are recommended to facilitate community and stakeholder awareness and engagement. The first is the development of a communication strategy to raise general community awareness of perinatal mental health issues, specifically the impact on infant development and wellbeing and the needs of fathers/partners and other family members. The second is the development of a consultation strategy identifying ways to best engage key stakeholders and partners for the implementation and evaluation of the strategic objectives outlined in this plan.

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**Strategy 1: Communication**

Recommended Activities:
- A media campaign to promote increased community and service providers awareness and knowledge of perinatal mental health issues
- Review and develop educational resources for consumers, families and service providers about and its impact on infants, fathers/partners and families
- Promote the inclusion of information and provision of resources about mental health and wellbeing in pregnancy and the first postnatal year in education and information sessions for all expectant and new mothers and their partners
- Assess the value of a national information system to support access to a broad range of information for both consumers and service providers eg:
  - A central national resource
  - A dedicated perinatal mental health website

**Strategy 2: Consultation**

Recommended Activities:
- A round table for senior policy makers across jurisdictions to seek commitment to the Plan in early 2008
- Development of plans with key stakeholders and partners at jurisdictional levels for implementation of all components of the Plan in 2008 involving:
  - Meetings with senior health bureaucrats
  - Development of relationships with key NGOs and private sector services
- Participation in forums; collaborative projects; input into parliamentary enquiries, related National and State plans and frameworks across sectors
Strategy 1: Communication
Develop and implement a strategic communications strategy to raise awareness of perinatal mental health issues and services available.

Recommended Activities:
Activity 1: Develop a media campaign inclusive of print media, television and radio, to promote increased community awareness and health professional knowledge of perinatal mental health
Suggested key messages for the media campaign to include:
- Raise awareness about a range of concerns eg: anxiety, fatigue, grief, trauma and adjustment reactions, as well as depression
- The importance of seeking help early
- You are not alone
- The role of and impact on fathers/partners and other family members who may be the first to recognise distress/symptoms and can also suffer similar distress/symptoms
- That perinatal mental health is the responsibility of the whole community, with assistance from all health and community care services

Activity 2: Promote the inclusion of mental health and wellbeing in pregnancy and the first postnatal year in education and information sessions for all expectant and new mothers and their partners

Activity 3: Review existing material and consider development of a dedicated educational DVD resource that includes the consumer and family perspective, input from perinatal mental health patrons and professional experts for:
- Mothers, infant, fathers/partners and family
- Professional groups such as Maternal and Child & Family Health Nurses, Midwives, Obstetricians, Paediatricians, Allied Health professionals, Psychiatrists and Social Workers

Activity 4: Provision of relevant information and resources about perinatal social and emotional wellbeing to ALL women and families (eg. beyondblue Emotional Health in Pregnancy and Early Parenthood booklet)
- Recommended information: assessment procedures and the rationale for them, nature and typical patterns of illness and other difficulties, care options, relapse and recovery, impact on fathers and partners and the social and emotional wellbeing of infants, general strategies for promoting the mother-infant relationship

Activity 5: Identification of activities to promote increased care giver and community knowledge regarding the social and emotional development of infants these may include (but are not restricted to): website development, publications, forums, and other media activities.

Resources: beyondblue to lead, in consultation with key stakeholders and partners, ambassadors and patrons and utilising existing channels and information eg. beyondblue publications, Raising Children website (FaCSIA)

Activity 6: Assess the value of the provision of a central, national resource to support access to a broad range of information and services:
- Consider the worth of a dedicated perinatal mental health website, or inclusion of links/information regarding perinatal mental health to existing related websites, local resources and information
- Consider the establishment of a central information and referral function to:
  - Link with services currently in existence eg MCFH services, workers providing evidence-based or quality treatments, mental health support line for health professionals, web-based resources
  - Assist with referral and access to services

Resources: Dedicated funding and resources are required
Strategy 2: Consultation
Develop and implement a consultation strategy to identify and engage all key stakeholders and partners relevant to the implementation and evaluation of the Plan. Key stakeholders and partners include but are not restricted to politicians, bureaucrats, health professionals, consumer and carer groups.

Recommended activities:
Activity 1: Facilitate a round table for senior policy makers across jurisdictions to seek commitment to the Plan in early 2008

Expected Outcomes:
Consolidate commitment and support of all relevant governments and organisations to the implementation of the Plan more specifically:
• Agreement to implementation of the Plan by Health Departments at National and State/Territory levels
• Identification and agreement of roles and responsibilities of all key stakeholders and partners
• Agreement reached regarding equity of access across service settings
• Endorsement of the plan by the private sector and professional organisations

Resources
Dedicated national and state funding collaboration with beyondblue of key stakeholder and partner organisations, participation of identified ambassadors and patrons

Activity 2: Identify and develop plans with key stakeholders and partners at jurisdictional levels for implementation of all components of the Plan in 2008 through:
• Meetings in early 2008 with senior health bureaucrats in each jurisdiction and at Area Health Service level to engage regarding the development of local plans and structures for implementation, routine assessment, establishment and enhancement of quality pathways to care and workforce training and development required for this
• Regular ongoing meetings at jurisdictional levels to enhance awareness and provide support and advice in the development and implementation activity in this area
• Dissemination of National Perinatal Mental Health Guidelines when developed
• Develop relationships with key NGOs in each jurisdiction to engage regarding the implications of the plan for their respective organisation and to encourage, provide support and advice regarding relevant organisational policies and structural development

Resources:
beyondblue to identify appropriate partners and strategies to enhance awareness and support activity in this area

Further activities include, but are not limited to:
Conducting and participating in forums
Undertaking cross sector collaborative projects
Participating in parliamentary inquiries or providing input to the development of related National and State plans and frameworks
Strategic Objective 1: Training and workforce development

Strategic Objective: To identify and develop a quality framework for workforce training and development to address perinatal mental health care

A quality workforce that is trained, skilled and well supported to promote robust mental health and wellbeing and to identify and intervene early is fundamental in achieving the vision and mission of this Plan. As there are many hospital and community based personnel who will be involved through pregnancy and the first postnatal year, training needs to be appropriately targeted for a range of community and health workforces.

The Plan outlines 3 key strategies to achieve this objective:
1. National Guidelines for policy and management
2. Quality workforce training activities
3. Identified key components for accredited curricula

Mothers, infants, and fathers/partners should be supported in pregnancy and the first postnatal year informally through community and social networks; and formally through health care and community providers across the public, private, not for profit, and consumer-led self help, support and advocacy sectors (see fold out section for example).

As an immediate strategy, training aims to target the primary care workforce of General Practice, Midwifery, Maternal Child and Family Health services, Allied Health professionals (particularly psychologists, social workers and occupational therapists) and to a lesser extent Obstetrics and Paediatrics. These workforces are best placed to undertake the majority of routine psychosocial assessments, provide health promotion information, offer immediate support and initiate early interventions. However, training for assessment must occur simultaneously with training of workforces who will provide intervention and care (see Strategic Objective 3: Pathways to Care) and consider the needs of specific population groups – rural and remote communities, Aboriginal and Torres Strait Islander peoples and culturally and linguistically diverse populations.

The longer term aims of the Plan are to increase the competence of consumer-led services that may support women who choose not to access formal health care services, complementary service sectors, specialist health and mental health services, and to work towards the inclusion of perinatal mental health curricula at undergraduate and postgraduate program levels.

Workforce training programs at each of the critical service levels above will therefore need to be inclusive of: health promotion activities; identification, assessment and diagnosis along the care continuum; the identification and development of local pathways to care; information about and access to referral networks that provide targeted interventions at primary, secondary and tertiary levels of care (refer to Strategic Objective 2: Universal Routine Psychosocial Assessment and Strategic Objective 3: Pathways to Care, respectively) This will require training programs that vary in length, level of knowledge and skill and that are delivered in environments that best promote coordinated care delivery and the development of professional relationships across service sectors.

A skilled and knowledgeable workforce can only be sustained by a policy and management structure that facilitates staff to attend training, supports service development and procedural change where required, and provides ongoing clinical supervision and support. In the policy context this will require reorientation of focus and funding towards the primary care sector.

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Gilbody 2004, reporting for the World Health Organisation on the effectiveness of capacity building of primary health care professionals in the detection, management and outcome of depression, found: (i) substantial evidence to support the effectiveness of collaborative care, case management and stepped care (ii) that clinician education and guidelines, when offered in isolation to the above are ineffective.

The educational framework medical specialist training (The Educational Framework for Proposing an Expanded Specialist Training Environment, DoHA 2007) proposed for an expanded specialist-training environment “…will create opportunities to expand training to match service delivery and community needs, more closely aligning the provision of high standard, multi-discipline patient care with community expectations…”
Table 1: Strategic Objective 1 – Training and workforce development

**Strategic Objective:** To identify and develop a quality framework for workforce training and development to address perinatal mental health care.

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Strategic Activities</th>
<th>Timeline</th>
<th>Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Develop National Guidelines for training and workforce development</td>
<td>1.1 Finalise and endorse National Guidelines on perinatal mental health training and workforce development based on existing and/or Guidelines in development eg the Australian Qualification Framework.</td>
<td>Years 1-2</td>
<td>DoHA, NHMRC, beyondblue implementation team</td>
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<tr>
<td></td>
<td>• Identify, map and enhance core competencies for all providers (refer: Strategic Objectives 2: Assessment &amp; 3: Pathways to Care)</td>
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<td></td>
<td>• Finalise national standards for accreditation of workforce training, postgraduate and undergraduate programs</td>
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<td></td>
<td>• Negotiate inclusion of recommended core competencies with relevant accrediting bodies eg professional, academic and regulatory accrediting bodies</td>
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<tr>
<td>1.2 Plan for and implement quality training and workforce activities to attract and retain qualified, skilled and experienced workforce in perinatal mental health</td>
<td>1.2.1 Workforce Development</td>
<td>Year 1- ongoing</td>
<td>Responsible partners for implementation of training and workforce development: beyondblue implementation team</td>
</tr>
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<td></td>
<td>• Finalise and implement a structure to support workforce training and development programs that are multidisciplinary and multiagency in nature (refer: Strategic Objective 2)</td>
<td>These activities will begin in Year 1 and will be an ongoing process</td>
<td>State/Territory Health Departments</td>
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<td></td>
<td>• Identify and implement a full range of educational initiatives for the current workforce to ensure a skilled and competent workforce eg. appropriate certification for training programs</td>
<td></td>
<td>Regional Health and community Services</td>
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<td></td>
<td>• Build the capacity of local services and the current workforce to universally and routinely assess and manage perinatal mental health and wellbeing that has a whole of family approach</td>
<td></td>
<td>Local Perinatal Mental Health advisory committee with coordinating capacity</td>
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<td></td>
<td>1.2.2 Professional Development</td>
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<td>AGPN &amp; SBO’s</td>
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<td></td>
<td>• To identify existing and implement a range of incentives for perinatal mental health competence, that is whole of family inclusive, across all sectors eg. professional accreditation, organisational accreditation, graduate diplomas and programs</td>
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<td>RACGP</td>
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<td>1.2.3 Organisational and practice change</td>
<td></td>
<td>Better Outcomes Standards Collaboration</td>
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<td></td>
<td>• Addressing organisational and managerial competencies for support, supervision, staff training</td>
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<td>RANZCOG</td>
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<td></td>
<td>• Identify and endorse core principles of effective service design and delivery</td>
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<td>APS</td>
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<td></td>
<td>• Recommend perinatal mental health Key Performance Indicators (KPIs) to be included in senior employment contracts and service agreements</td>
<td></td>
<td>NGO sector</td>
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<tr>
<td>1.3 Endorse and implement recommended key components required for accredited core curriculum for:</td>
<td>1.3.1 Current workforce</td>
<td>Year 1- ongoing</td>
<td>beyondblue Implementation team</td>
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<td></td>
<td>1.3.1 Current workforce</td>
<td>These activities will begin in Year 1 and will be an ongoing process</td>
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<td></td>
<td>Endorse and disseminate provisional recommended core components of course curricula to assist with mapping against existing workforce training programs until national guidelines are available</td>
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<td>1.3.2 Postgraduate and Undergraduate Courses</td>
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<td>Identify programs at baseline, intermediate and complex levels of knowledge and skill (program levels 1, 2, 3) and map against provisional recommended course curricula that is inclusive of cultural considerations and competencies (social, cultural and linguistic)</td>
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</table>

**Resources:** Provision of necessary resources requiring dedicated perinatal mental health funding will be dependant on the degree to which governments, the private sector and non-government organisations take up the recommendations of the Plan. The commitment and support of local management teams will also be required. Existing infrastructures may be utilised to incorporate the Plan’s recommendations, and existing relevant resources may be drawn up on. Responsibility for activities outlined above will be dependent on the degree of coordinating capacity within the perinatal mental health workforce. Coordination and quality monitoring for roll out of training programs nationally and development and distribution of clinical and training resources is recommended.
Strategic Objective 1: Training and workforce development

Strategic Objective: To identify and develop a quality framework for workforce training and development to address perinatal mental health care

Implications for implementation

In the initial phases of implementation, training should focus on targeting the largest existing workforces who will be primarily involved in the provision of universal and routine psychosocial assessment of women antenatally and postnatally. These current workforces are primarily employed within government hospital and community services or in the General Practice and Obstetric workforce.

As implementation progresses, roll out of training addressing the specific needs of rural and remote communities, Aboriginal and Torres Strait Islander and of culturally diverse populations will occur. Where available, training programs will be conducted for those working with these population groups identified above as early as practicable within the initial implementation phase.

Strategy 1.1: National Guidelines for Perinatal Mental Health training and workforce development

Activity 1:
Finalise and endorse National Guidelines for Perinatal Mental Heath training and workforce development programs

Recommendations:
Core competencies
Identify, map and enhance core competencies for all providers in the area of perinatal mental health building on existing knowledge and related competencies and research at National and International levels

National Standards & Accreditation
- Develop National standards for perinatal mental health training courses based on mapping of related National and International documents and research. This is inclusive of workforce, postgraduate and undergraduate programs and for primary, secondary and tertiary care service providers
- Recommend core curricula for current workforce training programs and postgraduate and undergraduate programs
- Negotiate accreditation of endorsed workforce training programs with relevant professional accrediting bodies
- Negotiate inclusion of recommended core curricula and competencies with relevant postgraduate and undergraduate training and education bodies
- Address organisational and managerial competencies for support and supervision
- Develop and implement a process for review and quality improvement of training programs and data collection

Implications:
There are several quality and/or evidence-based workforce training programs currently available that develop skills and knowledge in the assessment and management of perinatal mental health and wellbeing. Amalgamation of material from these programs will meet recommended core competencies.

As appropriate, training programs will incorporate some content addressing issues of geographical distance, for culturally diverse populations and for Aboriginal and Torres Strait Islander peoples following the recommended consultation process.

Influencing of postgraduate and undergraduate course content will require longer term planning and engagement of the relevant professional, academic and training bodies.
Strategy 1.2: Identify and recommend quality workforce and training activities to attract and retain qualified, skilled and experienced workforce in perinatal mental health

Activity 1: Workforce Development
Recommendations:
- Develop and implement a structure to support workforce training and development programs that are multidisciplinary and cross sector in nature
- Identify strategies for workforce attraction and retention
- Identify a full range of educational initiatives for the current workforce to ensure a skilled and competent workforce eg. Appropriate certification for training programs
- Build local services capacity within the current workforce to universally and routinely assess and manage perinatal mental health and wellbeing through:
  - promotion of service collaboration and partnerships
  - ongoing support and supervision
  - identification of workforce recruitment and retention strategies

Implications: Dedicated training positions will be required on a ‘train the trainer’ model

Activity 2: Professional Development
Recommendation:
- Identify and implement a range of incentives for perinatal mental health competence across all sectors eg. Professional accreditation, organisational accreditation, graduate diplomas and programs

Activity 3: Organisational and practice change
Recommendation:
- Identify and support implementation of policies, procedures, strategies and structures to:
  - Provide regular, ongoing clinical and professional supervision of staff assessing and managing perinatal mental health and wellbeing issues
  - Ensure Staff are released and supported to attend training programs for example through the provision of back fill, time factored in for e-learning activities or, for remote area staff, financial assistance to access training programs in regional or metropolitan centres
  - Address issues of clinical re-design of service provision as required
  - Recommend perinatal mental health Key Performance Indicators (KPIs) to be included in senior employment contracts and service agreements

Strategy 1.3: Endorse and implement recommended core components required for accredited core curriculum for current workforce, undergraduate and postgraduate courses where perinatal mental health would appropriately be taught

Activity 1:
Develop provisional recommended core components of course curricula to assist with mapping against existing workforce training programs until national guidelines are available

Recommendation:
That provisional competencies, content and mode of delivery outlined in Activity 2 below and summarised on p30 be utilised to adjust current workforce training programs whilst National Guidelines are developed and endorsed. This will allow current programs to continue to meet workforce demand for training in this area as implementation occurs

Activity 2:
Programs will be identified at baseline (level 1a & 1b) and extension levels (levels 2, 3) of knowledge and skill, and mapped against provisional recommended course curricula and include face-face, self directed, telehealth and e-learning options

Recommendations:
*Baseline Level 1 Programs (minimum 8 hours)*:
  - Attitudes & engagement
• Consideration of social, cultural and family context
• Information on perinatal mental and common mental illnesses and difficulties at this time
• **Psychosocial assessment** (primary focus)
  • Skills and knowledge to support social and emotional wellbeing and mild distress
  • Identification of Pathways to Care, referral and local networks
  • Appropriate level interventions ie GPs require info on medication, simple health promotion information and self management (woman & worker) strategies
• **Brief** outline of attachment theory and impact of perinatal mental health issues on the infant
• **Brief** understanding of the mental health issues for fathers/partners and family

**Level 2 & 3 Programs (minimum 4 hours each):**
Second and third level training programs will cover pathways to care in-depth, intervention strategies, impact on infants, fathers/ partners and referral/management of complex issues (eg drug and alcohol, grief and loss, family violence and infant trauma) focussing on skill development in these areas

**The provision of training that is flexible to meet local and jurisdictional variation**
• Map identified evaluated programs against recommended core content and mode of delivery, jurisdictions will have choice about training programs used
• Adjust content of identified programs according to recommended core components and to local needs, population groups and priorities e.g. adjust information for assessment tools, local pathways to care information, targeted interventions.

**Training targeted for the primary care workforces as a priority**
• Whilst training targets increased assessment skill, there is need to have workforces able to provide appropriate level intervention
• Training programs will be provided at different levels of knowledge and skill in acknowledgement that some professions/ agencies will provide varying levels of care
• The priority target for training programs will be the primary care workforce initially however it is acknowledged that the pathways to care workforce who will support this workforce in providing secondary and tertiary level care is also a priority target group and need to be engaged early when training is provided
• Wherever possible, engagement and involvement of local professionals with expertise in this area to assist with delivery of training is strongly encouraged, in part to assist with establishment of local pathways to specialist care

**Training programs are delivered in environments that best promote coordinated care delivery and the development of professional relationships**
• Cross sector and multidisciplinary training builds greater knowledge and exposure to local pathways to care; provides opportunities for development collaborative practice; increases opportunities for shared knowledge and respect for expertise across professions and service sectors
• Training programs will be funded for targeted priority workforces as identified but are encouraged to be delivered in cross agency and/or multidisciplinary groups
• Train the trainer programs are cost effective

**Implications:**
Trainers will require knowledge and skills in working with multiple professionals and service sectors including management of diverse professional Frames of Reference. Trainers should be chosen based on clinical experience and knowledge and training experience rather than on profession alone.

Delivery of training across sector/professional workforces will require greater coordination, off set by greater numbers of existing workforces having increased awareness and knowledge in the provision of cross sector services.
Core and Extension Training Levels: 4, 8, 12 or 16 hrs training

**Recommended minimum:**

- Non-mental health trained health staff Baseline (L1a + L1b): 8 hrs
- Mental health trained and GPs Baseline (L1b): 4 hrs
- Extension (optional): 8 hrs
- Extension (Preferred): 4-8 hrs

**L1a 4hrs Core knowledge & skill:**
- Psychosocial Context
- Assessment - EDS
- Early Intervention
- Health Promotion

**L1b 4hrs Core knowledge & skill:**
- Psychosocial issues & assessment
- Infant Mental Health interventions, Pathways to Care
- Networking and Collaborative practice

**L2: 4 hours Knowledge & skill:**
- Management of co-morbidity and complex cases
- Mother-Infant intervention

**Target Groups:**
- Midwifery, Allied Health professionals, MCHF services, Obstetrics, General Practice, Paediatrics

**Target Groups: as previous PLUS**
- Mental Health staff
- Community services: Child protection, Drug & Alcohol, Family violence, NGO

**Target groups:**
- All groups as listed previously

**Content:**

**Introduction & review:**
- Brief review of levels 1a & b

**Psychosocial Context:**
- Awareness and strategies to address issues of:
  - grief and loss
  - co-morbidity
  - family violence
  - severe mental illness
- Impact on parenting and care

**Skills:**
- Mental State Examination (brief)
- History taking
- Psychosocial Assessment tool and its use

**Infant and Family:**
- Introduction to Attachment and normal emotional development
- Impact of maternal distress and illness on infant development
- Mother-infant attachment distress
- Impact on father/partner/family

**Interventions:**
- Health Promotion strategies
- Local pathways to care, including for the infant

**Skills:**
- Skills for early intervention:
  - counselling strategies
  - mental health first aid
  - Care Planning

- Homework tasks

**Managing Complexity:**

**Enhanced Knowledge:**
- Awareness and strategies to address issues of (may cover 1-2):
  - grief and loss
  - co-morbidity
  - infant trauma
  - trauma in mothers
- Infant attachment and distress

**Enhanced Skills:**
- Identifying infants at risk, safety and referral on
- Ways to promote M-Infant relationship
- Engagement and support of mothers with complex need

**Level 3: 4 hrs Knowledge & Skill:**
- Appropriate level interventions & management of co-morbidity complex cases, further skill development

**Target groups:**
- All groups as listed previously

**Content:**

**Enhanced Knowledge:**
- Address issues not covered above
- The impact on severe mental illness on ability to provide care
- Infant mental health and mother-infant relationship

**Enhanced Skills:**
- Appropriate level interventions
- Working collaboratively
**Strategic Objective 2: Universal routine psychosocial assessment**

**Strategic Objective:** To develop a quality framework for universal implementation of routine psychosocial assessment.

Perinatal mental health encompasses a spectrum of which illness constitutes only one end, while the other implies social and emotional wellbeing. Health and the factors that promote wellbeing must remain a focus in this important public health initiative, as addressing only clinical illness would do a disservice to the many distressed women who do not meet diagnostic criteria but who would, along with their families, benefit from psychological, social or practical intervention.

The Plan outlines three key strategies to achieve this objective:

1. National Guidelines for routine psychosocial assessment
2. Detailed implementation planning at a local and regional level
3. Identification and development of workforce, referral and information system infrastructure to support sustainable implementation

It is not intended that the routine assessment process be used to diagnose (or predict) clinical disorders. Rather, the intention is that women in need of extra support or requiring further in-depth assessment are identified early, as a routine component of clinical care, and appropriate management and referral options offered and made available.

The Plan therefore recommends that universal, routine, perinatal, psychosocial assessment should focus on the skilled identification of both *current distress and depressive symptoms (using eg. the Edinburgh Depression Scale, Cox et al, 1987) and demographic, social and psychological factors (including anxiety) known to affect perinatal mental health for both mother and infant.*

Routine psychosocial assessment can be readily integrated into existing antenatal and postnatal care settings and should occur at least once in the antenatal period and at least once during the first 12 months postpartum. Ideally, it should be reviewed and repeated both antenatally and postnataally, and can be offered at other times should the health professional consider this to be warranted.

Sensitive explanation of the assessment measures used and their purpose, as well as staff training and support, is essential to implement universal routine psychosocial assessment. Information regarding emotional and social aspects of pregnancy and the postpartum period should be provided for all women and their partners.

Many new mothers experience negative thoughts or low mood during the perinatal period with symptoms that are not severe and that resolve spontaneously within a few weeks in a supportive environment. Thus, it is important to emphasise that routine assessment is simply a method to facilitate more extensive intervention or diagnostic assessment when appropriate. Diagnoses of depression, for example, should only be made based on a more rigorous psychiatric interview and never based on the Edinburgh Depression Scale or other such preliminary screening instruments alone.

Given the significant morbidity for the mother and the infant as well as the existence of many effective treatments, assessment and intervention for those women who are currently experiencing or at risk of adverse mental health and wellbeing outcomes is an important strategy, with National implementation rendered more achievable by the extensive contacts that most pregnant and postnatal women have with health services at this time.
Table 2: Strategic Objective 2 - Universal and routine psychosocial assessment:

**Strategic Objective:** To develop a quality framework for universal implementation of routine psychosocial assessment

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Key priority activities</th>
<th>Timeline</th>
<th>Responsibility</th>
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</table>
| 2.1 Endorse National Guidelines for psychosocial assessment | **2.1.1 Finalise and endorse National Guidelines for routine psychosocial assessment in the perinatal period**  
- Build upon and enhance existing PMH guidelines developed both within Australia and internationally  
- Adapt National Guidelines to meet jurisdictional needs and infrastructure for implementation of routine psychosocial assessment  
- Review jurisdictional plans for routine psychosocial assessment to ensure they address the National Guidelines to meet a range of population groups | Years 1-2 | DoHA, NHMRC, AHMAC, FaCSIA, the beyondblue implementation team |
| 2.2 Plan for, and implement, routine psychosocial assessment across Area/regional Health and community Services | **2.2.1 Establish local Perinatal Mental Health advisory committees of key stakeholders to advise on and manage implementation in public and private settings. These committees will:**  
- Identify existing area/regional Health and community networks and service structures relevant to implementation of routine psychosocial assessment  
- Provide evidence of strategies to reduce identified barriers to implementation  
- Establish and maintain links with current national and State/Territory initiatives  
- Monitor and evaluate the implementation of area/regional plans; utilise evaluations to enhance current practice | Year 1 - ongoing  
These activities will begin in Year 1 and will be an ongoing process | State/Territory Government Depts, Area/regional Health and community Services |
| 2.2.2 Identify and support the development of appropriate assessment procedures for specific groups, where this has not yet occurred (including father/partner-focused initiatives) | | | Local Perinatal Mental Health advisory committee with coordinating capacity |
| 2.3 Build infrastructures to support implementation of routine psychosocial assessment | **2.3.1 Workforce infrastructure**  
- Establish adequate coordinating capacity within management and the workforce in public and private settings  
- Induct a skilled workforce to undertake routine psychosocial assessment (Refer: Strategic Objective 1)  
- Where required, allocate human resources to support implementation, including clinical practice and administration tasks | | Responsible partners for implementation will involve:  
- State/Territory Health Departments  
- AGPN  
- Private hospitals  
- Area/regional Health and community Services  
- Local Perinatal Mental Health advisory committee with coordinating capacity |
| 2.3.2 Information and referral system infrastructure | **2.3.2 Information and referral system infrastructure**  
- Finalise and endorse clear assessment, management and referral protocols for the local setting, based on level of need, resources and service structure  
- Endorse and implement information management systems to ensure reciprocal flow of information across the continuum of care, e.g. psychosocial care plans (see Strategic Objective 3)  
- Review information pathways across the continuum of care, in line with increases in implementation activity | | |
| 2.3.3 National data collection | **2.3.3 National data collection**  
- Establish partnerships with leading research centres and develop strategies for the inclusion of psychosocial assessment items in national data collections | Years 1-3 | AIHW, DoHA Beyondblue implementation team |

**Resources:** Provision of necessary resources requiring dedicated perinatal mental health funding will be dependant on the degree to which governments, the private sector and non-government organisations take up the recommendations of the Plan. The commitment and support of local management teams will also be required. Existing infrastructures may be utilised to incorporate the Plan’s recommendations, and existing relevant resources may be drawn upon. Responsibility for Activities 2.2.1 to 2.3.2 will be dependent on the degree of coordinating capacity within the perinatal mental health workforce.
Strategic Objective 2: Universal routine psychosocial assessment

Strategic Objective: To develop a quality framework for universal implementation of routine psychosocial assessment.

Recommendations and implications

The intention of universal and routine psychosocial assessment as outlined in the Plan is to promote health. It is not intended that the routine assessment process be used to diagnose (or predict) clinical disorders.

The perinatal period offers many opportunities for early intervention and prevention, and optimal clinical care should include assessment for a range of psychosocial issues that may adversely affect the wellbeing of the mother, infant and family and may be amenable to psychological, social or practical intervention.

Strategy 2.1: National guidelines for routine psychosocial assessment

Recommendations:

- That National Guidelines for Perinatal Mental Health, including recommendations for universal routine psychosocial assessment, be developed and endorsed
- That the National Guidelines build upon and enhance existing perinatal mental health guidelines developed both within Australia and internationally and work undertaken in Phase I of the beyondblue Postnatal Depression Program (2001-2005)

Implications:

- National guidelines will help achieve a coordinated, consistent and high-quality standard of care for all mothers, infants, partners and families at this significant developmental stage
- Provisional content and mode of delivery drawn from existing guidelines and outlined in 2.1.1-2.1.4 below can be utilised to adjust and continue current psychosocial assessment practices while National Guidelines are finalised and endorsed

2.1.1 Content of assessments (Recommended minimum requirements)

Recommendation:

- That perinatal psychosocial assessment focus on the skilled identification of current distress, anxiety and depressive symptoms, and demographic, psychological and social factors that contribute to poor health

Implications:

- Universal application of routine psychosocial assessment will be an important component of population-based public health initiatives
- Any woman endorsing a risk factor (see next page for recommended variables) or reporting a score above the threshold on the Edinburgh Depression Scale (EDS; Cox et al, 1987), for example, will require prompt follow-up by ‘selective’ or ‘indicated’ strategies for intervention
- Services may, however, vary as to the level of risk requiring further assessment, referral or follow-up. In some services, any single risk factor will be deemed worthy of attention, whereas in others a higher level of risk will be required before further action is considered. Each setting will need to develop and implement well-defined assessment, management and referral protocols.

Assessment of current distress, anxiety and depressive symptoms

Recommendations:

- That evidence-based measures be used for the identification of distress, anxiety and depressive symptoms. Many instruments are available and details of several examples are provided in the Stocktake Report (Appendix 2) and literature review (Appendix 3)
- Of the available instruments, the Edinburgh Depression Scale is widely used internationally and has a strong evidence-base for use in the perinatal setting. Consideration of the use of the Edinburgh Depression Scale as a component of universal,
Routine assessment is recommended, and was one of the key recommendations of the *beyondblue National Postnatal Depression Program 2001-2005*. It is well accepted by women and primary health care staff alike (e.g., Buist et al, 2006; Gemmill et al, 2006)

- Although it does not provide a diagnosis, the Edinburgh Depression Scale is reasonably effective as a tool for identifying the probable presence of major depression in English-speaking populations using the following cut-off scores:
  - Antenatally, 14 or more
  - Postnatally, 13 or more

- For screening purposes in the community, however, when it is important not to miss any significantly distressed respondents, a cut off score of 10 or more is recommended by the original authors of the Edinburgh Depression Scale with the expectation that for those above that score, further assessment will then occur. To avoid confusion, the score of 10 or more should be applied both antenatally and postpartum.

**Assessment of demographic, psychological and social factors**

**Recommendations:**
That psychosocial questions asked in the perinatal period cover a list of variables known to impact on perinatal mental health outcomes as endorsed by the literature (see Literature review, Appendix 3) and included in several existing perinatal mental health guidelines (e.g., NSW Health ‘Supporting Families Early’ Package and related materials, the Integrated Perinatal and infant Care (IPC) Guidelines, WA Guidelines for Perinatal Depressive and Anxiety Disorders, British Colombia Reproductive Care Program Guidelines). These recommended variables are outlined in the list below.

- ‘Evidence-based’ measures for the identification of demographic, psychological and social factors known to impact on perinatal mental health outcomes are available and consideration of the use of these is recommended. Measures for which validation data exist include the Pregnancy Risk Questionnaire (PRQ; Austin et al., 2005), the Integrated Perinatal Care/SAFE START psychosocial assessment (NSW Health IPC/SAFESTART; Barnett et al, 2005), and the Antenatal Psychosocial Health Assessment (APLPHA; Carroll et al, 2005). Further examples of validated questionnaires are provided in the literature review (Appendix 3). Validation of the brief Antenatal Risk Questionnaire (ANRQ; Austin 2004), a 9-item measure based on the longer PRQ, is currently underway.

**Recommended variables for psychosocial assessment:**
- personal or family history of depression, anxiety and other mental health problems
- poor relationship with the partner or mother
- domestic violence
- current cigarette, alcohol or other substance use
- lack of social and emotional support
- life stressors in the last twelve months
- history of significant bereavements, or other grief and loss issues
- low self-esteem
- anxious, especially perfectionist traits
- history of physical, sexual or emotional abuse
- low socio-economic status
- any involvement of the woman or any prior children with Child Protection Services
- partner’s history of mental health problems and substance misuse
- Aboriginal and/or Torres Strait Islander status of mother or father/partner

**Implications:**
- Psychosocial assessment can be readily integrated into existing routine practices that focus on social wellbeing, eg. routine (and in some settings, mandatory) questions for domestic violence, and drug and alcohol use

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• Assessment of demographic, psychological and social factors allows the skilled identification of a range of issues occurring outside the timeframes referred to in measures of current distress (eg. the Edinburgh Depression Scale, which asks about the last 7 days)

2.1.2. Administration of psychosocial assessment

Recommendations:
• That all women receive relevant information on emotional health and wellbeing both antenatally and postnatally, eg. beyondblue ‘Emotional Health During Pregnancy & Early Parenthood’ booklet (also available in translated versions)
• That all women are informed about psychosocial assessment and its potential benefits and give consent prior to administration
• That the questions comprising the psychosocial assessment be completed by self-report or administered face-to-face by a health professional
• That the psychosocial assessment be administered only by a skilled professional able to review and provide timely and appropriate responses to identified concerns
• As outlined in 2.1.1 above, each setting will need to develop and implement well-defined assessment, management and referral protocols based on the assessment measures used, and according to local need, resources and service structures
• Antenatally, routine assessments should be conducted (using an interpreter where necessary) by eg. a Midwife, GP, Aboriginal Health Worker or Allied Health professional; in private settings, assessments should be conducted by eg. an obstetrician, GP or Midwife
• Postnatally, routine assessments should be conducted (using an interpreter where necessary) by eg. a Midwife, Maternal, Child and Family Health Nurse, GP, Aboriginal Health Worker or Allied Health professional; in private settings, assessments should be conducted by eg. an obstetrician, GP, Midwife, or paediatrician
• That while most routine psychosocial assessments are likely to be conducted by primary care and Allied Health professionals, ongoing training and supervision should be provided to all staff providing perinatal care within government, non-government, private and consumer-led settings

Implications:
• Sensitive and appropriate enquiry is required, and is particularly relevant to questions relating to past or current mental illness, emotional or physical abuse and self-harm
• The assessment should therefore be conducted in a confidential setting and reviewed by the health professional in the presence of the woman, so that positive responses requiring further discussion or indicating thoughts of self-harm or suicide (such as Edinburgh Depression Scale [Q10]) are immediately addressed
• Training programs therefore will need to equip health professionals with the knowledge and skills to undertake assessments, identify level of need and risk, provide early intervention and health promotion and refer to appropriate services
• Professionals conducting the assessments will require organisational and management support and regular supervision about clinical practice
• Adequate human resources and time are required to support clinical and administration requirements involved in undertaking assessments

2.1.3. Frequency and timing of assessments

Recommendations:
• That universal and routine assessment be offered:
  o at least once in the antenatal period at the earliest opportunity (e.g booking-in visit), with a preferred review and repeat assessment in the third trimester
  o at least once during the first 12 months postpartum preferably within three–six weeks postpartum and repeated before six months
  o at other times should the clinician consider this to be warranted

Implications:

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4 See Strategic Objective 1: Training and Workforce Development for detail
• Routine psychosocial assessment can be readily integrated into existing antenatal and postnatal care procedures (e.g., booking-in visit, six-week postnatal check, immunisation, child development check etc)

2.1.4. Psychosocial assessment for culturally diverse and Aboriginal and Torres Strait Islander populations

Recommendations:
• That the assessment process be acceptable to staff and clients, as well as safe and sensitive to the social, spiritual, cultural and linguistic background of the woman and her family
• That where available, culturally appropriate resources be used
• That respect for ownership be regarded as a high priority in the development of new culturally appropriate resources

Implications:
• Research conducted at three key sites in Queensland (beyondblue National Postnatal Depression Program 2001-2005) showed that:
  o Psychosocial risk factors identified in Aboriginal and Torres Strait Islander women were consistent with those in the wider community
  o Aboriginal and Torres Strait Islander women scored no differently on the language-specific Edinburgh Depression Scale than on the mainstream Edinburgh Depression Scale
• The Edinburgh Depression Scale is well accepted by women from diverse populations (e.g. Barnett et al, 1999; Matthey et al, 2005)
• The Edinburgh Depression Scale has been translated into 38 languages. Of these, 19 have been validated. Comprehensive resources are available for use (e.g., Department of Health, Western Australia, 2006)
• These translations underline the adaptability of this component of service delivery, strengthen the capacity of health professionals to work effectively in cross-cultural situations, and are indicative of enhanced levels of cultural competence

Strategy 2.2 and 2.3: Plan for, and build infrastructures to support, implementation of routine psychosocial assessment

Activity 1: Information and referral system infrastructure

Recommendations:
• That well-defined routine psychosocial assessment, management and referral protocols be developed and implemented within local settings
• That continuity of care and carer and the reciprocal flow of information among service providers, and across the antenatal and postnatal periods, be essential components of the process
• That record keeping relating to the assessment process address:
  o Issues relating to informed consent, confidentiality, and mandatory reporting
  o Appropriate feedback on data collected and on outcomes of care to staff collecting the information

Implications:
• Women in need of extra support or requiring further in-depth assessment will be identified early and appropriate management and referral options will need to be offered and discussed
• Flowcharts outlining assessment and referral processes have been developed and implemented in many locations nationally. An example is also provided in the foldout section of this document.
• Referral and information management systems which aim for effective, collaborative service delivery across the continuum of care are described in more detail in Strategic Objective 3: Pathways to Care

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5 NB: Women who took part in this research spoke English as their first language and were mostly urbanised

Activity 2: Workforce infrastructure and the development of sustainable implementation of psychosocial assessment at a local level

**Recommendations:**
- That local advisory committees of key stakeholders be established to advise on and manage implementation within their own area, with joint planning processes at jurisdictional levels
- That adequate coordinating capacity be available in the perinatal mental health workforce
- That detailed state mapping be conducted in areas where this has not yet occurred, to identify existing local resources, service gaps and areas to be supplemented

**Implications:**
- The establishment of local advisory committees was one of the key recommendations of the beyondblue National Postnatal Depression Program 2001-2005
- Local advisory committees will be ideally placed to tailor implementation to local needs, resources and service structures
- Coordinating capacity has been key to the success and sustainability of current perinatal mental health programs (eg., IPC/SAFESTART, WA State Perinatal Reference Group)
- Dedicated Perinatal Mental Health committees would be ideally placed to:
  - Identify potential to utilise or redirect existing resources to incorporate required changes
  - Enhance existing service structures in contexts where perinatal mental health is already addressed
  - Develop strategies to reduce identified barriers to implementation
  - Help ensure links with current federal and jurisdictional strategies that provide incentives for routine assessment and promote structured, collaborative and coordinated care are established and maintained

Activity 3: National data collection

**Recommendations:**
- That a national data collection of routine psychosocial assessment items be developed in partnership with leading research centres
- That strategies suggested by the National Perinatal Statistics Unit of the AIHW in May 2007 be supported and endorsed, including:
  - Convene a national workshop to gain consensus on key items to be included in the data collection (including key stakeholders, AIHW, State-reference committees, State/Territory perinatal data managers)
  - Submit a proposal to National Perinatal Data Development Committee
  - Collaborate with AIHW to ensure psychosocial items are added to State-based perinatal data collections, for uptake into the national collection
  - Explore potential for maternal outcome data to be extracted by establishing links between State/Territory-based perinatal data collections and Medicare data

**Implications:**
- A national data collection for routine psychosocial assessment items would add to the growing evidence-base in this area, and would provide a simple means of summarising national uptake of implementation

Activity 4: Monitoring and evaluation of implementation

**Recommendations:**
- That regular monitoring and evaluation be implemented to build a greater evidence base for the effectiveness of psychosocial assessment
- That evaluation and monitoring address issues such as service impact, structure and outcomes

**Implications:**
- Regular monitoring, evaluation and exchange of information will:
  - Expose service gaps and identify solutions
  - Strengthen quality
  - Enhance practice
  - Help ensure local plans are well targeted to levels of need
Strategic Objective 3: Pathways to care

Strategic Objective: To identify and develop a framework for and recommend activities that supports the establishment or enhancement of quality pathways to care

Pathways to care are maps by which mothers, infants, fathers/partners and families, as well as those who care for them, can access the mental health and wellbeing care and support they require in pregnancy and to the end of the first postnatal year. A woman and her family’s journey along Pathways to Care may vary, but all Australians should expect routine care to identify families under stress and provide them with quality care by the most direct and cost effective path.

The three key strategies and associated activities of this Strategic Objective constitute the starting point to sustain the establishment or enhancement of quality pathways to care:

1. National Guidelines for clinical practice and service delivery
2. Identification and development of infrastructure and resources required to establish sustainable quality pathways
3. Identification of consumer and carer preferences for care and recovery to inform quality pathways

It is acknowledged that the need for support and care goes beyond the first postnatal year and indeed may begin prior to pregnancy (for example through the MBS item for non directive pre-pregnancy counselling). In addition, the spectrum of mental health and wellbeing difficulties ranges from those experiencing, mild, moderate or severe symptoms through to women experiencing complex severe and enduring mental illness. Assessment of psychosocial risk factors may identify women experiencing emotional distress that requires support. Support and service resources that address these levels of need, from a population health perspective, are outlined in Figure 4 below.

The availability of the range of supports and services a mother, infant, father/partner and families require during this period and issues of accessing and participating in care involves integration across service sectors and professions. The strengthening of links between services within sectors and across sectors through networking and collaborative initiatives contributes to the building of a system of care that is timely, responsive, and collaborative.

Placing mothers and families at the centre of service planning and delivery regardless of geographical distance and issues of culture, allows care paths to be identified and implemented in the most direct and cost effective way. Guidelines for service delivery have already begun in Phase 1 of beyondblue’s Postnatal Depression program and the NICE guidelines (2007) also provide some directions for service delivery.

The national stocktake identified some high quality models of care that provide information about the elements that contribute to quality care (see Appendix 2). Quality pathways to care cannot be established or enhanced without a skilled workforce that is knowledgeable about local referral and support resources. Additionally those who provide the support and interventions as part of quality care equally require skills and knowledge of quality and/or evidence-based interventions. Issues of workforce training and capacity are addressed under Strategic Objective 1: Training and Workforce Development.
### Table 3: Strategic Objective 3: Pathways to care

**Strategic Objective:** To identify and develop a framework for and recommend activities that supports the establishment or enhancement of quality pathways to care

<table>
<thead>
<tr>
<th>Strategies</th>
<th>Activities</th>
<th>Timeline</th>
<th>Responsibility</th>
</tr>
</thead>
</table>
| **3.1 Develop and endorse National Guidelines for service delivery of quality perinatal mental health pathways to care** | 3.1 Finalise and endorse National guidelines for service delivery across the spectrum of care and severity based on existing and/or Guidelines in development  
- Identify and endorse key components of quality pathways to care | Years 1-2 | DoHA, NHMRC, FaCSIA, AHMAC, Beyondblue implementation team |
|                     | **3.2 Identify and develop infrastructure and resources required to establish sustainable local pathways to care** | | |
|                     | 3.2.1 Endorse and disseminate recommendations for core components of quality pathways to care that are informed by consumer preferences for care and recovery  
- Establish networking and protocols (refer: 2.2.1)  
- Provide evidence of strategies to reduce identified barriers to quality pathways to care | Year 1 | Responsible partners for implementation of quality pathways to care: Beyondblue implementation team, FaCSIA, DoHA, AHMAC, Individual Jurisdictions |
|                     | 3.2.2 Map existing local pathways to care across sectors for each jurisdiction | Year 1 | |
|                     | 3.2.3 Establish and implement processes to benchmark local pathways against National Guidelines | Years 1-3 | |
|                     | 3.2.4 Endorse monitoring and evaluation processes for staged implementation of quality pathways to care at local, State and National levels  
- Support development and endorsement of jurisdictional plans and frameworks  
- Support infrastructure development and organisational re-design for a range of settings | Year 1-ongoing | These activities will begin in Year 1 and will be an ongoing process |
|                     | **3.3 Identify consumer and carer preferences for care and recovery to inform the establishment and enhancement of pathways to care** | | |
|                     | 3.3.1 Establish and support collaborative partnerships between service providers and consumer-led support services | | DoHA, Consumer-led services eg bluevoices, PANDA, PNDSA, PANDSI, Local jurisdictions, MHCA, NGOs, Private sector |
|                     | 3.3.2 Identify and develop strategies to assist mothers, infants, fathers/ partners and families to access and participate in care  
- Develop processes for consultation and advice from consumers and consumer-led self help, support and advocacy organisations  
- Develop processes for monitoring and audit of progress on implementation of plans | Year 1-ongoing | These activities will begin in Year 1- and will be an ongoing process |

**Resources:** Provision of necessary resources requiring dedicated perinatal mental health funding will be dependant on the degree to which governments, the private sector and non-government organisations take up the recommendations of the Plan. The commitment and support of local management teams will also be required. Existing infrastructures and relevant resources may be utilised to incorporate the Plan’s recommendations. Responsibility for Activities 3.2.1 to 3.2.4 will be dependent on the degree of coordinating capacity within the perinatal mental health workforce. In addition, the development of clinical resources, tools, and print and electronic media resources (for example a perinatal website) will be required.
**Strategic Objective 3: Pathways to care**

**Strategic Objective:** To identify and develop a framework for and recommend activities that supports the establishment or enhancement of quality pathways to care

**Strategy 3.1 National Guidelines for service delivery of quality perinatal mental health pathways to care**

**Activity 1:** Endorse guidelines for service delivery across the spectrum of care and severity

**Recommendations:**
That National Guidelines for Perinatal Mental Health, including recommendations for quality pathways to care, be endorsed, building on or enhancing existing perinatal mental health guidelines developed both within Australia and internationally.

**Implications:**
National guidelines will help achieve a coordinated, consistent and high-quality standard of care for all mothers, infants, fathers/partners and families at this significant developmental stage. Finalising guidelines for endorsement will need to be informed by existing and related guidelines; work undertaken in Phase 1 and this phase (Phase 2); a consumer and whole of family focus; and by the service sectors and professions who will be involved in delivery or referral for care and intervention (and NHMRC processes as relevant).

Provisional content and mode of delivery drawn from existing guidelines for example NICE guidelines (2007), WA Perinatal Mental Health guidelines (2006), Canadian guidelines (2003), and Early Intervention Guidelines (2000) can be utilised to inform the establishment and/or enhancement of quality pathways care and continue current practices while National Guidelines are finalised and endorsed.

The implementation of these guidelines will require a knowledgeable and skilled workforce. Training and workforce development activities under Strategic Objective 1 of the plan will need to incorporate suitable level knowledge of pathways to care and interventions.

**Strategy 3.2: Identify and develop infrastructure and resources required to establish sustainable local quality pathways to care**

**Activity 1:** Develop and disseminate recommendations for core elements of quality pathways to care that are informed by consumer preferences for care and recovery (see foldout section).

**Recommendations:**
Recommended core components required for quality pathways to care that are responsive to need across the spectrum of distress, care and severity can be found in Figure 2, promoting:

- Continuity of care
- Access and Equity
- An aware and informed community
- Aware, knowledgeable and skilled workforces
- Organisational and technology support

**Implications:**
- Guiding principles underpinning core elements for pathways to care will strengthen best practice
- It is preferable that every service has protocols to address the critical need for referral continuity of care; follow-up of those identified as ‘at risk’; those who do not access services and to maintain integration of services
- Organisational infrastructure must support and sustain a trained workforce establishing pathways to care or evaluating and building upon existing ones
- Evidence of strategies that reduce identified barriers to quality pathways to care will enhance implementation

The Victorian Practice Guidelines for PMH (2006) were drawn from the work and knowledge gained under Phase 1.

WA as part of their State Perinatal Mental Health Strategy have developed Clinical Guidelines for Perinatal Depressive and Anxiety Disorders, and new service initiatives include all family members.
Activity 2: Map existing local pathways to care across sectors for each jurisdiction

**Recommendation:**
To inform the establishment and enhancement of local pathways to care, more detailed mapping of services, which builds on the overview identified during this phase, against recommended core components at jurisdictional level is required

**Implications:**
- Processes and resources required for mapping of services at jurisdiction and local levels will need to be identified and established, taking into account sustainability of local pathways to care
- Any mapping process undertaken will have a dual role in engaging and eliciting support from key partner services and sectors in order to build the collaborative partnerships required for implementation. Both the process undertaken and the level of commitment elicited will be crucial to the implementation phase
- The process for engaging with Aboriginal and Torres Strait Islander communities to establish preferred pathways to care is highlighted on in Part Two

Activity 3: Establish and implement processes to benchmark local pathways against National Guidelines and recommended core components

**Recommendation:** That processes and protocols for sustainable quality pathways are developed at jurisdiction levels which take into account jurisdictional variation. These need to match with National Guidelines to ensure consistency and quality of services at a National level

**Implication:** Networking with similar services will need to be established before benchmarking commences with protocols established and scope for comparison in order

Activity 4: Develop monitoring and evaluation processes for staged implementation of quality pathways to care at local, State and National levels

**Recommendation:** Develop perinatal mental health state based evaluation and monitoring frameworks that can feed into national processes

**Implications:**
- These processes can
- showcase best practice models
- highlight where cost effective funding can be targeted
- provide incentives for continual improvement
- Provide evidence of strategies that reduce identified barriers to delivering comprehensive services through quality pathways to care

Strategy 3: Identify consumer and carer preferences for care and recovery to inform the establishment and enhancement of pathways to care

**Activity 1:** Establish and support collaborative partnerships between service providers and consumer-led, self help, support and advocacy services

**Activity 2:** Identify and develop strategies to assist mothers, infants, fathers/ partners and families to access and remain in care

**Recommendation:**
Enhance existing or establish processes for each jurisdiction and local level by which consumers and carers can inform and act as key partners in the development and implementation of quality local pathways to care

**Implications:**
Consumer-led, self help, support and advocacy services will play a key role in informing the development of National guidelines and in the establishment and delivery of care pathways. Key issues to be addressed in this process include:
- Identification of points where women do not continue on a recommended care pathway and strategies to address this
- Defining the role of consumer-led services in increasing community awareness and destigmatisation, and in consumer education, health promotion, prevention, identification, support and recovery of women experiencing perinatal distress or mental illness

**Service Delivery, Models and Partners that support quality Pathways to Care**

<table>
<thead>
<tr>
<th>Core Elements of service delivery that support quality pathways to care</th>
<th>Service delivery Models and Partners that support quality pathways to care</th>
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<tbody>
<tr>
<td><strong>Continuity of care</strong> - Systems of care and co-ordination that support continuity across:</td>
<td><strong>Coordination of service delivery and care:</strong> The establishment of formalised coordination of care across the sectors through systems such as perinatal mental health clinical networks is pivotal to achieving continuity of care</td>
</tr>
<tr>
<td>- Antenatal and postnatal services</td>
<td><strong>Collaborative partnerships and service integration and across all service sectors:</strong></td>
</tr>
<tr>
<td>- Consumer-led self help, support and advocacy</td>
<td>- The initial focus will be on the primary care workforces of General Practice, Midwifery, Maternal Child and Family Health</td>
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<tr>
<td>- Primary care services</td>
<td>- Secondary and specialist care workforces</td>
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<tr>
<td>- Cross sector integration of care at primary care level eg. Midwifery, General Practice, Maternal Child Health services, Allied Health</td>
<td>- Consumer-led self help, support and advocacy</td>
</tr>
<tr>
<td>- Cross sector systems and integration of services that support complex care needs at primary, secondary and tertiary care levels</td>
<td>- Non-Government agency support</td>
</tr>
<tr>
<td><strong>Access and Equity</strong> – Systems of care and co-ordination that are responsive to the needs of:</td>
<td>- Services involved in supporting families with complex need:</td>
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<tr>
<td>- Rural and remote populations</td>
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<tr>
<td>- Aboriginal and Torres Strait Islander people</td>
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<tr>
<td>- Culturally and Linguistically Diverse populations</td>
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<tr>
<td><strong>An aware and informed community</strong> - information, education and resources for consumers:</td>
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<tr>
<td>- Community awareness of perinatal mental health – see Section: Community Awareness and Health Promotion</td>
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<tr>
<td>- Appropriate and accessible information, education and resources for women, father/partner and families about:</td>
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<tr>
<td>o services and choice about pathways</td>
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<tr>
<td>o referral</td>
<td>sector initiatives</td>
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<tr>
<td>o health promotion and prevention</td>
<td><strong>Some National Models (all health):</strong></td>
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<tr>
<td>o Active support from consumer-led self help, support and advocacy services</td>
<td>- Primary Mental Health Care: Better Access</td>
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<tr>
<td><strong>Aware, knowledgeable and skilled workforces</strong> - information, education and resources for service providers:</td>
<td>- Allied Health Access (ATAPS)</td>
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<tr>
<td>- Midwifery, General Practice, Maternal Child Health services, Allied Health</td>
<td>- Psychology provisions through Medicare</td>
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<tr>
<td>- Service provider awareness at all levels of care about perinatal mental health issues and impact on infant, father/partner and families - see Part Three: Community Awareness and Health Promotion</td>
<td>- Practice Nurses in private practice: GP other specialists</td>
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<tr>
<td>- Accessible information about local pathways to care</td>
<td>- Mental Health Shared Care</td>
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<tr>
<td>- Education, training and support for workforces – see Strategic Objective 1: Training and Workforce Development</td>
<td>- GPs provisions in Medicare</td>
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<tr>
<td>- Accessible clinical support tools, interventions and resources</td>
<td>- Better Access to Psychiatrist’s, GPs, Psychologists (BAMHC)</td>
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<tr>
<td><strong>Organisational and technology support:</strong></td>
<td>- Better Outcomes in Mental Health Care (BOIMHC)</td>
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<tr>
<td>- Direct clinical support</td>
<td>- Mental Health Nurse Incentive Program</td>
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<td>- Organisational and management support through policy and protocols</td>
<td>- Case Conferencing (for GPs)</td>
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<tr>
<td>Information management support systems, evaluation and Quality Improvement processes</td>
<td>- Health Start</td>
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<td></td>
<td><strong>Some State Models:</strong></td>
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<tr>
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<td>- Infant Clinic, Parent-Infant Research Institute, Austin Health (Vic)</td>
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<td></td>
<td>- Mutual Support Self Help organisations (PANDA, PANDSA, PANDSI)</td>
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<td>- Shared Care Models</td>
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<td>- SA PIMHIC project</td>
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<td>- IPC/SAFESTART, NSW Health: Towards Recovery initiatives</td>
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<td></td>
<td><strong>Specialist Care:</strong></td>
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<td></td>
<td>Psychiatrist care plan for GPs</td>
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<td>Public and Private Mother/Baby inpatient and day stay units</td>
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<td></td>
<td>Access to public or private specialist care</td>
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Part Four: Key considerations for implementation

Collaborative Partnerships and Coordination

Recommended National Governance Structure

The concept of a National Action Plan for perinatal mental health denotes the need for a national governance structure to ensure successful implementation. Similarly, governance and organisational structures at a State/Territory level will assist successful and sustainable implementation of the Plan, as demonstrated by the ongoing accomplishments of the Western Australia State Perinatal Reference Group and the NSW Perinatal and Infant Mental Health Sub-Committee.

Managing cross sector communication: regional and jurisdictional Perinatal Mental Health committees

A key theme that has arisen during the development of the Plan is the need for greater communication among services and professions involved in perinatal mental health. The establishment and maintenance of regular regional and jurisdictional perinatal mental health advisory committees, plus workshops for perinatal mental health committees, service providers and key members of the community increases opportunities for the establishment of partnerships and networking that leads to increased awareness of available resources at local and State/Territory levels. Cross-sector collaboration also provides opportunities for provision of support between services/clinicians and the community, exchange of information, and coordination of services, and may allow for shared risk pooling, yielding potential economic benefits. Increasing awareness and knowledge of the roles and responsibilities of partner agencies and formalised networking also promotes the management of perinatal mental health as a shared responsibility and provides a powerful force for change and a solid foundation on which to build future service delivery.

Local Implementation: stakeholder and service advisory committees

The Plan highlights that implementation should be tailored to local variations in need, resources and service structures. Collaborative associations between health and community services are essential. It is recommended that local multidisciplinary and multiagency committees be established to advise on and manage implementation of the Plan at a local level (eg. see Part Three: Strategic Objective 2), with joint planning at State/Territory levels assisted by National structures and activities.

Such committees allow optimum networking and collaboration among key stakeholders and enable expertise to be concentrated in a managed fashion, while simultaneously highlighting the overt responsibilities necessary for effective delivery of appropriate and integrated services. It is envisaged that key stakeholder representatives sitting on these committees would have associated duties incorporated into current roles and responsibilities, embedding perinatal mental health activities into position-based rather than individual-based priorities and minimising costs related to sustained contribution.

Further initial consultation initially and ongoing capacity building will be required to support changes and consolidate new learning as the Plan is implemented and maintained. These activities will demand high-level communication within and across professions and sectors to ensure effective and equitable provision of quality services, and to avoid duplication of effort. This approach clearly requires coordination from within the perinatal mental health workforce.

Managing coordination: a role for Perinatal Mental Health Co-ordinators

A recommended process for managing and coordinating implementation at a local level, including the establishment and maintenance of local stakeholder and service advisory committees as described above, is the establishment of recurrently funded, dedicated perinatal mental health coordinator positions. A local coordination role will be pivotal in the set-up phase of implementation, when the need for enhanced capacity building will be greatest. These roles will likely be versatile and multifaceted, reflecting the intimate links between the components of the Plan and the systematic and coordinated approach necessary for staged and sustained implementation.

The establishment coordinating committees has been key to the success of a number of existing perinatal mental health programs within Australia eg. NSW Health’s IPC/SAFESTART committees and Advisory Groups, the Perinatal & Infant Sub-Committee of the NSW Mental Health Program Council and the WA State Perinatal Reference Group, and was a primary recommendation of the beyondblue Postnatal Depression Program 2001-2005 report.
Indeed, past experience tells us that the lack of sustained coordination resulting from the absence of dedicated coordinating personnel results in greater financial cost and reduction in cohesion of multidisciplinary and multi-agency partnerships.

The establishment of PMH Coordinators provides a range of benefits:

- Engagement of local services and communities for coordination and oversight of implementation
- Building of a local profile of resources by mapping local services which address the needs of infants, fathers/partners and family: identifying existing, potential or gaps in service and care pathways
- Establishment and maintenance of multidisciplinary and multiagency partnerships and collaborative practice
- Promotion of standardised practice and sustainable enhancement of services to support referral pathways
- Provide assistance in training and supervision of staff
- Identification of, development and support for organisational and service structure change
- Coordination and support for local and State/Territory reporting and evaluation requirements
- Personnel may be seconded from existing positions from within the local workforce, thus transferring to the role current local knowledge and established working partnerships

There are several examples that demonstrate the effectiveness of such roles. In NSW the IPC/SAFE START program developed and implemented since 1999 have employed Perinatal and Infant Mental Health (PIMH) Coordinators in similar roles. The Healthy Start program funded through FaCSIA also recognises the need for local committees and coordination, and in Western Australia local perinatal mental health training coordinators have been established. The UK NICE Guidelines (2007) also make similar recommendations about the need for coordination at a range of levels.

The need for evaluation

The vision of the Plan is to optimise mental health and wellbeing for all Australian mothers, infants, fathers/partners and families. Hence, evaluation of the Plan will be essential in order to gauge its impact and effectiveness. Evaluation across all sectors will involve gathering baseline data from a sample of implementation sites at the Plan’s outset, followed by the collection of both quantitative and qualitative data across the course of the Plan’s implementation.

It is not feasible within the first years of implementation to evaluate the Plan’s impact on longer-term outcomes (e.g., improved outcomes for children of women who suffered postnatal depression). However, changes in perceptions and knowledge of consumers, families, health professionals, and the broader community; the effectiveness of training programs; structural changes in services; access to services; and changes in the prevalence of perinatal mental health and wellbeing issues can be determined within shorter timeframes.

Dissemination of findings can be used to inform service directions; training; communication and public awareness strategies; and policies and allocation of funding. The process of evaluation should be recognised as a shared responsibility requiring input and collaboration from a variety of sectors and the community.

Collaboration with leading research centres also provides an opportunity to add to existing reporting frameworks to assist with data collection (e.g. national minimum data sets for perinatal data collections). The potential for the development of nationally consistent indicators for psychosocial assessment, for example, is outlined in Strategic Objective 2: Universal Routine Psychosocial Assessment.
Modelling the direct costs of implementation

Accommodating costs within existing contributions

The approach to modelling the direct costs of the Plan addresses the major resource implications required to deliver a national program of universal routine psychosocial assessment and associated workforce training. It is important to acknowledge however that in some settings, these needs are being met within existing initiatives and funding contributions at both National and State/Territory level.

Tables 4 and 5 outline program costs based on two scenarios of staged implementation over a six-year business horizon: Option 1 (preferred) assumes a gradual rate of program uptake (target workforce to be trained by Year 5 and a more considered rate of program coverage; Option 2 assumes a more rapid rate of program uptake (target workforce to be trained by Year 3 and a more accelerated rate of program coverage). The projected cost range of $82M-95M\(^6\) represents the ideal and assumes the absence of current funding initiatives. Hence, this estimate of costs should not be viewed as the predetermined costs of implementing these components of the Plan. The potential for cost savings by governments where exiting initiatives are already in place may be significant. Detailed state-based mapping provides jurisdictions a strategic method to make recommendations on the implications of costs supplemented for local sustainability by identifying existing local resources, service gaps, and areas to be

beyondblue: the national depression initiative is committed to establishing an equitable and sustainable national program for routine psychosocial assessment that incorporates training for health professionals. However, the process of full national implementation, including the provision of robust pathways to care, is likely to extend beyond beyondblue’s second term to 2010. The long-term and sustainable success of the Plan requires investment and continuing effort by the private sector, the Commonwealth and all State/Territory governments - across Mental Health, Maternity and Early Childhood sectors.

What has been costed?

In keeping with the requirement to accommodate the Plan within existing structures and services, the target providers of routine assessment in the current costing model are Midwives, Maternal, Child and Family Health services, Allied Health professionals and General Practitioners. It is thus acknowledged that the current model does not include:

- costs associated with routine assessment and training in additional service areas (including those based in non-government and consumer-led settings)
- the direct costs of establishing (where necessary) and sustaining recommended primary, secondary and tertiary pathways to care

These cost estimates will require separate attention during the implementation phase.

Methodology

The fundamental driver of the model is the number of women that are projected to fall pregnant, which in turn drives the requirement for antenatal and postnatal assessments (see Figure 5 below)\(^6\).

Figure 5: Schematic representation of assessment and targeted training model

![Diagram](image)

In the absence of an extensive series of local data sets detailing local payrolls, practice and current level of activity, the model projects program costs by utilising broad, high level national assumptions about the character of the assessment and training workforce, and draws upon the knowledge and experience of those working in settings where perinatal mental health initiatives have been successfully sustained\(^5\). Costs of implementing the program will vary between locations and with respect to different groups of clientele. Thus, assessment costs are weighted more heavily relative to the general population for Aboriginal and Torres Strait Islander and culturally and linguistically diverse pregnancies and births. Allowance is also made for differences in client mix between jurisdictions.

\(^{6}\) Projected State/Territory Implementation Costs outlined in this report incorporate changes suggested by the NSC 29 August 2007. These amendments include 1) inflated projected births numbers (using Series A: Population Projections, Australia 2004—2101, ABS cat. no. 3222.0); 2) specific inclusion of selected Allied Health professionals in the target training and assessment workforce; and 3) increased rate of appointment of Local PMH Coordinators. As such, projected costs are greater than those presented in the Draft report (August 2007).

\(^{5}\) Costs expressed as constant net present values (NPV) at discount rate of 3%

\(^{6}\) The term ‘full time equivalent’ (FTE) covers all dimensions of the workforce, including full time permanent or casual personnel as well as fractional and backfill appointments.

\(^{5}\) A summary of key assumptions is provided in Appendix 4.2.
Table 4: Option 1\textsuperscript{10}, Projected Total\textsuperscript{11} State/Territory Implementation Costs, $M, 2007 prices, Years 1-6

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<thead>
<tr>
<th>State/Territory</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
<th>TOTAL COSTS\textsuperscript{6}</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>Years 1-6\textsuperscript{11}</td>
</tr>
<tr>
<td></td>
<td>NPV, 0%</td>
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<tr>
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<td>0.4</td>
<td>0.5</td>
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<td>0.5</td>
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<tr>
<td>Tasmania</td>
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<td>0.6</td>
<td>0.5</td>
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<tr>
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<td>1.0</td>
<td>1.7</td>
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<td>1.5</td>
<td>1.5</td>
<td>1.3</td>
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</tr>
<tr>
<td>Queensland</td>
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<td>1.7</td>
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<td>4.2</td>
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<tr>
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<td>7.0</td>
<td>6.2</td>
<td>29.7</td>
</tr>
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<td>9.6</td>
<td>16.8</td>
<td>21.0</td>
<td>21.5</td>
<td>19.1</td>
<td>92.5</td>
</tr>
</tbody>
</table>

Option 1 assumes a more gradual rate of program uptake, ie target workforce to be trained by Year 5; considered rate of program coverage

Total State/Territory costs include: 1. Set-up, establishment and maintenance costs including eg. external consultancy costs (eg Train-the-Trainers, mapping); salary and travel costs for State/Territory staff; printing of materials, and evaluation; 2. Local coordinating capacity; 3. Assessment costs (weighted unit labour cost of assessors); 4. Workforce training costs (including weighted unit labour cost of trainers (baseline, CPD); trainer travel costs; GP attendance at training)

It was outside the scope of the current model to project national costs for eg recruitment, venue hire, and local communications. Hence these expenses are excluded in the Total State/Territory costs outlined above.

Costs are expressed as constant net present values (NPV) at varying rates of discount (0%, 3%)\textsuperscript{12}

It is "See Appendix 4.1 for a more detailed summary of National Total set-up and establishment, coordination, assessment, and training costs, including metro vs non-metro costs\textsuperscript{13}"

Figures may not add due to rounding\textsuperscript{14}
Table 5: Option 2\textsuperscript{16}, Projected Total State/Territory Implementation Costs, $M, 2007 prices, Years 1-6

<table>
<thead>
<tr>
<th>State/Territory</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
<th>Year 6</th>
<th>TOTAL COSTS Years 1-6</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT</td>
<td>0.2</td>
<td>0.3</td>
<td>0.5</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
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<td>0.3</td>
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<td>0.5</td>
<td>0.4</td>
<td>0.5</td>
<td>2.3 2.1</td>
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<td>Tasmania</td>
<td>0.3</td>
<td>0.5</td>
<td>0.6</td>
<td>0.6</td>
<td>0.5</td>
<td>0.4</td>
<td>3.0 2.7</td>
</tr>
<tr>
<td>Western Australia</td>
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<td>1.5</td>
<td>2.0</td>
<td>2.2</td>
<td>2.2</td>
<td>2.0</td>
<td>10.8 9.7</td>
</tr>
<tr>
<td>South Australia</td>
<td>0.7</td>
<td>1.2</td>
<td>1.5</td>
<td>1.5</td>
<td>1.3</td>
<td>1.5</td>
<td>7.6 6.8</td>
</tr>
<tr>
<td>Queensland</td>
<td>1.4</td>
<td>2.7</td>
<td>3.9</td>
<td>4.1</td>
<td>4.0</td>
<td>3.8</td>
<td>19.9 17.8</td>
</tr>
<tr>
<td>Victoria</td>
<td>1.8</td>
<td>3.9</td>
<td>5.1</td>
<td>5.1</td>
<td>4.8</td>
<td>4.4</td>
<td>25.0 22.4</td>
</tr>
<tr>
<td>New South Wales</td>
<td>2.7</td>
<td>5.2</td>
<td>7.3</td>
<td>7.2</td>
<td>6.9</td>
<td>6.4</td>
<td>35.7 31.9</td>
</tr>
<tr>
<td>TOTAL Australia</td>
<td>8.1</td>
<td>15.6</td>
<td>21.4</td>
<td>21.6</td>
<td>20.8</td>
<td>19.2</td>
<td>106.7 95.4</td>
</tr>
</tbody>
</table>

\textsuperscript{16}Option 2 assumes a more rapid rate of program uptake, i.e. target workforce to be trained by Year 3; accelerated rate of program coverage.
### Table 6: Recommended National Key Activities requiring Funding: Years 1-3

A summary of recommended key national activities that will need to be undertaken in the first three years of the implementation phase to provide a secure foundation for the full rollout and evaluation of the Plan is provided in Table 6 below. These costs are in addition to overall State/Territory costs outlined above. A summary of TOTAL NATIONAL COSTS for key national activities and State/Territory set-up and implementation is provided in Table 7.

<table>
<thead>
<tr>
<th>Task</th>
<th>Estimated total funding required Years 1-3</th>
<th>Potential partners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roundtable: in early Year 1, a roundtable for senior policy makers across jurisdictions will be held to seek commitment to the Plan and to discuss strategies to build upon existing policies and frameworks</td>
<td>$42K</td>
<td>• DoHA</td>
</tr>
<tr>
<td>Development and endorsement of National PMH Guidelines: in Year 1-2 will help achieve a coordinated, consistent and high quality level of care for mothers, infants and families at this significant developmental stage</td>
<td>$500K</td>
<td>• FaCSIA</td>
</tr>
<tr>
<td>Development of Aboriginal and Torres Strait Islander PMH NAP: A Plan that specifically addresses the mental health and wellbeing needs of Aboriginal and Torres Strait Islander women in the perinatal period must be a national priority.</td>
<td>$300K</td>
<td>• Beyondblue</td>
</tr>
<tr>
<td>Enhancement and development of training packages (Train-the-Trainer, Baseline and Advanced, e-learning, with review and refinement Year 3): training programs will build on existing PMH packages and will provide for different levels of knowledge and skill</td>
<td>$410K</td>
<td>• NHMRC</td>
</tr>
<tr>
<td>National Governance &amp; Organisational Structure (incl travel): to help ensure successful and sustainable implementation at a national level</td>
<td>$2970K/500K ($4455K)16</td>
<td>• Rural Health Education Foundation</td>
</tr>
<tr>
<td>Consortium / NSC activities: to provide expert opinion from a range of fields</td>
<td>$510K</td>
<td>• Research grants eg. Rotary</td>
</tr>
<tr>
<td>National psychosocial assessment data collection: NMDS items would provide: epidemiological information relating to routine psychosocial assessment; a simple means of summarising national uptake of implementation; information for national and international comparison.</td>
<td>$500K</td>
<td></td>
</tr>
<tr>
<td>Total:</td>
<td>$5.2M/6.7M</td>
<td></td>
</tr>
</tbody>
</table>

### Table 7: Grand Total Costs, Australia: Years 1-6

<table>
<thead>
<tr>
<th></th>
<th>Yr 1</th>
<th>Yr 2</th>
<th>Yr 3</th>
<th>Yr 4</th>
<th>Yr 5</th>
<th>Yr 6</th>
<th>TOTAL COSTS Years 1-6</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NPV, 0%</td>
<td>NPV, 3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Option 1: TOTAL Australia: State/Territory set-up and implementation costs (see Table 4)</td>
<td>4.6</td>
<td>9.6</td>
<td>16.8</td>
<td>21.0</td>
<td>21.5</td>
<td>19.1</td>
<td>92.5</td>
</tr>
<tr>
<td>TOTAL key national activity costs (see Table 6)</td>
<td>2.0</td>
<td>1.9</td>
<td>1.3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>5.2</td>
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<tr>
<td>Option 1: GRAND TOTAL</td>
<td>97.7</td>
<td>86.9</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Option 2: TOTAL Australia: State/Territory set-up and implementation costs (see Table 5)</td>
<td>8.1</td>
<td>15.6</td>
<td>21.4</td>
<td>21.6</td>
<td>20.8</td>
<td>19.2</td>
<td>106.7</td>
</tr>
<tr>
<td>TOTAL key national activity costs (see Table 6)</td>
<td>2.5</td>
<td>2.4</td>
<td>1.7</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>6.7</td>
</tr>
<tr>
<td>Option 2: GRAND TOTAL</td>
<td>113.4</td>
<td>101.7</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

16 National governance and organizational structure costs will increase by 50% in Option 2, due to increased staffing requirements
An opportunity for detailed State/Territory-based mapping

The potential to utilise existing resources and enhance existing service structures to incorporate the recommendations of the Plan emphasises the demand for detailed State/Territory-based mapping to be undertaken during the 2008 transitional phase. This detailed mapping will allow jurisdictions a strategic method to explore and make recommendations on the implications of costed models for local sustainability by identifying existing local resources, service gaps and areas to be supplemented, as well as areas of potential savings. For example, estimating the need for perinatal and infant mental health services in NSW is advancing through the NSW Mental Health Program Council. Extensive mapping has been undertaken in NSW through development and implementation of the IPC/SAFESTART initiative over the past ten years and this will reduce initial mapping costs in NSW. Estimated costs will also be reduced in areas such as WA where training in elements of perinatal mental health has been taking place since 2005. The existence of coordinating positions in some regions must also be underlined, as the costing model provided assumes their integral role in sustainable implementation, but does not discount for active coordinating positions currently funded and maintained within jurisdictions. The Stocktake Report (Appendix 2) provides a more detailed snapshot of current initiatives and activity in the perinatal mental health field. These examples emphasise that one cannot overlook the significant level of existing infrastructure and effort on which the recommendations of the Plan can be built. Indeed, these activities should be viewed as successes which strengthen the case for additional funding in other jurisdictions to support implementation of the Plan.

Implementation: an argument for cost-benefit analysis

It is evident that a cost-benefit analysis, including the cost-effectiveness of early interventions for the prevention and treatment of issues relating to perinatal mental health and wellbeing, is also required to ascertain whether full national implementation of key components of the Plan would result in substantial cost savings to the mother, infant, family and community. The economic consequences of the Plan’s contribution to a reduction in perinatal morbidity and mortality – and more far reaching economic consequences, such as poorer child outcomes as they relate to perinatal depression, for example – would demonstrate the value of this investment using the language of business and Treasury, and could be used to inform resource allocation across government programs. A more detailed report on the feasibility of conducting a cost-benefit analysis addressing implementation of universal, routine psychosocial assessment in the perinatal period is provided in Appendix 5.

Council of Australian Governments: current and continuing efforts

While economic benefits and reliance on discussions about cost savings are an adjunct to the primary goal of achieving the Plan’s vision, the current financial attention given to mental health by governments within Australia is commendable and indicative of the real potential for the Plan to optimise perinatal mental health. Many of the areas for action and specific policy directions outlined in the COAG National Action Plan on Mental Health 2006-2011, for example, are reflected in the key priority areas of the Plan, including: improving capacity for early identification and early intervention; integrating and improving the care system; and increasing workforce capacity through training and development initiatives and improved tertiary curricula. States including Victoria and Western Australia allocated dedicated resources to perinatal mental health in the Individual Implementation Plans sections outlined in this document.

_beyondblue: the national depression initiative_ is committed to establishing an equitable and sustainable national program for routine psychosocial assessment that incorporates necessary training requirements for health care professionals. It is acknowledged, however, that _beyondblue_ has no control over the degree to which jurisdictions, non-government organisations and privately funded systems will implement the elements outlined in the Plan, and that the process of full national implementation is likely to extend beyond _beyondblue_’s second term to 2010. The long-term and sustainable success of the Plan will require investment and continuing effort by the private sector, the Commonwealth and all State/Territory governments.
Appendices

Appendix 1: Glossary of Key Terms and References

Glossary

Benchmarking: the systematic process of searching for and implementing a standard of best practice within an individual service or similar group of services\textsuperscript{17}.

Care pathways: ‘formally articulated mapping of services provided within and across sectors and with agreed streamlined entry/exit procedures that support continuity of care by ensuring that consumers of services are able to negotiate the system in a seamless and timely manner\textsuperscript{18}.

Clinical networks: identifiable group of multidisciplinary mental health personnel responsible for the treatment and care of those identified as requiring further targeted intervention. These specialist services support and nourish the primary services.

Capacity building: developing investment in mental health and wellbeing on multiple levels in government and non-government sectors.

Clinical Psychologist: a psychologist who diagnoses, treats and prevents a wide range of mental and physical health issues, and has specific training in diagnosis and treatment of conditions categorised as psychiatric disorders.

Consumer Delivered Services/MSSH: Services delivered by consumer organisations that have defined governance and infrastructure, that are evidence-based and consumer informed.

Continuity of care: ‘linkage of components of individualised treatment and care across health service agencies according to individual needs\textsuperscript{19}.

Culturally and linguistically diverse: the wide range of cultural groups that make up the Australian population and Australian communities\textsuperscript{20}. The term acknowledges that groups and individuals differ according to religion and spirituality, racial backgrounds, ethnicity and language, and reflects intergenerational and contextual issues, not just migrant experience\textsuperscript{21}.

Early intervention: timely and appropriate interventions which target people displaying early signs and symptoms of mental health disorders, mental health and social and emotional wellbeing problems and people who are developing or experiencing a first episode of mental disorder\textsuperscript{22}.

Equity: equity in health means that people’s needs guide the distribution of opportunities for wellbeing; that all people have an equal opportunity to develop and maintain their health, through fair and just access to resources for health\textsuperscript{23}.

Health psychologist: a psychologist who promotes the prevention and treatment of illness and who may work within the health care system.

\textsuperscript{17} Bullivant, 1994
\textsuperscript{18} National Mental Health Plan 2003-2008, 2003
\textsuperscript{19} National Mental Health Plan 2003-2008, 2003
\textsuperscript{20} Multicultural Mental Health Australia, 2005
\textsuperscript{21} Cultural Competency in Health: A guide for policy, partnerships and participation, 2005
\textsuperscript{22} Commonwealth Department of Health and Aged Care, 2000
\textsuperscript{23} WHO, 1998
Interdisciplinarity: involving more than one discipline or branch of learning.

Jurisdiction: an Australian State or Territory.

Mental health and wellbeing: a state of social and emotional wellbeing in which the individual can cope with the normal stresses of life and achieve his or her potential. The strong historical association between the terms ‘mental health’ and ‘mental illness’ has led some to prefer this term, or alternatively, the term ‘emotional and social wellbeing’, which also draws parallels with holistic concepts of mental health held by Aboriginal and Torres Strait Islander Peoples and some other cultural groups.

Multidisciplinary: involving more than one professional group.

Perinatal: the period from conception to 12-months postpartum.

Psychosocial: in the context of the Plan, refers to the various psychological and social factors that may impact on health and wellbeing in the perinatal period.

Routine assessment: an assessment that is undertaken using a particular procedure (in the context of the Plan, for example, asking or offering a particular set of questions).

Screening: an epidemiological term which, narrowly defined, refers to the examination, typically by means of an inexpensive, harmless, diagnostic test, of a group of usually asymptomatic people to detect those with a high probability of having a clearly defined disease or disorder for which there is an effective remedy.

Universal assessment: an assessment (intervention) that targets “everybody in the eligible population” before they become symptomatic; in the context of the Plan, refers to the assessment of all perinatal women.

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24 Christensen et al., 2002
26 Mrazek & Haggerty, 1994
References


Australian Health Ministers’ Advisory Council, Cultural Respect Framework for Aboriginal and Torres Strait Islander Health 2004-2009. 2004, Department of Health South Australia: South Australia.


British Columbia Reproductive Care Program, Reproductive Mental Health Guidelines. 2003.


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Medicare, *MBS items for services provided by registered Aboriginal Health Workers on behalf of GP*. 2006, Australian Government.


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Appendix 2: National Stocktake Report

Executive Summary

Introduction
This report commissioned by the beyondblue Perinatal Mental Health Consortium, is intended to establish the current state of affairs with regard to:

- psychosocial assessment
- workforce training in the primary health care sector
- and models of care available for women with perinatal mental health problems across Australia.

The project involved examining available and/or operational organisational structures and models, assessment processes and methods, as well as available training resources to gain and extend competencies in addressing perinatal mental health.

Methodology
The chosen methodology comprised of surveys, key informant interviews and electronic-based research. This project attempted to tap perspectives of governing bodies or policy-makers as well as a range of health professionals working in both the public and private settings. Because of the limited timeframe the stocktake was not fully comprehensive and no doubt there was significant self-selection and thus some degree of key informant bias.

Survey: Multiple survey instruments were designed and used to cater for the diverse contexts extant in the field. We were unable to identify the exact number of surveys distributed, as this occurred thru key managers in each workforce category. While ideally, we aimed to distribute a survey to each nursing unit manager (to fill out with a team clinician) across all maternity wards and every baby health clinic centre across Australia, we were unable to reach more than a percentage of these in each sector. With the Edinburgh Depression Scale, who are regularly surveyed, we clearly got those with a particular interest in the field.

Key informant interviews: An attempt was made to identify the key stakeholders across the relevant fields, at clinical, managerial and policy-maker levels across all jurisdictions.

A Literature search: was undertaken electronically and in response to information provided in the key informant interviews. The main purpose was to identify those psychosocial assessment and training resources and pathways to care models currently used in the perinatal setting in Australia. Three separate inventories were compiled to describe and categorise these resources.

Interpretation and analysis of findings are informed by consideration of characteristics of the target audience, understanding of the limitations of methodology tools used as well as deliberate juxtaposition of findings to highlight convergence and divergence of views within and between methodology components.

Summary of Findings
Survey: 532 of completed survey questionnaires were returned, mostly from hospital Midwives, Child and Family Health services, and Edinburgh Depression Scale. For the first two, there is a relatively good spread of service respondents across state and territory jurisdictions and metropolitan and rural locations. For Edinburgh Depression Scale, on the other hand, the survey population sample was atypically biased towards female Edinburgh Depression Scale, working in urban locations, and participating in obstetric shared care programs. The survey population was disproportionately located in NSW urban localities.

Key informant interviews: 17 separate key informant interviews were conducted in all jurisdictions over a period of two months. Just under half of the 650, i.e. 322, stakeholders invited to these interviews attended. The predominant stakeholder categories represented in the consultations were non-government organisations, consumers, mental health service providers, maternal and child health service providers, and hospital maternity service providers (Midwives and obstetricians). On the whole, findings indicate that there is a reasonably good, if patchy, level of perinatal mental health care in Metropolitan regions, with significant cross-State variation. A few models operate well and stand as examples to be recommended. Findings also indicate that there are significant gaps within the three domains covered in this stocktake project. Amongst the issues identified are the clarification of responsibilities and...
expectations relative to roles and the associated competencies and accountability. Another is the availability or accessibility of health service providers (especially mental health backup); in some areas labour supply is the limiting factor to effective service delivery.

Assessment
It was found that assessment of perinatal psychosocial issues can be ineffective due to missed service interventions, inadequacy of assessment tool administration as well as inadequacy of assessment process or assessor competence. The most contentious issue is that of universal screening with enthusiasts on both sides of the argument debating on grounds ranging from coverage to economic wastage. Nevertheless, there is consensus nationally on the merits of inspiring service providers to “listen and engage” with women, not just at designated clinical events at every contact opportunity. In addition, the majority of opinion seems to favour a structured and routine approach to assessment for perinatal mental health issues at key times in the perinatal journey, i.e. in pregnancy (at booking in which is a universal event in the public sector), and in the first few weeks and months postpartum.

A structured approach – a process with a suite of tools and care pathways available to trained workers – sets minimum standards amenable to centralised guidelines, monitoring and maintenance for quality improvements. Designing such an approach is complicated by varying perspectives and opinions in the field on variables including choice of tools, duration and timing of assessment, provider and consumer (mothers’) contexts as well as what constitutes best practice or more pertinently, viable practice. Over and above the design issues, there is the challenge of implementation – what is truly viable? Currently, there are differences in practice of perinatal mental health care between service providers, at individual, institutional and state/territory levels.
The state or territory in which you seek perinatal services makes a difference to your likelihood of encountering an effective assessment process. For a range of reasons — geographical, historical, political and often because of the existence of perinatal mental health ‘champions’ — some jurisdictions appear to have better approaches to assessment as shown in the diagram below.27

Psychosocial Assessment by Jurisdiction and Antenatal & Postnatal setting

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Antenatal period</th>
<th>Postnatal period</th>
</tr>
</thead>
<tbody>
<tr>
<td>NT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>QLD</td>
<td></td>
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<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>ACT</td>
<td></td>
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</tr>
</tbody>
</table>

Very limited capacity discerned, no obvious concerted program effort

Isolated examples of best practice at individual service level, little policy or broader workforce development support

Some strong assessment programs at regional level, some policy support, but still variable implementation across jurisdiction

Adequate uniform capacity across jurisdiction with policy support, appropriate assessment processes and sound workforce development

The relatively poor capacity in the Northern Territory to provide adequate assessment processes is easily explained through the large geographic area required to be covered by an under-resourced workforce that

27The comparative assessment of jurisdictions provided in this diagram and a later one in the executive summary is indicative not definitive, based on consultation, survey and web search findings. Individual jurisdictions may dispute their assessment.
is further disadvantaged by high staff turnover. The high proportion of the population living in very small and remote communities makes establishing viable perinatal mental health infrastructure doubly difficult if not impossible. By way of contrast, the ACT and Tasmania have tight geographic boundaries in which services can be supported, and small but adequate workforce numbers can be assembled and strategically developed. In both cases, strong policy development and program planning has been pursued (in the case of Tasmania only really in the postnatal service area). Of the larger states that have a more uniform capacity to support appropriate assessment processes, there is evidence of stronger statewide policy direction; in the case of WA a co-ordinating and integrating infrastructure in the form of the Perinatal Mental Health Reference Group, and in NSW the Integrated Perinatal Guidelines are about to be introduced Statewide.

In addition there are now a number of designated perinatal mental health specialist coordinating and training positions across SA, Victoria, WA and NSW. Within most jurisdictions overall effective assessment of perinatal mental health problems is still more likely to be provided to women:

- during the postnatal stages of the perinatal process especially in those locations where a maternal and child health universal home visiting service is in operation;
- whose care was being largely managed in the public sector; perhaps in a shared care relationship with a consulting obstetrician or general practitioner, but not if giving birth in most private hospitals;
- who reside in an urban area and particularly can attend a major teaching hospital or women’s hospital.

Maternal and Child Health Services (MCHS) and Midwives represent important focal points for a National Action Plan to improve not just assessment processes but the entire response to perinatal mental health care.

Aboriginal and Torres Strait Islander and culturally and linguistically diverse settings: Women from an Aboriginal and Torres Strait Islander and culturally and linguistically diverse community are less likely to be assessed for perinatal mental health issues, or if they are, not as effectively. In the case of both Aboriginal and Torres Strait Islander and culturally and linguistically diverse community women, there are few translated assessment materials, and in any case the quality of their administration would be compromised by a lack of or unwillingness to use language services.

Indigenous Australians living in remote communities especially of the Northern Territory are not likely to obtain adequate assessment for their generally more complex psychosocial problems, of which perinatal distress may be just a component. Their assessment is further complicated by an often very late antenatal presentation, the stressful and potentially alienating conditions they might encounter immediately pre- and post the child birth, and the difficulty in keeping track of mothers through the postnatal period. A fear in some cases that revealed perinatal mental health problems will be invoke a child protection intervention add to the difficulty in accessing this population and conducting a valid assessment.

Training

Workforce planning and development is integral to designing a viable approach to perinatal mental health care. The consultations revealed deep concerns not just with workforce competence but also total workforce numbers (workforce supply in comparison to demand), workforce deployment and workforce management. Numerous examples of workforce shortages were cited, not easily addressed by education and up-skilling opportunities. While it was acknowledged through the consultations that reducing service fragmentation and creating better integration was largely a service planning and organisation function, it was also thought that the right incentives needed to be in place to support appropriate workforce behaviours.

It was found that significant effort had been expended on training across Australia straddling both antenatal and postnatal service settings. Much of the training resources evolved from NSW and South Australia and, to a lesser extent, Western Australia and Victoria. Adaptations were made to fit particular local contexts of service organisation and training budgets. Despite the strong evidence of training effort, the impression remained from the consultations that it was inadequate in scope (not quality and content).

This contradicts survey findings which revealed a majority of institutional service providers offered training opportunities in assessment and intervention for perinatal mental health to their health care workers within the last 3-5 years. Similarly, the general practitioner survey respondents were well trained in perinatal
mental health issues, although this sample population was highly skewed. The largest barrier to providing training opportunities identified by institutional service providers is time and staff barriers. Of note also are a lack of policy and procedures to underpin newly trained behaviour and a lack of referral options.

The total number of resources able to be gathered for the ‘Training inventory’ was 49 which include learning resources and training materials in the form of videos, online resources and manuals etc. The majority of the training resources gathered contained general mental health content, especially focusing on depression and anxiety in the general population. All of the training resources related to perinatal mental health gathered and held in the inventory were developed in Australia. Over half were created in NSW. Of the 49 resources gathered, 17 were specifically aimed at perinatal depression and mental health. Some of the 17 resources collected had been evaluated or sought/obtained some sort of accreditation, the most common form of which was that conferred by the Royal Australian College of General Practice (RACGP) through its CPD program.

Pathways to Care
The consultations and electronic search revealed a number of models of perinatal mental health care, described in the Inventory of ‘Pathways to Care’. Though there is marked variation between the models identified, there are also many common elements which conceivably constitute ‘best practice’. Among these are regular and routine assessment processes, a clear decision-making period and process, clear care pathways associated with each type of assessment outcome, linkages between pathways and service provider network supported by defined information management systems and communication protocols, quality evaluation and improvement and a clear set of prescribed pathways to care.

Clear categorisation of women into assessment outcomes normally implies classification of the perinatal mental health distress as low, moderate, or severe or as low, medium and high risk. Increasing agreement is emerging of appropriate pathways of care that should be associated with each assessment outcome. ‘Best practice’ models generally identify the following types of relations between assessment outcome and care pathways:

<table>
<thead>
<tr>
<th>Classification: Level of care required</th>
<th>Examples of health care services required</th>
</tr>
</thead>
</table>
| No signs of distress but psychosocial risk identified; promotion and prevention appropriate | •Information services, including telephone and internet sources  
•Self-help/support groups  
•Monitoring by Midwife/MCFHN |
| Mild distress | •Information services, including telephone and internet sources  
•Self-help / support groups  
•Group therapy  
•Monitoring and support by Midwife/MCFHN |
| Moderate symptoms | •Enhanced Midwife or MCH nurse visiting services  
•Mothercraft services  
•Parenting centres / targeted parenting programs  
•Edinburgh Depression Scale  
•Mental health service assessment |
| Severe problems | •Mother – baby inpatient units  
•Adult mental health services |
Edinburgh Depression Scale, psychologists and maternal and child health services are the most referred to services. Accessibility/availability is a key issue in referrals and there are significantly fewer referrals for desired services that are less accessible such as specialist mother-baby inpatient units. The latter are currently available in Victoria at an acceptable level in relation to the number of live births, but in other states they are inadequate in either supply or accessibility located as they are primarily in private hospitals. Mothercraft facilities also appear to be in short supply compared to demand.

Similar to the chances of being assessed effectively for perinatal mental health issues, women assessed as having a problem are more likely to receive appropriate care if they live in an urban area, they attend a service which is guided by an appropriate pathway model, are referred by a public sector health service provider, and have the support of a perinatal mental health self-help group or service. They are also more likely to be referred to appropriate services if they are residents of NSW, Victoria or the ACT (see diagram below).

Pathways to Care availability by Jurisdiction (primarily Metropolitan)

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Mild symptoms</th>
<th>Moderate – severe symptoms</th>
<th>Mother-baby beds</th>
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</thead>
<tbody>
<tr>
<td>NSW</td>
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<tr>
<td>QLD</td>
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<tr>
<td>ACT</td>
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</tbody>
</table>

No obvious concerted program effort
Very limited capacity discerned (for mo-baby beds usually denotes private beds only)
Some strong programs / options, but variable implementation across jurisdiction
Adequate uniform capacity across jurisdiction with some excellent examples / models

Most jurisdictions have adequate care pathways and referral options for assessed mild distress, with the exception of NT and QLD, both of which have poorly developed maternal and child health services. Similar to the situation with assessment process, the ACT appears to have the most complete service offering, no doubt facilitated by the small geographic area and comparatively good resource support. Victoria, with its network of three public and two private mother–baby units, provides a benchmark for management of severe cases.

Indigenous Australians living in remote communities especially of the Northern Territory are not likely to obtain adequate care for their complex psychosocial problems, of which perinatal distress may be just a component.
Appendix 3: Literature Review

Screening and assessment in the perinatal period for women experiencing, or at risk of, depression, psychological distress, and dysfunction: A review for the beyondblue Perinatal Mental Health Program

August 2007
Abstract

Objectives:
1. To examine the validity and clinical utility of methods used for screening and assessment for depression and related conditions in the perinatal period (conception to 1 year after birth).
2. To summarise the implications of the findings for universal perinatal screening and assessment within the health context.

Method: Systematic review of published papers. These studies were divided into those addressing depression alone (DSM-IV or ICD-10), psychological distress (including dysphoria, anxiety, and maladaptive personality traits) and dysfunction (especially in the parental role). Studies addressing depression were further divided into those validating depression-screening tools and those screening for depression alone (utilising tools fulfilling screening criteria). Depression “screening” studies were further divided into true screening studies aiming to screen for current depression, and studies aiming to assess risk of future depression (i.e. by means of tools assessing a variety of common risk factors, many of which have been applied antenatally to predict postnatal depression).

Results: 103 studies including sufficient data to be informative were identified, some of which were relevant for more than one of the examined areas. These included 21 studies validating the tools used for screening for depression in the perinatal period and an additional 23 studies screening for depression in the perinatal period. For those studies validating depression screening, outcome assessments used standardised diagnostic psychiatric interviews (eg. DSM-IV); while for those studies screening for depression, outcome assessments used the Edinburgh Depression Scale [1] without diagnostic confirmation.

Findings from a number of studies not screening for current depression but assessing for a number of related conditions are also discussed due to their clinical importance. These include: 21 studies assessing perinatal risk for depression, 19 studies assessing the predictive value of antenatal risk assessment tools for postnatal depression, 12 studies establishing perinatal anxiety prevalence, and 7 studies assessing psychological distress or dysfunction (in parenting or other roles). For those studies assessing risk of depression or psychological distress and dysfunction a number of tools were used which are briefly reviewed.

Conclusions: The EDS has excellent negative predictive value and good sensitivity and specificity, though only moderate positive predictive value. It is reasonably effective as a screening tool for depression in English-speaking populations postnatally using a cut-off of 13 or more to signal the probable presence of major depression. This also applies antenatally but a higher cut-off of 14 or more has been recommended in the limited research available to date. For ‘first pass’ screening in the community, a cut
off of 10 or more has been recommended by the original authors of the scale. The use of the EDS is well accepted by women and primary health care staff.

Perhaps not surprisingly, no screening or risk assessment instrument applied in the antenatal period are sufficient to predict postnatal depression. Nevertheless, of equally important clinical relevance, combining a symptom-based tool eg. the EDS (assessing for current psychological distress or symptoms of depression) and a psychosocial risk questionnaire (assessing for psychosocial risk and context), may indicate patients who warrant further support, assessment or referral. Several promising combination assessment schedules are now available and further work on these is underway.

Key words: review, prenatal, pregnancy, mass screening, interventions, postpartum depression.
Introduction
The primary objective of this systematic review is to appraise the methods used for screening and assessment during the perinatal period (conception to 1 year after birth) to identify women currently experiencing or at increased risk for depression, distress, or related dysfunction. In the discussion, we will also address intervention strategies as well as the costs of assessment and intervention where they are available. This will enable us to begin to formulate practical public policy recommendations for improved perinatal health and wellbeing.

Phase 1 (2001-2005) of the beyondblue Perinatal Mental Health Program involved research around Australia concerning (i) routine screening of pregnant and postnatal women for depression, using the Edinburgh Depression Scale\textsuperscript{28} (EDS;\cite{1}, (ii) provision of information to women and their families on the emotional aspects of the transition to parenthood, (iii) education and support for primary care professionals involved in the care of perinatal women, (iv) inclusion of culturally diverse and Aboriginal and Torres Strait Islander communities in the study. Findings included: high rates of postnatal depression, especially in the indigenous population; readily detectable levels of antenatal distress and dysfunction; the importance of psychosocial risk factors in connection with perinatal depression; the acceptability of screening to both women and health professionals, and the importance of the provision of training for health professionals at the front line \cite{2}.

Screening or Assessment or both?
There is an important differentiation to be made in this Review between two key terms: “screening” and “assessment”. “Screening” is an epidemiological term which, narrowly defined, refers to the examination, typically by means of an inexpensive, safe, diagnostic test, of a group of usually asymptomatic people to detect those with a high probability of having a clearly defined disease or disorder for which there is an effective remedy. “Assessment” is a term used to refer to the broad clinical evaluation of the client, medical, psychological and social history and current status, including risk and protective factors, and which may be enhanced by the inclusion of relevant screening tools.

Thus, in the context of perinatal mental health, the term screening should strictly be reserved for the identification of depressive illness, through the use of a validated scale such as the EDS. The desirability of screening is also dependent upon the existence of referral pathways and effective treatments such that screening can lead not merely to the detection of disease but to a reduction in the burden of disease. Nevertheless, many of the published formal guidelines concerning perinatal depression, and mental health in general, use the term screening. The use and misuse of the EDS has been thoroughly addressed in the literature (e.g. \cite{3-5}) while the question of whether or not to screen and the various instruments available was thoughtfully discussed in a text edited by Henshaw and Elliott \cite{6}.

\textsuperscript{28} The EDS is also referred to as the Edinburgh Postnatal Depression Scale (EPDS)
The debate around the two terms and processes has been addressed by the UK National Institute for Health and Clinical Excellence (NICE) in their recently published clinical guidelines for the assessment and management of Antenatal and Postnatal Mental Health (APMH) conditions [7]. They suggest (p102) that screening fulfils two functions: Prediction and Detection. Prediction is: “the identification of risk factors, either current or past, which increase the probability of developing mental health disorder or the probability of relapse of a previous mental health disorder at some point in the future”. Detection refers to "the identification of a current disorder".

In this review, the word “assessment” will be used for all strategies used to identify the known risk and protective factors for depression and related conditions, in pregnant and postpartum women, that do not strictly qualify as "screening". Assessment is essential to the provision of comprehensive, quality clinical care. Devising a good management plan requires that the clinician have a thorough grasp of the client and her context: in particular her present circumstances and past history, including psychological health, social (including cultural) circumstances, as well as physical health. Assessment is what doctors, nurses, and midwives do in their day-to-day practice.

Finally, the term “psychosocial” as used in this review refers to the various psychological and social factors that may predispose to, precipitate or perpetuate depression, distress or dysfunction in the perinatal period.

Section 1: Depression

Although the term depression has been used to cover a spectrum of difficulties - only some of which are diagnosable psychiatric disorders with established defining symptoms - for the purposes of this review, depression is defined as clinically diagnosed depression meeting DSM-IV or ICD-10 criteria. This can refer to major or minor depression.

Across all cultures, women have almost twice the depression incidence of men, as well as longer episodes of depression and a lower rate of spontaneous remission [8]. First onset depression in women peaks in the childbearing years with a three-fold increase in the onset of depressive illness in the first five weeks post-partum compared to matched controls [9]. A meta-analysis of 30 studies yielded point prevalence estimates for major depression/major and minor depression ranging from 3.1-4.9%/8.5-11% during pregnancy and 1-5.9%/6.5-12.9% during the first postpartum year [10]. A meta-analysis of 59 community studies yielded a mean prevalence rate of 13% in the first few weeks post-partum [11]. A recent Danish population-based register study of 630,373 first time mothers demonstrated that the incidence of hospital admission with any mental disorder, i.e. including depression, was increased for 3 months after childbirth with the highest risk 10 to 19 days postpartum (relative risk 7.31; 95% CI 5.44-9.81) [12].
A problem with many articles examining prevention of postnatal depression is their failure to adequately define prevention, postnatal, or depression. One difficulty is the question of onset. Postpartum is defined in the psychiatric manuals as within four weeks (DSM) or six weeks (ICD) of childbirth, whereas many studies and clinicians use a broader definition of postpartum, e.g., the first six months following childbirth.

It is relevant to establish whether a woman’s first episode of depression occurred postnatally as this has predictive value regarding short and longer-term prognosis. Between 20-40% of women with a past episode of puerperal depression will relapse post-partum with those whose first onset was post-partum relapsing more frequently (40%) than those in whom it was simply a recurrence (20%) [13]. However, for the purposes of this review, focusing on clinical utility and public policy, the question of onset will not be used to subdivide the literature. Thus, clinically diagnosed depression present during the perinatal period, whether its onset pre-dates pregnancy, begins during pregnancy, or begins postpartum (up to 1 year after birth), will be considered as one entity. Salient points in the literature that refer to differences related to onset will be mentioned where appropriate.

Many women with postpartum depression will have a history of past major depressive episodes or dysthymia; many are already anxious and/or depressed during pregnancy. It is important to identify them and offer treatment promptly rather than waiting for the problem to be diagnosed months later in the postnatal period.

The importance of detecting depression in the perinatal period
Depression is generally associated with significant work and family impairment. Perinatal depression has adverse effects not only on the mother herself, but also may have a negative impact upon her significant relationships, including with her infant, and on the cognitive, emotional and behavioural development of the child [14-24]. Perinatal depression has also been associated with spontaneous preterm birth [25], infant diarrhoeal morbidity [26], and increased infant crying/fussing [27].

Maternal depression is associated with insecure infant attachment [28] and long-term impairment of mother-child bonding [29, 30]. A study in Sydney [28] reported that women with an insecure state of mind regarding attachment (measured by Adult Attachment Interview; [31]) were more vulnerable to depression, more likely to have infants with insecure (including disorganized) attachment patterns, and more likely to be chronically depressed. Even with moderate to severe depressive illness, mothers with a secure/autonomous state of mind with respect to attachment were able to protect their infants from adverse effects of their illness. Further follow-up of these children indicated that chronic maternal depression was associated with poorer infant cognitive, psychological and motor development, with both genders showing similar effects [32].

Disorders of the mother-infant relationship are often disproportionate to depression, can occur without depression [33, 34], and are prominent in 10-25% of mothers referred to psychiatrists after childbirth [35].
Case reports of twins with a mother-infant relationship disorder in one, but not the other twin, stress the potentially distinct nature of these disorders [34]. Prenatal and postpartum maternal depressive symptoms have been found to be associated with problem behaviours and lower competencies in male toddlers while quality of early interactions predicted problem behaviours in female toddlers [36].

In addition to insecure attachment, infants of postnatally depressed mothers have been found to perform worse on object concept tasks and to show more behavioural difficulties [21]. Milgrom and colleagues have also reported long-term effects of postnatal depression on cognitive development, moderated by the early mother-infant relationship [37]. Postnatal depression has been found to be associated with long-term (at 5 years) alterations in the child's behaviour with the mother, the presence of behavioural disturbance at home, and the content and social patterning of play at school [24]. In a 13-year longitudinal study, recurrent maternal depression has been found to be associated with increased risk for depression in her adolescent children, while anxiety disorders in children of mothers depressed postpartum were elevated regardless of the occurrence of subsequent maternal depression [38]. The likely genetic contribution to these difficulties must also be acknowledged.

One longitudinal study of the influence of postnatal depression on child development found no evidence of an adverse effect of postnatal depression on cognitive functioning in 5-year-old children, but found that early experience of insensitive maternal interactions predicted the persistence of poorer cognitive functioning [23]. Disturbances in early mother-infant interactions have been found to be predictive of poorer infant cognitive outcome at 18 months, and significant intellectual deficits have been found in the 4 year-old children of mothers with depression occurring in the first year of the child’s life [19].

Although depression is frequently missed by primary care providers [39-41], there has been a recent increase in public awareness of postnatal depression. Yet antenatal depression is equally important. In a recent US study screening for antenatal psychiatric illness, only 26% of patients who screened positive for a psychiatric illness had this illness recognised by their health care provider, only 12% of patients who showed evidence of suicidal ideation has this detected by clinicians, and only 26% of women who screened positive for major or minor depression had received or were currently receiving treatment [42]. Austin et al [43], in a recent review of perinatal maternal mortality, reported a significant number of suicides in pregnancy (in addition to those occurring postnatally) based on findings from the last three Maternal Deaths in Australia reports (1994-2002, [44-46]), with the majority occurring by violent means. The recent “Why Mothers Die 2000-2002” Confidential Enquiry into Maternal and Child Health identified psychiatric illness as the leading cause of maternal death in the United Kingdom [47].
Method
Search strategy for identification of studies
Articles were collected based on prior review searches to 2005 and a Cochrane review (in submission, [48]). These searches were then enhanced by the following search strategies:

MEDLINE (PUBMED), EMBASE, Psyclit, CINAHL, HEALTHSTAR, the Cochrane Library and the UK National Research Register were searched from January 2005 to January 2007, using as search terms ‘antenatal, postnatal, post-partum mood disorder, depression, screening, prediction, prevention and pregnancy’ and restricting papers to human adult papers in English. All relevant abstracts were retrieved and read, and all papers meeting criteria for study selection were retrieved and read in full.

Criteria for study selection
Participants: Women who were pregnant or less than 1 year postpartum in any care setting.

Types of screening and assessment: Any instrument, or combination of instruments, applied during pregnancy or within one year post-partum to classify women as ‘at risk’ or ‘not at risk’ of depression (DSM-IV or ICD-10), distress (including subclinical depression, dysphoria, anxiety, and maladaptive personality traits), or dysfunction (including maternal dysfunction in work, home, relationships, or parenting as well as assessments of child dysfunction). These studies were further divided into screening (utilising tools fulfilling screening criteria) and assessment studies, and into detection (current state) studies and prediction (risk) studies where applicable.

Types of outcome measures varied by category: Only for depression (DSM-IV or ICD-10) screening is a clear and consistent outcome measure (the presence of diagnosed depression) available across studies to assess screening instrument sensitivity, specificity, positive predictive value, negative predictive value, positive and negative likelihood ratios. Strategies offered for assessment of less clearly defined conditions of distress and dysfunction, are also examined.

Calculating Sensitivity, Specificity, PPV, and NPV: Where applicable, these values were either reported as in the cited articles, or calculated by hand from the original articles where sufficient raw data were given to enable this. All values calculated by hand were calculated twice for reliability.

Studies addressing depression are outlined below; studies addressing other disorders, psychological distress and dysfunction are outlined in Section 2.
Results:

Results - Section 1: Depression

Depression in the perinatal period (Screening Validation): Tables 1 and 2
21 studies assessing validity of screening for depression during the perinatal period (DSM-IV or ICD-10) were identified (Table 1, [49-69]). Although most of these studies validated use of the EDS postnataally, one addressed use of the EDS antenatally, suggesting a slightly higher cut-off of EDS of 14 or more for antenatal screening [64].

These studies ranged in size from 53 to 1007 subjects with a mean of 128. The time points of screening and diagnosis in the postnatal studies varied across the first postnatal year, with the majority of studies examining postnatal weeks 6-12. The most commonly utilised screening tool was the EDS. Other screening tools included the BDI [70], BDI-II [71], PDSS [72], GHQ [73], CES-D [74], HAMD [75], and HAD [76]. Criterion standard diagnoses were assessed by CIS [77], clinical exam, DIS [78], MADRS [79], MINI [80], PAS [81], PRIME-MD [82], PSE [83], psychiatrist assessment, SADS [84], SCID-DSM-III-R [85], SCID-DSM-IV [86], or SPI [77] in order to establish diagnosis by DSM-III [87], DSM-III-R [88], DSM-IV [89], or RDC criteria (except for one study which utilised Bedford College and Catego diagnosis [63]).

Averaging across the 9 studies with relevant data (Table 2), for major depression: sensitivity (mean = 82%, range = 63-100), specificity (mean = 88%, range = 72-99), PPV (mean = 50%, range = 10-93), NPV (mean = 98%, range = 96-99) for an EDS score of 13 or more. Averaging across the 13 studies with relevant data, for major or minor depression: sensitivity (mean = 82%, range = 59-100), specificity (mean = 78%, range = 37-97), PPV (mean = 52%, range = 27-93), NPV (mean = 93%, range = 82-100) for an EDS score of 10 or more.

Depression in the perinatal period (Screening): Table 3
In addition to the validation studies listed above, 23 studies screening (using the EDS +/- additional tools) for perinatal depression were identified (Table 3) [90-112].

Utilising a cut-off score of 13 or more on the EDS, the mean percentage of women screening positive at any time in the perinatal period is 11.5% with a range of 7.9-16.4%.

Utilising a cut-off score of 10 or more on the EDS (recommended for community postnatal screening in an English-speaking community), the mean percentage of women screening positive at any time in the perinatal period is 22% with a range of 16.8-29.5% (excluding one outlier result in postnatal days 1-3 [91]). Although most of these studies used the EDS postnataally, seven used it antenatally [96, 97, 100, 101, 106, 108, 110] with EDS cut-off scores of 12 or 13 or more.
The Postpartum Depression Screening Scale (PDSS) [51] has also been demonstrated as a potentially reliable screening-tool for postpartum depression, and telephone screening with this tool may also be a reliable method [113].

Assessment for Risk of Depression in the perinatal period: Table 4
21 studies assessing psychosocial risk factors for perinatal depression were identified (Table 4 [11, 111, 114-132]). The most commonly elucidated risk factors for perinatal depression include: depressive symptomatology (antenatal or postnatal), previous psychiatric history, lack of social support (especially from the partner), severe postnatal “blues”, and recent stressful life events. Additional risk factors include family psychiatric history, low socioeconomic status, family violence, history of emotional or physical abuse or neglect in childhood, neuroticism, introversion, not breast feeding, difficult infant temperament, smoking, unplanned pregnancy, dissatisfaction with the delivery experience, and dissatisfaction with the experience of pregnancy.

Antenatal Prediction of Postnatal Depression: Tables 5 and 6
19 studies assessing antenatal prediction of postnatal depression were identified (Table 5 & 6 [63, 133-150]). The majority of these studies developed a study-specific assessment instrument, and used the EDS or standardised diagnostic psychiatric interview for outcome assessments. Sensitivity ranged from 23-82%, specificity ranged from 43-93%, PPV ranged from 8-80%, and NPV ranged from 73-97%. In the two largest population-based studies, the proportion of women screening as positive (‘at risk’ of postnatal depression) was 16% and 52% respectively, and of these only 8% and 35% actually developed depression after birth.

Discussion - Section 1: Depression
Depression in the perinatal period (Screening Validation):
As summarised in Table 1, many studies have attempted to validate the use of EDS for screening, but controversy remains regarding its general use. The validation studies have largely been conducted on non-randomised subjects of heterogeneous and occasionally highly selective backgrounds. Indeed, measured against National Health and Medical Research Council criteria, the majority of studies listed in Tables 1 and 2 are designated Level III or IV (See Appendix A for details of NHMRC criteria for designation of levels of evidence).

These studies are difficult to draw robust general inferences from as they have utilised multiple languages (involving rewording of the EDS as well as translation), various time-points for screening, and various methodologies for verifying diagnosis. A number of these studies have employed variable cut-off scores for the EDS. Concern has also been raised over the validity of the EDS as a single summed scale, with suggestions that it is not a unidimensional measurement of depression [151]. Thus, not surprisingly, the sensitivity of the EDS for detection of major depression has ranged from 63-100%, the specificity has ranged from 72-99%, and the positive predictive value has ranged from 10-93%.
Despite these limitations, it is possible to select what appear to be reasonable cut-off scores based on the existing literature. The most commonly employed cut-offs on the EDS are 13 or more for major depression and 10 or more for minor depression. Averaging across studies using a cut-off of 13 or more, the mean positive predictive value (PPV) for perinatal major depression is 50%, which is reasonable for a very inexpensive and simple screening test. If the consequence of a positive screen for those scoring 13 or more is a diagnostic interview, a PPV of 50% translates into two diagnostic interviews per diagnosis of postnatal major depressive disorder. In addition, the EDS appears to have an impressive negative prediction value for major depressive disorder (mean 98%) across these diverse studies indicating that its implementation as a general screening tool would lead to few missed cases. One concern that has been raised about false negatives is that the EDS may be better at identifying depressed postnatal women with anhedonic and anxious symptomatology rather than those whose depression presents mainly with psychomotor retardation [152].

Importantly, the EDS has also been validated for use in the antenatal period [96, 97, 100, 101, 106, 108, 110]. Many depression scales are artificially elevated by symptoms of pregnancy such as sleep disturbance, appetite disturbance, and fatigue. Although the EDS has been validated for use in pregnancy, it is not immune from these effects and thus a slightly higher cut-off of 14 or more has been recommended for antenatal screening.

Prediction of Depression in the perinatal period (Screening Validation):

Although many studies (Tables 4, 5, and 6) have demonstrated risk factors for perinatal depression, and have attempted to develop study-specific assessment instruments for antenatal or early postnatal prediction of later postnatal depression, none of these instruments to date meet the criteria for routine application as screening instruments. Like the depression screening validation studies outlined in Table 1, the majority of studies listed in Tables 4, 5 and 6 are designated Level III when measured against National Health and Medical Research Council criteria (See Appendix A for details of NHMRC criteria for designation of levels of evidence). However, selecting a minimal questionnaire touching upon the most commonly elucidated predictive questions from these studies (previous history of depression, low social support, physical abuse, unplanned/unwanted pregnancy, negative experience of pregnancy, unemployment) may improve sensitivity and specificity by identifying women who merit closer follow up, with more frequent EDS screens in the first postnatal year or more rapid intervention in response to a positive EDS screen.

Depression in the perinatal period (Assessment of Risk):

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Numerous studies (Tables 4, 5, and 6) have demonstrated risk factors for perinatal depression, as outlined on page 11, and have attempted to develop assessment instruments for detection of latent or early stage depression. To date, no single one of these questionnaires has gained such widespread acceptance or been so exhaustively validated as to supersede the others. Questionnaires for which reasonable validation data exist include the Antepartum Risk Questionnaire (APQ) [146], Postpartum Depression Predictors Inventory (PDPI) [114], Pregnancy Risk Questionnaire (PRQ) [135], Brisbane Postnatal Depression Index (BPDI) [132], and Predictive Index (PI, of Postnatal Depression) [137].

Screening programmes for depression in the perinatal period:
A US study specifically examining the impact of routine screening for postpartum depression with the EDS demonstrated that the rate of diagnosis of postpartum depression in the community increased from 3.7% before the routine use of EDS screening to 10.7% following screening [153]. A recent meta-analysis of 15 studies with a total of 7697 participants conducted between 1995 and 2003 assessing psychosocial and psychological interventions for prevention of postnatal depression showed that identifying women “at risk” assisted in the prevention of postnatal depression [154].

Screening studies have shown that the percentage of women screening positive with the EDS can range from 7.3 to 29.5% depending upon the cut-off score used and the population of women targeted for screening. An EDS cut-off score of 13 or more will minimise costs, as 11.5% of women would be expected to screen positive at any time in the perinatal period. A cut-off of 10 or more would virtually eliminate false-negative results but would increase costs with 22% of women expected to screen positive at any time in the perinatal period.

The strong association of depressive symptoms, even mild depressive symptoms as in postnatal “blues,” with later development of postnatal depression has led depressive symptom scales, such as the EDS, to be among the most promising screening tools for assessing postnatal depression risk. It is important to keep in mind that, unfortunately, a large number of cases of perinatal depression meeting diagnostic criteria for major depressive disorder go undiagnosed and untreated. Hence, the purpose of screening with the EDS is to identify latent or early stage depressive symptomatology as well as current depressive illness.

A meta-analysis of randomised trials of depression-screening conducted in primary care settings suggested that screening and feedback reduces the risk of persistent depression (summary relative risk, 0.87 [95% CI, 0.79 0.95]) indicating that screening for depression can improve outcomes [155]. The application of universal perinatal screening for depression can enhance recognition of potential depression in this vulnerable period [156]. The EDS [1] is currently the most widely accepted screening scale internationally for use in this period.
Postpartum depressive symptoms persist in many women throughout the postpartum year, and may emerge at any point during that year, such that routine screening throughout the year is preferable to screening at only one postnatal visit [157]. A reasonable follow-up study to a positive EDS screen where no clear evidence of illness emerges, is a second EDS screen within one to two weeks to look for persistence of symptoms.

It is also important to avoid excessively or unnecessarily pathologising women. Many women experience depressed mood shortly after birth with symptoms that are not severe and that resolve spontaneously within a few weeks in a supportive environment [158]. Negative thoughts can be a normal phenomenon after childbirth [159], and reassuring new mothers about this may reduce feelings of guilt associated with these thoughts. Thus, it is important to explain to women that the EDS is simply a screening tool to facilitate more extensive diagnostic testing for depression when appropriate. Diagnoses of depression should only be made based on a more rigorous psychiatric interview and never based on the EDS or other such preliminary screening instruments alone.

In addition to requiring validated screening tools with clear cut-off points, screening is only desirable if there exist referral pathways that allow screening to lead to appropriate treatment. Department-based perinatal depression screening has been found to be feasible only when individual physician practices were not required to develop the infrastructure necessary to respond to at-risk patients [96]. Provision of clinical safety nets (mental health provider networks and hotlines) are essential for acceptance of screening by practitioners [96]. In mental health, this often requires access to appropriate social services as well as health care. There is no point in detecting child abuse if society has no means of intervening to protect the child. Barriers to service need to be explored, and may be far more complex than simply ensuring an adequate number of mental health professionals for the population served. There is a subgroup of psychologically vulnerable child-bearing women who are at particular risk of poor access to health care and adverse infant outcome, and some of these women may self-exclude from the health care system [160].

Although there are still no randomised controlled trials that have established evidence for the effectiveness of the EDS in reducing morbidity, there is a growing body of literature supporting the efficacy of the scale in reducing the burden of perinatal depression.

Other considerations when screening

Acceptability of screening and assessment of depression during the perinatal period

Lack of acceptability to patients of the EDS due to the sensitive material contained therein has been reported as a drawback to its routine use in UK studies [161], but very high acceptability has been reported in a number of other studies. A 1997 study of postnatal depression screening questions along with an information kit found a high level of satisfaction with the intervention among patients and a positive response among staff [162]. A 2006 Australian study addressing this issue reported very high
acceptability (>90%) in 860 women and 916 health professionals [163]. In another 2006 Australian study of the acceptability of EDS screening for postnatal depression in 479 women, 97% of respondents felt that screening was desirable, 81.2% indicated that screening was “comfortable” to “very comfortable” and only 18.8% rated screening below the “comfortable point” [164]. In a more recent Australian study [145], 100% of respondents reported that antenatal screening with EDS was acceptable, and 50% reported that the screening process raised their awareness of perinatal depression. Two Australian studies of antenatal psychosocial assessments in women of English-speaking, Arabic-speaking, and Vietnamese-speaking backgrounds found that most women and staff considered the questions to be appropriate, acceptable, and helpful [165, 166].

Mothers have appeared to be generally positive about depression screening, but issues of concern include: the screening process, the screening instrument, and a lack of information provided to screened women, particularly regarding being identified as having depression and the consequences [167]. Measures which could improve the acceptability of postnatal depression screening include preparing mothers for assessment, ensuring that they understand that the EDS is not a diagnostic instrument, explaining the likely ramifications whether they receive a high or low score, ensuring appropriate feedback, and providing reassurance that a PND diagnosis will not lead to their children being taken away [167]. Sensitive explanation of the screening tools used and their purpose, as well as staff training and support, is essential to implement depression screening. Information regarding emotional and social aspects of pregnancy and the postpartum period should be provided for all women and their partners.

Intervention for depression during the perinatal period

Depression in the perinatal period warrants the same attention as at any other time in the life cycle. Antidepressants in pregnancy are as effective and necessary as for any other depressive episode, as evidenced by the rate of relapse in pregnant women discontinuing medication prior to conception [168].

The key issue with pharmacological interventions in pregnancy is their safety for the fetus. The safety of antidepressants in pregnancy has been a focus of great interest over the last 10 years with over 60 publications in 2006 alone. Most of the studies have focussed on the potential increase in risk of birth defects and neonatal neurobehavioural syndromes with late pregnancy exposure. Some studies have also examined longer-term outcomes in terms of neurobehavioural sequelae. It must though be recognised that to not treat depression in the perinatal period is also a risk for the fetus and mother. Both the client and clinician must weigh up the advantages and disadvantages of antidepressant use during pregnancy in the context of the evidence. Authoritative evidence on the effects of medications in the perinatal period can be found at http://www.motherisk.org.au.

There are over 50 reviews on drug treatment in lactating women [169, 170], and concern over the effect of psychototropic drugs secreted in breast milk on infants has led many to consider medication second-line in lactating women. A comprehensive 2001 literature review on antidepressant treatment of postnatal
depression [171] concluded that more trials are needed as only one small trial [172] met criteria as a randomised controlled trial. This randomised controlled double blind treatment trial found fluoxetine and cognitive-behavioural counselling to be effective treatment for postnatal depression when compared with placebo [172].

More recent reviews on antidepressant prevention of postnatal depression [173, 174] concluded that there is a lack of clear evidence for antidepressant prophylaxis as there have been only two very small randomised controlled trials, one of which indicated that nortriptyline has no benefit over placebo [175] and the other of which showed that sertraline reduces the recurrence of postnatal depression and the time to recurrence when compared to placebo [176]. There is another study indicating that prophylactic antidepressant treatment may reduce the recurrence of postpartum major depression [177].

Particularly for those mothers with histories of depression or post-partum depression, which have responded well to medication in the past, antidepressants should be given when indicated. Antidepressant drugs should be used cautiously in lactating mothers, especially in very young or sick infants, but it is not recommended that antidepressant agents be automatically withheld or that breast-feeding be stopped.

A recent meta-analysis showed that postnatal home visits from a health professional and individual-based interventions were most helpful for postnatal depression while group interventions were least helpful [154]. However, another systematic review assessing the success of randomised controlled trials of preventative interventions for postnatal depression failed to find any evidence of long-term success [178]. A number of studies have though supported the conclusion that individual interpersonal psychotherapy (IPT) is an effective method of treatment during pregnancy and the postnatal period [179-182].

Fewer studies have found positive results from group treatment, although interpersonal psychotherapy adapted for the group setting has appeared to have benefit in treatment of postnatal depression in select studies [183] and a randomised controlled trial of psychological interventions (group cognitive behavioural therapy, group based counselling, and individual counselling) for postnatal depression found that all three interventions were superior to routine care in reducing depression and anxiety, though individual counselling was superior to group counselling in this study [184]. Another randomised controlled trial examining treatment effects at 4.5 months postnatal found that psychodynamic therapy was superior to non-directive counselling or cognitive-behavioural therapy in reducing depression rates, although all of these interventions significantly influenced maternal mood (versus a routine primary care control condition) [185].

A randomised controlled trial of non-directive counselling, cognitive-behavioural therapy or psychodynamic therapy (versus routine primary care as the control condition) for post-partum depression found that all three treatments had a significant benefit on maternal reports of early difficulties in
relationships with the infants; counselling gave better infant emotional and behaviour ratings at 18 months and more sensitive early mother-infant interactions [186].

As stated earlier, maternal-infant relationship disorders can persist after depression resolves or can present without depression. Thus, in the case of high-scores on scales assessing these disorders, such as the PBQ [187] or PSI [188], it is important to attend to the relationship problems and assess if they are still present beyond the recovery from depression. A study looking at conventional cognitive-behavioural therapy (CBT) and a targeted parent-infant intervention in women with postnatal depression found that parent-infant difficulties due to postnatal depression were persistent and that 3 weeks of specialized parent-infant intervention led to a more rapid reduction of parenting stress than 12 weeks of CBT [189]. Infant massage has also been found to improve mother-infant interaction for mothers with postnatal depression [190, 191].

While more randomised controlled trials with large and representative community samples are needed to determine which interventions are most useful for women with different risk factors or symptom severity, existing studies demonstrate that effective treatments for perinatal depression, both pharmaceutical and psychosocial, are available. As with depression in other stages of life and in men, there is evidence that early intervention with these treatments leads to better outcomes.

The cost of depression during the perinatal period

A few small studies have looked at the economic costs of postnatal depression. A study of the economic costs of health and social care provided to 206 high-risk British women found a mean cost increase of 392 British pounds per woman with (versus those without) postnatal depression over the first 18 months postpartum [192]. A recent Israeli study of 574 women showed that women with postpartum depression have higher consultation rates with family physicians and paediatricians and may manifest somatisation, directly or through the baby [193]. Thus, undiagnosed and untreated women with postpartum depression may generate more healthcare costs than women in appropriate treatment.

A recent prospective economic evaluation was conducted alongside a randomised controlled trial of preventive intervention for postnatal depression in high-risk women [194]. Women in the preventive intervention group were depressed for an average of 2.2 weeks less (9.57 versus 11.71 weeks) than women in the routine primary care group. The mean health and social care costs in the preventive intervention group were estimated as 119 British pounds more (2,397 versus 2,778 pounds) than in the routine primary care group. Thus, the preventive intervention is likely to be cost-effective even at a relatively low willingness to pay\(^\text{29}\) threshold for preventing 1 month of postnatal depression during the first 18 months postpartum. Studies validating treatment for postpartum depression [195] have generally had greater success than those attempting to validate prevention of postpartum depression [178], so one

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\(^{29}\) ‘Willingness to pay’, a term used in economic evaluations, refers to what people pay or indicate they would be prepared to pay for preventive measures to protect or restore their health or avoid ill health.
would expect that, if cost-effectiveness can be demonstrated for prevention, it can be demonstrated for treatment as well.

A recent Maternal Depression Research Project in Gadsden County, Florida, aimed to determine, through cost-benefit analysis, whether screening and intervention had a positive effect for high-risk depressed women in the community. The goals of the four-year (July 2001- May 2005) project were: 1) to increase awareness of maternal depression in Gadsden County, 2) to increase screening for depression for pregnant women or for women who had given birth in the community, and 3) to provide treatment for those women who tested positive for the depression screening. The gross benefit cost ratio for the Maternal Depression Project was 5.31, indicating that for every $1 invested, $5.31 was saved. The benefit-cost analysis indicates that the net savings to the government from changes to the mother and child totalled $489,957, more than four times the program’s costs ($113,690) [196].

The costs of a universal perinatal screening program can be estimated based upon prior EDS positive screen prevalence and positive predictive value. An EDS cut-off score of 13 or more will minimise costs, and serve as a reasonable screen for major depression while missing many cases of minor depression and dysphoria. At this cut-off 11.5% of women would be expected to screen positive at any time in the perinatal period, half of whom would be expected to have a diagnosis of major depressive disorder. An EDS cut off point of 10 or more would virtually eliminate false-negative results but would increase costs.

The EDS is free, so the cost of administering the EDS to women who screen negative is simply the cost of training health care providers and health care provider time required to explain the instrument and its purpose, and providing feedback as necessary. The cost of positive screens is dependent upon the diagnostic tools and referral services in place. If every EDS positive subject (scoring 10 or over) were referred to a mental health professional for further diagnostic work-up, this would place a considerable burden on specialist mental health services. With appropriate training of primary health care staff and the inclusion of a broader psychosocial assessment, however, very few women are referred to specialist health services. Another way to reduce costs is to utilise a tool which is half way between the EDS and a full diagnostic interview with a mental health professional in terms of cost and reliability for those subjects who screen EDS positive. One potential such tool is PRIME-MD [82] which is estimated to take the primary care physician an average of 8.4 minutes to complete and which has an overall accuracy rate of 88%.

One also has to consider the many hidden costs of untreated perinatal depression such as child care, indirect costs (lost productivity), intangible costs (fear, pain and suffering), and longer-term costs as the condition may affect the health-care [14] and education needs [24, 197, 198], as well as the productivity of mother, child, partner/father and family over their lifetime. Cost-effectiveness cannot be estimated without a willingness to pay threshold. Every nation or institution seeking to reduce the societal burden of
depression must determine according to its own means a reasonable cost per month for the benefits of depression avoided.

Section 2: Anxiety and other mental health problems during the perinatal period

The demands and difficulties of pregnancy and early child-rearing may increase the clinical importance of identifying subclinical depression, anxiety disorders, adjustment disorders, coping difficulties, and dysfunction in work, relationships, and parenting in addition to diagnosing major depression. Addressing only clinically diagnosable depression would do a disservice to many women in need of psychological or social intervention who do not meet the criteria. Perinatal mental health implies a focus on health rather than illness and attempts to address the factors known to be associated with maternal vulnerability or resilience, not just clinical depressive illness. A spectrum of interventions for a spectrum of difficulties is required.

In addition, patients with "postpartum depression" often have at least one other co-morbid disorder with 27% having two or more co-morbid disorders [199]. A study of 69 mother-infant dyads found that comorbid diagnoses led to less optimal maternal-infant interactions and more insecure infant attachment than depression alone [36]. Higher cortisol reactivity and higher psychological reactivity in response to psychosocial stress in pregnancy are associated with postnatal depressive symptoms [200].

Anxiety Disorders

Maternal anxiety in late pregnancy, independently of depression, has been reported to be associated with children's emotional and behavioural disorders at age four years [201]. Maternal prenatal anxiety has been significantly associated with individual differences in cortisol levels in 10-year-olds, indicating that prenatal anxiety might have lasting effects on HPA axis functioning in the child [202]. In a study by McMahon et al [203], anxiety appeared to be more strongly correlated with maternal ratings of difficult infant temperament and behaviour than depression, emphasising again the need for a greater focus on anxiety symptoms with respect to both infant development and the interventions offered to mothers.

Maternal panic disorder has been associated with low birth weight [204] as well as with infant neurophysiological divergences consistent with higher arousal and arousability [205].

Results and Discussion: Anxiety and other mental health problems during the perinatal period

Twelve studies establishing the prevalence of anxiety disorders in the perinatal period were identified (Table 7 [42, 97, 128, 206-214]). Sample sizes ranged from 63 to 951 with a mean of 442. Antenatally, reported incidence of an anxiety disorders included: unspecified anxiety disorder (5%, 24%), PTSD (0%, 1.3%, 3%, 7.7% m 7.7%, 8.1%) GAD (0.9%, 8.5%), panic disorder (1.3%, 1.4%, 2%), specific phobia (10.9%), OCD (1.2%, 0.2%), social phobia (10.2%, 2.7%), and agoraphobia (14%, 0.9%). Postnatally,
reported incidence of an anxiety disorders included: unspecified anxiety disorder (13.5%, 16.3%), GAD (4.4%, 8.2%), panic disorder (1.4%, 1.7%), specific phobia (8.3%), OCD (2.7%), social phobia (4.1%).

In addition to the studies listed in Table 7, a number of studies have looked specifically at the incidence of postnatal PTSD with childbirth specified as the traumatic event [207, 212, 215-218]. These studies, assessing for childbirth-specific PTSD occurring anywhere from 4 weeks to 1 year postpartum, found an incidence ranging from 0 to 6.9% with a mean of 3.8%.

A number of studies have also looked at the incidence of anxiety disorders in patients with depression or patients presenting to psychiatric services as opposed to the general population. A 2006 study of 129 mothers referred to psychiatric services in New Zealand found that anxiety disorders were more frequent than depression during pregnancy and equally frequent after delivery [199].

Most of the studies establishing anxiety disorder prevalence in the perinatal period have utilised diagnostic interviews, which are too time-consuming for screening purposes. Only one of the listed studies used a tool, the Crown-Crisp experiential index (CCEI) [219], that could be implemented as an anxiety screen [97]. This study of 8323 pregnant women found an incidence of positive screen for anxiety disorder (CCEI of 9 or more) of 14.6% at 18 weeks gestation, 15.6% at 32 weeks gestation, 8.1 at 8 weeks postnatal, and 9.1% at 8 months postpartum. The Depression Anxiety Stress Scales (DASS, [220]) may have potential for use as a screen for postnatal anxiety and distress. In a study of 325 primiparous Australian mothers, the DASS identified 19% as depressed, 13% as showing symptoms of anxiety, and 7% as both anxious and depressed [221]. A study of 432 women in Brazil used the Spielberger State-Trait Anxiety Inventory (STAI, [222]) to screen for anxiety during pregnancy, but it resulted in a very high number of positive screens (59.5% state and 45.4% trait) without diagnostic criteria validation [223].

**Psychological distress and dysfunction**

Psychological distress is defined for the purposes of this review as psychological problems such as subclinical depressive symptoms, significant anxiety, and social or personality issues. Dysfunction (defined for the purposes of this review as an inability to function adequately in one’s usual role whether at work or at home, and in particular an inability to care for one’s self or one’s children) can be present in the perinatal period without meeting criteria for any Axis I (DSM-IV) diagnosis.

Psychological distress and dysfunction in the perinatal period are a significant problem for mother and child, and although this review aims to avoid contributing to the literature that includes these, at times poorly defined, states under the heading of “depression,” it also aims to avoid ignoring the many important contributions which the literature has made towards understanding the challenges faced by women at this life stage, and the best ways for clinicians to offer help.
Systematic identification of women with either antenatal or postnatal distress not meeting diagnostic criteria may be useful, as many of these women experience considerable dysfunction and may require assistance [224]. Prolonged mild maternal depression has been found to predict children’s risk for depressive disorders by age 15 in a community sample [225]. Women screening positive with the EDS or other perinatal risk questionnaires who do not subsequently meet criteria for Axis I psychiatric diagnoses may represent a group of women with significant emotional distress or personality difficulties requiring assistance from health or social services and they should not be lightly dismissed as “false positives”.

Results and Discussion: Psychological distress and dysfunction

A number of the studies described above which examine depression screening, assessment, and risk prediction may also provide information regarding co-morbid conditions or distress. In addition, some studies have specifically looked at assessment to detect perinatal psychosocial concerns without being restricted to diagnostic criteria for depression, including one randomised controlled trial of the Antenatal Psychosocial Health Assessment (ALPHA) form [226]. The ALPHA form [227] incorporates 15 risk factors associated with poor postpartum outcomes of woman abuse, child abuse, postpartum depression, and couple dysfunction. The randomised controlled trial consisted of 227 patients, 98 in the ALPHA group and 129 in the control group. ALPHA group providers were more likely than control group providers to identify psychosocial concerns (including those related to family violence) and to rate the level of concern as “high” (odds ratio 4.8).

At hospitals in South Western Sydney and at the Royal Hospital for Women, Sydney, staff have also developed psychosocial assessment procedures that have been part of routine antenatal clinical practice since 1999 and used in over 50,000 women [228, 229]. Although they include the EDS, these comprehensive psychosocial assessments are intended to identify a range of psychological or social problems that may adversely affect the woman’s capacity to care effectively for herself and the foetus or for her infant in the future, and to ensure that appropriate assistance is offered. The assessment covers the risk domains of: perceived practical and emotional support; life stressors; personality; past and current anxiety and depression; family history of mental illness; personal history of abuse; domestic violence; use of cigarettes, alcohol and other substances; involvement with child protection services (current and previous); previous significant grief and loss, including previous miscarriages and terminations, and Aboriginality status of the woman and her partner. These psychosocial assessments may be completed by self-report or administered face-face by a trained clinician.

More work needs to be done regarding other psychiatric conditions, such as anxiety disorders, in the perinatal period. It is also important to consider levels of perinatal stress not meeting psychiatric diagnostic criteria that may merit community interventions or social support. As demonstrated by work on the ALPHA questionnaire [226], primary care doctors and obstetricians are in need of improved tools for detecting perinatal distress and dysfunction. The Antenatal Risk Questionnaire (ANRQ, Austin 2004) is a brief 9-item tool currently being evaluated on a sample of 2,400 women. It is based on a longer prototype,
the Pregnancy Risk Questionnaire (PRQ), which has been validated for use in the antenatal period [135]. The brief assessment process (IPC) used in the program implemented initially by Barnett et al [228] has been reported to be user-friendly for staff and clients. It is now incorporated into standard antenatal and postnatal clinical consultations throughout NSW Health Services. Longitudinal studies are in progress and a degree of further validation has been provided by a small study of 50 women deemed to be “not at risk” using this assessment process (Karatas et al, 2007, submitted).

Parenting problems. A few studies have developed and utilised assessment tools that are specific for maternal (or parental) dysfunction, in particular disorders of the mother-infant relationship, which may or may not be related to depressive symptomatology [187, 188, 230-232]. The Parenting Stress Index (PSI) scale developed by Richard Abidin [188] consists of 120 items under 3 domains: a child domain (with 6 subscales: adaptability, acceptability, demandingness, mood, distractibility/hyperactivity, reinforces parent), a parent domain (with 7 subscales: depression, attachment, restriction of role, sense of competence, social isolation, relationship with spouse, parent health), and a life stress domain [188]. The PSI has been used to demonstrate that mothers with postnatal depression and their spouses score more negatively on the PSI than controls, and that these differences in parenting stress can persist long after the level of depression has decreased [232].

The Postpartum Bonding Questionnaire (PBQ) is a 25-item self-report questionnaire designed to provide an early indication of mother-infant relationship disorders [187]. The psychometric properties of a German version of the PBQ were studied, leading to an abridged 16-item German version of the PBQ [233]. A new simple 8-item self-rating mother-to-infant bonding scale (MIBS) has been designed to assess the feelings of a mother towards her new baby [231].

Current scales, such as the PSI [188] and PBQ [187], can assess parenting difficulties but they are cumbersome and rarely used in current clinical practice. The simple 8 question MIBS may be more amenable to use as a universal screening tool but it requires further validation and use [231].

*Interventions for Perinatal Distress & Postnatal Parenting Dysfunction*

A recent review of randomised controlled trials of postpartum support interventions identified 22 trials and concluded that universal postpartum support to unselected women at low risk did not result in statistically significant improvements for any outcomes examined, while more selective interventions did demonstrate significant improvements [234]. Specifically, those authors reported that (i) in women at high risk for either family dysfunction or postpartum depression, home visitation or peer support produced a statistically significant reduction in EDS scores, (ii) in low-income primiparous women, educational visits to a paediatrician showed significant improvements in maternal-infant parenting skills, and (iii) in women at high risk for family dysfunction and child abuse, nurse home visits combined with case-conferencing produced significant improvement in home environment quality.
An Australian study demonstrated a more rapid decline in parenting distress following three weeks of specialised parent-infant intervention [189]. The Happiness, Understanding, Giving and Sharing (HUGS) intervention developed by those authors aims to enhance the quality of mother–infant interactions following PND by promoting engagement, play and physical contact, observing and understanding infant signals, and examining parental responses to infant cues. Play therapy has also been used successfully to treat disturbed maternal-infant relationships [235].

A US 20-year program of research on the Nurse Home Visitation Program, (within which nurses visit mothers from pregnancy through to the child’s second birthday) found in randomised trials that the program benefits the neediest families (low-income unmarried women, especially those with the lowest psychological resources- mental health symptoms and limited intellectual functioning) but provides little benefit for the broader population [236, 237]. Among low-income unmarried women, the program helps reduce rates of childhood injuries and ingestions that may be associated with child abuse and neglect, and helps mothers defer subsequent pregnancies and move into the workforce. By the time the children were 15 years of age, they had had fewer arrests and convictions, smoked and drank less, and had had fewer sexual partners [236]

Section 3: International Perinatal Mental Health Guidelines

USA:
The American College of Obstetrics and Gynecology recommends that psychosocial screening be performed on a regular basis (once every trimester and at discharge) and documented in the prenatal record, as well as stressing the importance of an appropriate system of referrals [238].

The U.S. Preventive Services Task Force (USPSTF, [239]) recommends screening adults for depression in clinical practices that have systems in place to assure accurate diagnosis, effective treatment, and follow-up. The USPSTF found “good evidence that screening improves the accurate identification of depressed patients in primary care settings and that treatment of depressed adults identified in primary care settings decreases clinical morbidity.” The USPSTF recommendations go on to state, “larger benefits have been observed in studies in which the communication of screening results is coordinated with effective follow-up and treatment.” The USPSTF concluded that the screening benefits are likely to outweigh any potential harm [239].

Canadian:
The Canadian Columbia Reproductive Care Program details guidelines for the identification and assessment of psychosocial risk and the full spectrum of mental health disorders in the perinatal period [240]. The guidelines, which utilise a bio-psychosocial-spiritual framework, focus on four different time frames (preconception, antenatal, labour and delivery, and postnatal) and target awareness, education, and screening of women at risk for mental illness. The screening and assessment tools summarised in the
Early Identification Guide and utilised in the Reproductive Mental Health Best Practice Guidelines include the EDS, PDPI, and ALPHA.

It is recommended that at the initial contact, all women should be asked about their family and/or personal history of mental illness. Ongoing education and repeat assessments with the tools outlined in the Early Identification Guide is recommended in the third trimester, and 1-2 days, 1 week, 6-12 weeks, and 4-6 months following birth. Action and assessment is recommended at every contact for women with a family and/or personal history of mental illness. The guidelines state that "early identification of mental illness is imperative to minimise the impact of maternal mental illness on the infant".

United Kingdom (NICE):
The U.K. Antenatal and Postnatal Mental Health: Clinical Management and Service Guidance [7] recommends that healthcare professionals should “routinely ask women about their mental health at first contact,” including specific questions about past or present psychiatric illness along with questions about past psychiatric treatment. They also recommend inclusion of two questions to identify possible depression: “during the last month have you often been bothered by feeling down, depressed or hopeless?” and “during the last month have you often been bothered by having little pleasure in doing things?”, followed by the question, “do you want help?”.

The British APMH clinical guidelines go on to recommend that routine prediction or detection of psychiatric disorders in pregnant or postnatal women not include the following: "the use of specific predictors, such as poor relationships, except previous psychiatric history"; and the use of "pencil self-report measures such as the Edinburgh Postnatal Depression Scale as the primary means of assessing mental state". The EDS is thus acceptable provided it is not used in isolation.

Scottish:
The Scottish Intercollegiate Guidelines Network [241] national clinical guidelines for postnatal depression and puerperal psychosis screening state that procedures should be in place to ensure that all women are routinely assessed during the antenatal period for a history of depression. They state that psychosocial and biological risk factors for postnatal depression and puerperal psychosis should be recorded in the antenatal period in a routine and systematic fashion, and that pregnant women and their partners should be given information during the antenatal period on the nature of postnatal mood disorders and puerperal psychosis. Women with positive risk factors for puerperal psychosis should receive specialist psychiatric assessment antenatally. These guidelines go on to state that there is no evidence to support routine screening in the antenatal period to predict the development of postnatal depression, but that the EDS should be offered to women in the postnatal period as part of a screening programme for postnatal depression. They suggest using the EDS at 6 weeks and 3 months postpartum with a cut-off of 10 or more for whole population screening. Those scoring above the cut-off require clinical evaluation.
**Conclusion**

Although there is no universally agreed tool or method for identifying those women who are currently suffering mental health problems or at risk of doing so in the future, several international guidelines [238, 241, 242] now include recommendations for routine psychosocial screening and assessment in the perinatal period. The importance of early identification of distress and illness known to be associated with significant morbidity for mother, infant and family is gaining international impetus as a public health priority.

The criteria for appraising the viability, effectiveness and appropriateness of a screening program [243] specify particular requirements for the condition, the test, the treatment, and the screening program (see Appendix B for detail). In summary, the condition should be a well understood and important health problem with some detectable risk factor or early stage; the test should be simple, safe, precise, validated and acceptable to the population, and have agreed cut-off levels in the target population; the treatment should be effective, and offered appropriately with evidence of early intervention leading to better outcomes, and the screening program should have randomised controlled trial evidence for its effectiveness in reducing morbidity. Thus, of the conditions under discussion in this review, only major depressive disorder meets screening criteria.

There is a simple, safe, and validated screening test (the EDS) for perinatal depression that is acceptable to the target population. It has been translated into 38 languages, 19 of which have been validated for use in the perinatal period for women who have a first language other than English. Unfortunately, there is a dearth of randomised controlled trials which has lead to controversy regarding the precision of this test and variability in the agreed upon cut-off levels in the target population. However, the large number of validation studies on the EDS allows for intelligent and well-substantiated decisions to be made regarding cut-off points and the resulting sensitivity, specificity, positive predictive value, and negative predictive value.

While some concerns regarding the acceptability of the EDS to women have been expressed [161], this simple screening test has been used in studies with many thousands of women (see [10] for summary) without reported adverse outcomes, and recent Australian studies report high levels of acceptability of the EDS among women and health professionals alike [145, 163, 164].

Despite the many negative consequences of perinatal depression for mothers, infants, and families, perinatal depressive symptoms go largely untreated [244]. Given the significant morbidity for the mother and the infant as well as the existence of many effective treatments, assessment and intervention for those women who are currently experiencing or at risk of depression is a potentially important strategy, with implementation rendered more achievable by the extensive contacts that most pregnant and postnatal women have with health services.
Although most studies focus on screening or assessing for major depression, it would be hard to overemphasise the clinical importance of undertaking additional assessment strategies to identify subclinical or minor depression, adjustment disorders, dysphoria, anxiety and personality vulnerability due to their potential impact on function and on the welfare of the foetus and infant.

A number of studies have developed and examined tools for assessing psychological distress and dysfunction in order to identify women and families who may benefit from tailored psychological or social intervention. Indeed, combining a symptom-based tool, eg. the EDS, and evidence-based psychosocial risk questions may improve our identification of women who warrant further support, assessment and referral. Several promising combination assessment schedules are now available and further work on these is underway.

Since the perinatal period offers many opportunities for early intervention and prevention, optimal clinical care should include assessment for psychosocial issues which are not in and of themselves diseases but which adversely affect the wellbeing of the mother, infant and family and may be amenable to intervention from health or early childhood services. Without the application of perinatal psychosocial screening and assessment, much perinatal depression and psychosocial morbidity will go undiagnosed and untreated. Early identification and effective intervention where appropriate, can improve maternal and child health and wellbeing with resultant benefits for the whole family and ultimately the community.
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Abbreviations
ADIS-R Anxiety Disorder Interview Schedule-Revised [245]
ALPHA Antenatal Psychosocial Health Assessment [227]
ANC Antenatal clinic
AN, PN antenatal, postnatal
ANRQ Antepartum Risk Questionnaire [146]
ART Assisted Reproductive Technology (oocyte retrieval)
ASQ I Anxiety Symptoms Questionnaire Part One [214]
BAI Beck Anxiety Inventory [246]
BDI Beck Depression Inventory [70]
BDI-II Beck Depression Inventory-II [71]
BPDI Brisbane Postnatal Depression Index [132]
CCEI Crown-Crisp experiential index [219]
CES-D Centre for Epidemiological Studies-Depression Scale [74]
CIDI Composite International Diagnostic Interview [247]
CIS Clinical Interview Schedule (-R = Revised) [77]
CISS Coping Inventory for Stressful Situations [248]
CSI Childcare Stress Inventory [249]
DACL Depression Adjective Checklist (form C) [250]
DAS Dyadic Adjustment Scale [251]
DBI Degree of Bother Inventory [252]
DYAS Dysfunctional Attitudes Scale [253]
DIS Diagnostic Inventory Schedule [78]
DSM-III Diagnostic and Statistical Manual of Mental Disorders-III [87]
DSM-III-R Diagnostic and Statistical Manual of Mental Disorders-III-Revised [88]
DSM-IV Diagnostic and Statistical Manual of Mental Disorders-IV [89]
EDS Edinburgh Depression Scale [1]
EPDS Edinburgh Postnatal Depression Scale [1] (10-item unless otherwise specified)
EPI Eysenck Personality Inventory – neuroticism scale [254]
GA gestational age
GAD Generalized Anxiety Disorder
GHQ General Health Questionnaire [73]
GHQD General Health Questionnaire-Depression Scale [255]
HAD Hospital Anxiety and Depression Scale [76]
HAMD Hamilton Rating Scale for Depression [75]
IDS Inventory of Depressive Symptomatology [256]
LES Life Experiences Scale [257]
MADRS Montgomery-Asberg Depression Rating Scale [79]
MDD Major Depressive Disorder
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>MINI</td>
<td>Mini International Neuropsychiatric Interview [80]</td>
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<tr>
<td>MMPI-2 PTSD Scale</td>
<td>PTSD questionnaire adapted from the Minnesota Multiphasic Personality Inventory [258]</td>
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<td>NA</td>
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<tr>
<td>NBAS</td>
<td>Neonatal Behavioural Assessment Scale [259]</td>
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<tr>
<td>NES</td>
<td>Non-English Speaking</td>
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<tr>
<td>NPI</td>
<td>Neonatal Perception Inventory [252]</td>
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<tr>
<td>OCD</td>
<td>Obsessive Compulsive Disorder</td>
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<tr>
<td>PAS</td>
<td>Psychiatric Assessment Schedule [81]</td>
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<td>PBI</td>
<td>Parental Bonding Instrument [260]</td>
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<td>PEQ</td>
<td>Pregnancy Experiences Questionnaire [261]</td>
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<td>PDPI</td>
<td>Postpartum Depression Predictors Inventory [114]</td>
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<td>PDSS</td>
<td>Postpartum Depression Screening Scale [72]</td>
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<td>PI</td>
<td>Predictive Index (of Postnatal Depression) [137]</td>
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<td>PSWQ</td>
<td>Penn State Worry Questionnaire [262]</td>
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<td>PRIME-MD</td>
<td>Primary Care Evaluation of Mental Disorders [82]</td>
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<td>PRIME-MD BPHQ</td>
<td>PRIME-MD Brief Patient health Questionnaire [82]</td>
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<td>PRQ</td>
<td>Pregnancy Risk Questionnaire [135]</td>
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<td>PSE</td>
<td>Present State Examination [83]</td>
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<td>Perceived Stress Scale [263]</td>
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<td>PTSD</td>
<td>Post-traumatic Stress Disorder</td>
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<td>RDC</td>
<td>Research Diagnostic Criteria</td>
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<td>SADS</td>
<td>Schedule for Affective Disorders and Schizophrenia [84]</td>
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<td>SADS-L</td>
<td>Schedule for Affective Disorders and Schizophrenia - Lifetime version [264]</td>
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<td>SCAN</td>
<td>Schedules for Clinical Assessment in Neuropsychiatry [265]</td>
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<td>SCID-III-R</td>
<td>Structured Clinical Interview for DSM-III-R [85]</td>
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<td>SCID-IV</td>
<td>Structured Clinical Interview for DSM-IV [86]</td>
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<td>SDA</td>
<td>Spanier Dyadic Adjustment Scale, short form [251]</td>
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<tr>
<td>STAI</td>
<td>State-Trait Anxiety Inventory [222]</td>
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<td>SIAS</td>
<td>Social Interaction Anxiety Scale [266]</td>
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<td>SIGH-D</td>
<td>Structured Interview Guide for the Hamilton Depression Scale [267]</td>
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<td>SPI</td>
<td>Standardised Psychiatric Interview [77]</td>
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<td>SSS</td>
<td>Sarason Social Support Scale [268]</td>
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<td>SSQ</td>
<td>(i) to (xi) study-specific risk factor questionnaires</td>
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<td>T</td>
<td>Trimester</td>
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<td>VPSQ</td>
<td>Vulnerable Personality Style Questionnaire [269]</td>
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<td>WCC</td>
<td>Ways of Coping Checklist [270]</td>
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</table>
Overview of Tables

Table 1: Validation of depression screening for women perinatally: Study, sample size, characteristics, prevalence, timing and methods

Table 2: Validation of depression screening for women perinatally: Sensitivity, specificity, and predictive values for perinatal depression screens

Table 3: Screening for depression perinatally: Point prevalence (measured by the EPDS) in studies across different cultures.

Study, sample source, characteristics, prevalence, timing and methods of assessment (in addition to those studies listed in Table 1).

Table 4: Assessment for risk of developing perinatal depression: sample size, characteristics, prevalence, timing, methods of studies predicting depression

Table 5: Antenatal assessment for risk of developing postnatal depression: study, sample source and characteristics, timing and methods of assessment

Table 6: Antenatal assessment for risk of developing postnatal depression: sensitivity, specificity, predictive values, likelihood ratios, proportion defined as ‘at risk’ of depression, and cases of depression missed by assessment.

Table 7: Sample source, characteristics, prevalence, timing and methods of assessment in studies establishing anxiety prevalence or screening for anxiety in women perinatally.

Table abbreviations

* = translated; § = cut-off not reported; # = SSQ not used for prediction

B = study population biased towards excessive inclusion of depressed subjects
## Table 1: Validation of depression screening for women perinatally: Study, sample size, characteristics, prevalence, timing and methods

<table>
<thead>
<tr>
<th>First author, year &amp; Country</th>
<th>Final Sample size</th>
<th>Timing &amp; methods of screening</th>
<th>Criterion Standard</th>
<th>Depression Type and Prevalence</th>
<th>Notes on Population Selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aydin et al., 2004 [49] Turkey*</td>
<td>341</td>
<td>EPDS ≥ 13 (primarily, also ≥ 10 through ≥ 14) @ anytime in PN year 1</td>
<td>SCID-DSM-IV (DSM-IV diagnosis)</td>
<td>Major alone: 10% Major or minor: 20%</td>
<td>Women in 1st postpartum year.</td>
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<tr>
<td>Ballard et al., 1994 [50] UK</td>
<td>53 (200 EPDS only)</td>
<td>EPDS ≥ 13 @ 6 months PN (13-item EPDS)</td>
<td>PAS (RDC diagnosis) (given to 31 subjects with EPDS ≥ 13, 11 with 10-12, 11 with &lt;10)</td>
<td>Major or minor: 19.3%</td>
<td>English speaking, from maternity hospital ward, (selection based on 6 week EPDS)</td>
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<tr>
<td>Beck and Gable, 2001 [72] US</td>
<td>150</td>
<td>PDSS ≥ 81, ≥ 61 EPDS ≥ 13, ≥ 10 BDI-II ≥ 21, ≥ 15 @ 2-12 weeks PN</td>
<td>SCID-DSM-IV (DSM-IV diagnosis)</td>
<td>Major alone: 12% Major or minor: 31%</td>
<td>≥ 18y.o; English speaking; 2-12 wks PN; healthy infant.</td>
</tr>
<tr>
<td>Benvenuti, 1999* [52] Italy</td>
<td>113</td>
<td>EPDS ≥ 9 (also EPDS ≥ 13) @ 8-12 weeks PN</td>
<td>MINI (DSM-III-R diagnosis)</td>
<td>Sever or moderate major depression: 5.3% Any major depression: 15.9%</td>
<td>Random women 3 days PN at Florence Obstetric Clinic 1/1996-6/1996</td>
</tr>
<tr>
<td>Berle, 2003 [53] Norway*</td>
<td>100</td>
<td>EPDS ≥ 11 (primarily), also ≥ 7 through ≥ 15 @ 6-12 weeks PN</td>
<td>MINI and MADRS (DSM-IV diagnosis)</td>
<td>Major alone: 6.6% Major or minor: 10%</td>
<td>Women with an EPDS ≥ 8 and 1/10th scoring below this threshold.</td>
</tr>
<tr>
<td>Boyce et al, 1993 [54] Australia</td>
<td>103</td>
<td>EPDS ≥ 12.5 GHQ: NR Pitt Scales: NR @ ≤ 6 months PN</td>
<td>DIS (DSM-III-R diagnosis)</td>
<td>Major alone: 8.7% (sample biased towards depressed subjects)</td>
<td>Baby health clinic or postnatal depression clinic attenders</td>
</tr>
<tr>
<td>Campbell and Cohn, 1991 [55] US</td>
<td>1007 (1033 CES-D only)</td>
<td>CES-D @ 6-8 weeks PN</td>
<td>Modified SADS (RDC diagnosis)</td>
<td>Major alone: 3.4% Major or minor: 9.3%</td>
<td>Primiparous with full-term, singleton infants without major complications. Caucasian, married, ≥ 18y.o., at least a high school education.</td>
</tr>
<tr>
<td>Cox et al., 1987 [1]</td>
<td>84</td>
<td>EPDS ≥ 13 @ 3 months PN</td>
<td>SPI (RDC diagnosis)</td>
<td>Major or minor: 41.7% (sample biased towards depressed subjects)</td>
<td>Women identified @ 6 weeks PN as “possibly depressed” by health visitor + 12 “normal” women</td>
</tr>
<tr>
<td>Cox et al., 1996 [56] UK</td>
<td>128</td>
<td>EPDS ≥ 13 (primarily), also ≥ 10 through ≥ 15 (non-postnatal women)</td>
<td>CIS (RDC diagnosis) (Given to all with EPDS ≥ 9 and 1/3 of low scorers)</td>
<td>Major alone: 6% Major or minor: 16%</td>
<td>Postnatal women. (and non-postnatal women, but not reported here)</td>
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<tr>
<td>Eberhard-Gran et al., 2001* [58], Norway</td>
<td>56 (26, EPDS ≥ 10;)</td>
<td>EPDS ≥ 10 @ 6 weeks PN</td>
<td>PRIME-MD (DSM-IV diagnosis) MADRS</td>
<td>Major alone: 16% in interview sample (estimated at 3% in whole)</td>
<td>Postnatal women older than 18 years in Norwegian community (5/1998-8/1999).</td>
</tr>
<tr>
<td>Study</td>
<td>Country</td>
<td>Sample Size</td>
<td>EPDS/Cutoffs</td>
<td>INSTRUMENT</td>
<td>Diagnosis</td>
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<tr>
<td>Harris et al., 1989</td>
<td>Wales</td>
<td>147</td>
<td>BDI ≥ 11 (129 completed) EPDS ≥ 13 (126 completed)</td>
<td>Clinical Exam (DSM-III diagnosis)</td>
<td>Major alone: 15%</td>
</tr>
<tr>
<td>Jadresic et al., 1995*</td>
<td>Chile</td>
<td>108</td>
<td>EPDS ≥ 10</td>
<td>PAS (RDC criteria)</td>
<td>Major or minor: 10.2%</td>
</tr>
<tr>
<td>Lawrie, 1998 [61]</td>
<td>South Africa*</td>
<td>102</td>
<td>EPDS ≥ 13 (primarily), also ≥ 8 through ≥ 14 (modified EPDS)</td>
<td>Structured Psychiatric Interview (DSM-IV diagnosis)</td>
<td>Major alone: 7.8% Major or minor: 24.5%</td>
</tr>
<tr>
<td>Lee et al., 2001</td>
<td>Hong Kong*</td>
<td>145</td>
<td>EPDS ≥ 10 BDI ≥ 11 GHQ @ 6 weeks PN</td>
<td>SCID-NP (DSM-III-R diagnosis)</td>
<td>Major alone: 5.5% Major or minor: 11.7%</td>
</tr>
<tr>
<td>Leverton and Elliott, 2000</td>
<td>England</td>
<td>199</td>
<td>EPDS ≥ 13 @ 3 months PN (10-item EPDS)</td>
<td>PSE (Bedford College and Catego diagnosis)</td>
<td>Major alone: Bedford: 1.5% Major or minor: Catego: 5% Bedford: 8%</td>
</tr>
<tr>
<td>Murray and Carothers, 1990</td>
<td>England</td>
<td>187 (646 EPDS only)</td>
<td>EPDS ≥ 13 @ 6 weeks PN</td>
<td>SPI (RDC diagnosis) (given to 142 subjects with EPDS ≥ 10, 45 with &lt;10)</td>
<td>Data suggest, Major alone: 6% Major or minor: 15% (sample biased towards depressed subjects)</td>
</tr>
<tr>
<td>Murray and Cox, 1990</td>
<td>UK</td>
<td>100</td>
<td>EPDS (cutoffs vary from ≥ 11 to ≥ 15) @ 28 to 34 weeks GA</td>
<td>SPI (RDC diagnosis)</td>
<td>Major alone: 6% Major or minor: 14%</td>
</tr>
<tr>
<td>Thompson, 1998</td>
<td>UK</td>
<td>242 (1248 EPDS only) 1007</td>
<td>EPDS ≥ 13 HAMD HAD ≥ 11 @ 8, 12, 20, and 28 weeks PN (747 assessments in 242 subjects)</td>
<td>Psychiatrist Assessment (RDC diagnosis)</td>
<td>Subgroup of working class women presenting at 16 wks GA, selected for even distribution of thyroid antibody status and GHQ positive score.</td>
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<tr>
<td>Whiffen, 1988</td>
<td></td>
<td>120</td>
<td>BDI ≥ 10</td>
<td>SADS (RDC diagnosis)</td>
<td>Major alone: Middle class; primiparous, married or living common</td>
</tr>
<tr>
<td>Study</td>
<td>Country</td>
<td>Methodology</td>
<td>Prevalence</td>
<td>Notes</td>
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<tr>
<td>Wickberg and Hwang, 1996*</td>
<td>Sweden</td>
<td>EPDS ≥ 12 at 2 and 3 months PN</td>
<td>Major or minor: 4.2% @ 3 months PN</td>
<td>Swedish-speaking mothers who were not already in treatment for depression.</td>
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<tr>
<td>Zelkowitz et al., 1995 [69]</td>
<td>Canada</td>
<td>EPDS ≥ 12 at 6 weeks PN (few single women were screened).</td>
<td>Estimated by EPDS on 1559 subjects: EPDS ≥ 12: 3.4% EPDS ≥ 10: 6.2%</td>
<td>English, French, or Spanish speaking; singleton birth, no significant perinatal complications.</td>
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</table>
Table 2: Validation of depression screening for women perinatally: Sensitivity, specificity, and predictive values for perinatal depression screens

<table>
<thead>
<tr>
<th>Study</th>
<th>Scale &amp; cutoff</th>
<th>Sens (%)</th>
<th>Spec (%)</th>
<th>PPV (%)</th>
<th>NPV (%)</th>
<th>Sens (%)</th>
<th>Spec (%)</th>
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<td><strong>EPDS ≥</strong></td>
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<td>Major or Minor Depression</td>
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<td>Aydin et al., 2004 [49]</td>
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<td>Campbell and Cohn, 1991 [55]</td>
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### Table 3: Screening for depression perinatally: Point prevalence (measured by the EPDS) in studies across different cultures.

Study, sample source, characteristics, prevalence, timing and methods of assessment (in addition to those studies listed in Table 1).

<table>
<thead>
<tr>
<th>First author, year &amp; Country</th>
<th>Final Sample size</th>
<th>Methods of screening and cutoff score</th>
<th>Response rate</th>
<th>Point Prevalence &amp; Timing of Positive Screens</th>
<th>Exclusion Criteria:</th>
<th>Population Selected:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abbott et al., 2006* [90] New Zealand Indigenous sample</td>
<td>1363</td>
<td>EPDS ≥ 13</td>
<td>87.1%</td>
<td>16.4% @ 6 weeks PN</td>
<td>Infant not of Pacific Island ethnicity (defined by either parent).</td>
<td>Mothers giving birth at Middlemore Hospital, South Auckland in 2000.</td>
</tr>
<tr>
<td>Bloch et al., 2006* [91] Israel</td>
<td>1286</td>
<td>EPDS ≥ 10</td>
<td>71%</td>
<td>6.8% @ 1-3 days PN</td>
<td>Not fluent in Hebrew or unwilling to sign informed consent.</td>
<td>Women admitted to a medical Centre in Haifa 1998-1999.</td>
</tr>
<tr>
<td>D’Amelio et al., 2006* [92] Italy</td>
<td>222</td>
<td>EPDS &gt; 12 @ 28-40 weeks GA</td>
<td>NA</td>
<td>28.4% @ 28-40 weeks GA</td>
<td>Confirmed diagnosis of depression, evident psychic disturbances, and/or currently in psychiatric treatment.</td>
<td>Women undergoing routine ultrasound at Rome University 10/2004-10/2005.</td>
</tr>
<tr>
<td>Dennis and Ross, 2006 [93] Canada</td>
<td>594/833</td>
<td>EPDS ≥ 10</td>
<td>71%</td>
<td>29.5% @ 1 week PN 20.3% @ 8 weeks PN</td>
<td>Less than 18 years old, NES.</td>
<td>Pregnant or postnatal women near Vancouver 4/2001-1/2002.</td>
</tr>
<tr>
<td>Freeman et al., 2005 [94] US</td>
<td>96/172</td>
<td>EPDS ≥ 12</td>
<td>NA</td>
<td>14.6% @ 8 weeks PN</td>
<td></td>
<td>Women attending Pediatrics Clinic for 8-week well-baby visit.</td>
</tr>
<tr>
<td>Georgiopoulous, 1999 [95] US</td>
<td>909</td>
<td>EPDS ≥ 12 EPDS ≥ 10</td>
<td>11.4% @ 6 weeks PN 19.8% @ 6 weeks PN 5.3% suicidal ideation @ 6 weeks PN</td>
<td></td>
<td></td>
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<tr>
<td>Gordon, 2006* [96] US (including 4038 AN and 520 PN screens)</td>
<td>4322</td>
<td>EPDS ≥ 12 or suicidal ideation (in language requested by subjects)</td>
<td>63.7%</td>
<td>11.1% @ 28-32 weeks GA 7.3% @ 6 weeks PN</td>
<td></td>
<td>Women delivering at northwestern healthcare facility 6/2003-5/2005.</td>
</tr>
<tr>
<td>Heron et al., 2004 [97] England</td>
<td>8323</td>
<td>EPDS ≥ 13 (CCEI ≥ 9)</td>
<td>61%</td>
<td>11.4% @ 18 weeks GA 13.1% @ 32 weeks GA 8.9% @ 8 weeks PN 7.9% @ 8 months PN</td>
<td>Failure to respond to survey.</td>
<td>Pregnant women in Avon between 01/04/1991 and 31/12/1992.</td>
</tr>
<tr>
<td>Johnston et al., 2001 [98] Australia</td>
<td>490</td>
<td>EPDS ≥ 13</td>
<td>13.1% @ 8 weeks PN</td>
<td></td>
<td>Medically ill infant. History psychosis, D&amp;A, or severe personal dysfunction (self-harming). NES.</td>
<td>&gt; 16 years old to deliver in one of 4 participating hospitals.</td>
</tr>
<tr>
<td>Lane et al., 1997 [99] Ireland</td>
<td>370</td>
<td>EPDS ≥ 13 Highs Scale ≥ 8</td>
<td>11.4% @ 3 days PN 11% @ 6 weeks PN 18.4% @ 3 days PN 9% @ 6 weeks PN</td>
<td></td>
<td></td>
<td>Mothers at Coombe Women’s Hospital</td>
</tr>
<tr>
<td>Study</td>
<td>Country</td>
<td>Participants</td>
<td>EPDS cut-off</td>
<td>Prevalence of EPDS</td>
<td>Additional Measures</td>
<td>Diagnosis</td>
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<tr>
<td>Limlomwongse et al., 2006</td>
<td>Thailand</td>
<td>610 (525 PN)</td>
<td>EPDS ≥ 10</td>
<td>73%</td>
<td>20.5% @ 36-40 weeks GA, 16.8% @ 6-8 weeks PN</td>
<td>Illiteracy, unwilling to participate.</td>
</tr>
<tr>
<td>Matthey et al., 2004</td>
<td>Australia</td>
<td>2167</td>
<td>EDS ≥ 13</td>
<td>13%</td>
<td>8-40 weeks GA</td>
<td>NES.</td>
</tr>
<tr>
<td>Milgrom et al., 2005</td>
<td>Australia</td>
<td>4148</td>
<td>EPDS ≥ 12</td>
<td>NA</td>
<td>12.8% @ 4 months PN, Out of 344 + EPDS: major depression: 56%, Other diagnoses incorporating depression: 20%</td>
<td>NES or unable to give informed consent.</td>
</tr>
<tr>
<td>Morris-Rush et al., 2003</td>
<td>US</td>
<td>121</td>
<td>EPDS ≥ 10</td>
<td>42%</td>
<td>22% @ 6 weeks PN, 6.6% suicidal ideation @ 6 weeks PN</td>
<td>Younger than 15</td>
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<tr>
<td>Mosak et al., 2006</td>
<td></td>
<td>98</td>
<td>EPDS ≥ 12, CES-D ≥ 16</td>
<td>81%</td>
<td>14% EPDS ≥ 12, 32% CES-D ≥ 16 (across pregnancy and the PN period)</td>
<td>Younger than 15</td>
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<tr>
<td>Nishizono-Maher, 2003*</td>
<td>Japan (Tokyo)</td>
<td>1048 (355 anonymous; 693 identified)</td>
<td>EPDS ≥ 9 96.3</td>
<td>85%</td>
<td>13.7% @ 3-4 months PN (did not differ if EPDS was identifiable or not)</td>
<td>Failure to return questionnaire</td>
</tr>
<tr>
<td>O’Boyle et al., 2005</td>
<td>US</td>
<td>82</td>
<td>EPDS ≥ 12</td>
<td>NA</td>
<td>24% @ overall: 16.6% @ 1st trimester, 32.2% @ 2nd trimester, 18.5% @ 3rd trimester, 19% @ 7-10 weeks PN, 11% suicidal ideation overall (15.4% PN)</td>
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<tr>
<td>Righetti-Veltema et al., 1998</td>
<td>Switzerland*</td>
<td>570</td>
<td>EPDS ≥ 13</td>
<td>10.2%</td>
<td>Non-French speaking, refusal to collaborate, living outside the Geneva area, obvious psychopathology, perinatal death.</td>
<td>Unselected sample of women seen by midwives.</td>
</tr>
<tr>
<td>Author(s)</td>
<td>Year</td>
<td>Country</td>
<td>Sample Size</td>
<td>EPDS or IDS Criteria</td>
<td>% of Women</td>
<td>Description</td>
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<tr>
<td>Rubertsson, 2005 [108]</td>
<td>2005</td>
<td>Sweden*</td>
<td>2430</td>
<td>EPDS ( \geq 12 )</td>
<td>10% @ early pregnancy</td>
<td>Language difficulties, miscarriage or stillbirth.</td>
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<tr>
<td>Teissedre and Chabrol, 2004 [109]</td>
<td>2004</td>
<td>France*</td>
<td>722</td>
<td>EPDS ( \geq 12 )</td>
<td>16.8% @ 4-6 weeks PN</td>
<td>Known psychological problems, psychological treatment, or babies with serious health problems.</td>
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<tr>
<td>Teissedre and Chabrol, 2004 [109]</td>
<td>2004</td>
<td>France*</td>
<td>859</td>
<td>EPDS ( \geq 11 )</td>
<td>19% @ 3 days PN</td>
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<tr>
<td>Teissedre and Chabrol, 2004 [109]</td>
<td>2004</td>
<td>France*</td>
<td>723</td>
<td>MNI, BDI, SIGH-D (only if EPDS ( \geq 11 ))</td>
<td>30% @ 3 days PN</td>
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<td>Webster et al., 2003 [111]</td>
<td>2003</td>
<td>Australia</td>
<td>723</td>
<td>EPDS &gt; 12 (Brisbane PND Index)</td>
<td>50.1%</td>
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<td>Yonkers, 2001 [112]</td>
<td>2001</td>
<td>US</td>
<td>802</td>
<td>EPDS ( \geq 12 )</td>
<td>88% @ 3 wks</td>
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<td>Yonkers, 2001 [112]</td>
<td>2001</td>
<td>US</td>
<td>293</td>
<td>IDS ( \geq 18 )</td>
<td>34% @ 3 wks PN</td>
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<td>Yonkers, 2001 [112]</td>
<td>2001</td>
<td>US</td>
<td>293</td>
<td>SCID-DSM-IV (only if + EPDS or IDS)</td>
<td>78% @ 4-5 wks PN</td>
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### Table 4: Assessment for risk of developing perinatal depression

<table>
<thead>
<tr>
<th>First author, year &amp; Country</th>
<th>Final Sample size</th>
<th>Methods of assessment; cutoff score if applicable</th>
<th>Point Prevalence &amp; Timing of &quot;Depression&quot;</th>
<th>Risk Prediction</th>
<th>Population Selected:</th>
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<tbody>
<tr>
<td>Beck, 2002 [114]</td>
<td>Meta-Analysis studies predict PN depression risk.</td>
<td>Development of PDPI-Revised (quantitative literature review of postpartum depression predictors)</td>
<td>NA: (13 significant predictors of postpartum depression were identified)</td>
<td>Life stress, lack social support, prenatal anxiety or depression, marital issues, past depression, difficult infant temperament, maternity blues, low self-esteem, single, socioeconomic status, unwanted pregnancy.</td>
<td>Meta-Analysis of studies aiming to predict PN depression risk.</td>
</tr>
<tr>
<td>Bernazzani, 1997* [115] French Canada</td>
<td>213</td>
<td>EPDS ≥ @ 6 months PN demographic data, LES, BDI, SSQ, SSS, DAS @ 2nd T</td>
<td>12.7% EPDS ≥ 13 @ 6 months PN 6.2% BDI &gt; 8 @ 2nd T</td>
<td>PN depressive symptoms, lower occupational status, prenatal depression, more distal stressor, psychiatric history.</td>
<td>Pregnant (1st or 2nd pregnancy); &gt; 20 years old; partnered; recruit through obstetrics department.</td>
</tr>
<tr>
<td>Boyce and Hickey, 2005 [116] Australia</td>
<td>425</td>
<td>Semi-structured interview and VPSQ @ 2 days PN; EPDS &gt; 12 @2 days and 6, 12, 18, and 24 weeks PN SCID-III-R (DSM-III-R diagnosis to confirm EPDS&gt;12)</td>
<td>EPDS&gt;12 8.9% @ 6 weeks PN 10.1% @ 18 weeks PN 8.6% at 24 weeks PN EPDS&gt; 12 @ 2 or more times and DSM-II-R criteria met for 9.9%</td>
<td>Risk of PN depression associated with: ≤ 16 years old, history of psychiatric illness, one or more life events, marital dissatisfaction, unsatisfactory social support, vulnerable personality, baby of nondesired sex.</td>
<td>English speaking non-psychotic women who delivered a healthy infant at a public hospital over a 4 month period.</td>
</tr>
<tr>
<td>Da Costa et al., 2000* [117] French and English Canada</td>
<td>80</td>
<td>STAI-state, PEQ, DACL @ 2nd &amp; 3rd trimester monthly SSS, CISS @ each trimester DACL and EPDS @ 4-5 weeks PN</td>
<td>16% (criteria: EPDS ≥ 10 &amp; DACL ≥ 14, or EPDS ≥ 14 &amp; DACL ≥ 11) @ 5-6 weeks PN 31% DACL ≥ 14 @ any time AN</td>
<td>Best predictor of PN depression depressed mood AN. Maternal perception of difficult infant temperament and the experience of labor and delivery complications also increase PN depression risk.</td>
<td>19-40 years old, 8-14 weeks GA, stable relationship, natural conception, recruited from obstetricians in Montreal.</td>
</tr>
<tr>
<td>Dennis and Ross, 2006 [118] Canada</td>
<td>622 (same sample as [93] in Table 3)</td>
<td>EPDS ≥ 10 and Mailed Questionnaires @ 1 and 8 weeks PN</td>
<td>29.5% @ 1 week PN 20.3% @ 8 weeks PN</td>
<td>Variables predictive of EPDS&gt;9 at 8 weeks (42% variance): antenatal depression, postnatal depression, EPDS&gt;9 @ 1 week PN.</td>
<td>Pregnant or postnatal, &gt; 17 years old, Vancouver region 4/2001-1/2002.</td>
</tr>
<tr>
<td>Gotlib, 1991 [119] Canada</td>
<td>730</td>
<td>SADS (RDC criteria), BDI, DYAS, DAS, PBI, PSS, NPI, DBI, WCG @ 23 weeks GA and 4 weeks PN</td>
<td>RDC diagnosis of major or minor depression: 10% AN 7% PN</td>
<td>Levels of depressive symptomatology AN and perceived parental care during childhood predicted PN depression onset.</td>
<td>Pregnant women recruited through an urban hospital obstetrics department and private practices.</td>
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<tr>
<td>Reference</td>
<td>N</td>
<td>Study Design</td>
<td>Summary</td>
<td>Outcome Measures</td>
<td>Reference Details</td>
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</tr>
<tr>
<td>Henshaw, 2004 [121] UK</td>
<td>206</td>
<td>SSQ: Blues Questionnaire @ 3rd trimester EPDS @ 6 months PN RDC diagnoses made with SADS-L interview @ 6 months PN</td>
<td>NA</td>
<td>Severe blues &amp; past history of depression were independent predictors (each raising the risk almost 3 fold). Severe blues led to longer depression (earlier onset, later resolution).</td>
<td>First time mothers recruited in late pregnancy, those with severe blues and their controls with no blues (matched for age, marital status, and social class).</td>
</tr>
<tr>
<td>Jardri et al., 2006 [122]</td>
<td>363</td>
<td>MINI-DSM-IV (DSM-IV diagnosis) @ 8 weeks PN EPDS &gt; 8 @ 3-5 days PN</td>
<td>8.7% major alone and 16% major or minor @ 8 weeks PN</td>
<td>The EPDS score at 3-5 days PN predicted the 8 week DSM-IV diagnosis of depression with a sensitivity of 82% and PPV of 43%.</td>
<td>Literate women giving birth in University Hospital Centre of Lille 12/2003-1/2004 or 7/2004-8/2004.</td>
</tr>
<tr>
<td>Kendler, 1993 [123] US</td>
<td>815</td>
<td>680 female-female twin pairs (1360 women) Health, life-style, personality, and personal interview over &gt; 3 years; DSM-III-R criteria major depression</td>
<td>16.3% reported one or more episodes of DSM-III-R criteria major depression over 2 years</td>
<td>4 factors predicted 50.1% of the variance in the liability to major depression: recent stressful life events, genetic risk factors, previous history of major depression, neuroticism.</td>
<td>Caucasian female same-sex twins from Virginia Twin registry. (Exploring Major depression, not just PN depression)</td>
</tr>
<tr>
<td>Kitamura, 2006 [124] Japan</td>
<td>290</td>
<td>Personal interview (based on DSM-III-R criteria); demographic, obstetric data; history of trauma or loss; social support @ late pregnancy, and 1, 3 and 12 months PN</td>
<td>5.5% AN 4.8% PN</td>
<td>Strongest predictors of PN depression: history of depression; antenatal depression; gender of child; poor accommodation; negative attitude towards pregnancy.</td>
<td>Women attending the antenatal clinics of five university hospitals 1998-2000.</td>
</tr>
<tr>
<td>McCoy et al., 2006 [125] US</td>
<td>209</td>
<td>EPDS ≥ 13 @ 4 weeks PN; demographic, pregnancy and birth data, and history of depression also recorded</td>
<td>39% EPDS ≥ 13 @ 4 weeks PN</td>
<td>EPDS ≥ 13 was associated with previous history of depression, cigarette smoking, exclusively formula feeding.</td>
<td>Women who gave birth between June 2001 and June 2003 at three sites in the Oklahoma State University Physician clinic system in Tulsa.</td>
</tr>
<tr>
<td>Murray et al., 1996 [126] UK</td>
<td>231 (188 high-risk; 43 low-risk)</td>
<td>NBAS @ 10 &amp; 15 days PN EPDS and SCID (DSM-III-R criteria) @ 8 weeks PN</td>
<td>NA</td>
<td>Poor motor scores and high levels of infant irritability on the NBAS were predictive of the onset of maternal depression.</td>
<td>Primiparous attenders at maternity hospital 32-week antenatal clinics over a 30 month period (starting 12/1990).</td>
</tr>
<tr>
<td>O’Hara, 1996</td>
<td>12,810 (meta-analysis studies predict PN depression risk: Meta-Analysis of studies aiming to predict PN depression risk: a variable of interest assessed during pregnancy or delivery</td>
<td>13% PN depression incidence based on 56 studies (14% from 28 self-report studies; 12% from 31 interview studies)</td>
<td>Strongest predictors of PN depression: Past history of psychopathology, psychological disturbance during pregnancy, poor marital relationship, low social support, and stressful life event. Indicators of low social status were weakly predictive.</td>
<td>Meta-Analysis of studies aiming to predict PN depression risk: PN depression assessed with a validated or standardised measure at least 2 weeks PN.</td>
<td>beyondblue National Action Plan for Perinatal Mental Health 2008-2010: Full Report</td>
</tr>
<tr>
<td>Reference</td>
<td>Country</td>
<td>Sample Size</td>
<td>Methodology</td>
<td>Findings</td>
<td>Additional Information</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>---------</td>
<td>-------------</td>
<td>-------------</td>
<td>--------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Steiner, 2005 [127] Canada</td>
<td></td>
<td>254</td>
<td>Structured Psychiatric Interview; Family History; Research Diagnostic Criteria [272]</td>
<td>NA (all women had diagnosis depression)</td>
<td>78.3% had a past and/or family psychiatric history, and more likely 1st time mothers. Women diagnosed with PND referred to university health clinic.</td>
</tr>
<tr>
<td>Sutter-Dallay et al., 2004* [128] France</td>
<td></td>
<td>497</td>
<td>MINI (DSM-IV diagnosis) @ 32-49 weeks GA EPDS ≥ 12 @ 6 weeks PN</td>
<td>5.7% Major Depression @ 32-49 weeks GA 5.8% EPDS ≥ 12 @ 6 weeks PN</td>
<td>Adjusting for MDD in pregnancy and other confounding factors, women with pregnancy anxiety disorder nearly 3 x more likely to have a PN EPDS ≥ 12. (OR = 2.7, 95% CI 1.1-6.3, P = 0.03) Bordeau university hospital antenatal clinic attenders. (see Table 5 for exclusion criteria and anxiety disorder prevalence).</td>
</tr>
<tr>
<td>Verkerk, 2003* [130] Dutch The Netherlands</td>
<td>184</td>
<td></td>
<td>RDC criteria depression and EPDS &gt; 11 @ 32 weeks GA 3 months PN 6 months PN 12 months PN demographic data and risk factors also recorded</td>
<td>High-risk women: 22% @ 32 weeks 17.5% @ 3 months PN Low-risk women: 2.3% @ 32 weeks 1.1% @ 3 months PN</td>
<td>Two risk factors independently related to the prevalence of PN depression: past depression (p=0.017) &amp; high depressive symptomatology in pregnancy (p=0.036). Dutch speaking women recruited during antenatal care at 20-30 weeks pregnant.</td>
</tr>
<tr>
<td>Verkerk, 2005* [129] Dutch The Netherlands</td>
<td>277</td>
<td></td>
<td>RDC criteria depression and EPDS &gt; 11 @ 32 weeks GA 3 months PN 6 months PN 12 months PN Neuroticism and introversion measured @ 32 weeks GA</td>
<td>RDC criteria depression: 12.6% 32wk 10.8% 3mo 8.7% 6mo 7.2% 12mo (18% across overall PN year)</td>
<td>Combination of high neuroticism &amp; high introversion an independent predictor of clinical depression across the 1st PN year (p=.001), history of depression was an independent risk factor for early PN depression (p=.013). Randomly selected Dutch speaking women receiving antenatal care in mid-pregnancy.</td>
</tr>
<tr>
<td>Warner, 1996 [131] UK</td>
<td></td>
<td>2375</td>
<td>EPDS &gt; 12 @ 6-8 weeks PN Screening Interview (12 socio-demographic and obstetric variables)</td>
<td>11.8% EPDS &gt; 12</td>
<td>EPDS &gt; 12 was associated with unplanned pregnancy, no longer breast feeding at 6 weeks, unemployment in the woman or her partner, and no plans to work outside the home following maternity leave. Randomly selected English-speaking women on two maternity units in Manchester 5/1993-2/1995.</td>
</tr>
<tr>
<td>Webster et al., 2003 [111] Australia</td>
<td></td>
<td>723</td>
<td>BPDI &gt; 6 @ 1st prenatal visit and 3 day PN combined EPDS &gt; 12 @ 16 weeks PN</td>
<td>12.2% EPDS &gt; 12 @ 16 weeks PN</td>
<td>BPDI &gt; 6 predicts EPDS &gt; 12 @ 16 weeks PN (sensitivity 36.6%, specificity 92%, PPV 39.8%, NPV 91%). Risk factors: past or family psychiatric history, low social support, conflict with partner, dissatisfaction with the delivery experience, severe “blues”. Women at first postpartum visit at publicly funded inner-city community maternal health clinics in Dallas County.</td>
</tr>
<tr>
<td>Webster et al., 2006 [132] Australia</td>
<td></td>
<td>294</td>
<td>EPDS ≥ 13 @ 16 weeks PN BPDI &gt;6 Antenatal at first hospital visit and Postnatal in postnatal ward.</td>
<td>13.6% EPDS ≥ 13 @ 16 weeks PN</td>
<td>BPDI &gt; 6 predicts EPDS ≥ 13 @ 16 weeks PN (sensitivity 47.5%, specificity 88.5%, PPV 39.6%, NPV 91.4%). Women giving birth to healthy babies at a Brisbane Hospital 3/2004-8/2004 who could complete study documentation.</td>
</tr>
</tbody>
</table>
### Table 5: Antenatal assessment for risk of developing postnatal depression: study, sample source and characteristics, timing and methods of assessment

<table>
<thead>
<tr>
<th>First author, year &amp; Country</th>
<th>Number at study onset</th>
<th>Study source</th>
<th>Exclusion factors</th>
<th>Timing &amp; methods of AN assessment</th>
<th>Timing &amp; methods of PN assessment</th>
<th>Screening tool assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forman, 2000 Denmark [138]</td>
<td>6790</td>
<td>Hospital ANC</td>
<td>None</td>
<td>GHQ12* SSQ(i) @16, 30 weeks</td>
<td>EPDS* &gt;12 @ 4 months</td>
<td>Separate prediction and validation samples.</td>
</tr>
<tr>
<td>Cooper, 1996 UK [137] (PI)</td>
<td>6431</td>
<td>Hospital ANC</td>
<td>Multiparae</td>
<td>SSQ (ii) @32 weeks</td>
<td>EPDS &gt;8, SCID, DSM-III @ 5 weeks</td>
<td>Separate prediction and validation samples.</td>
</tr>
<tr>
<td>Webster, 2000 Australia [148]</td>
<td>2118</td>
<td>Tertiary hospital ANC, low socio-economic status</td>
<td>None described</td>
<td>SSQ (iii) @10-12 weeks</td>
<td>EPDS &gt;12 @16 weeks</td>
<td>Not described.</td>
</tr>
<tr>
<td>Josefsson, 2001 Sweden [144]</td>
<td>1558</td>
<td>Community ANC clinics</td>
<td>Inability to understand Swedish</td>
<td>EPDS* &gt;9 @ 35-36 weeks</td>
<td>EPDS* &gt;9 @ 6-8 weeks, 6 months</td>
<td>EPDS, validated for use in pregnancy 28.</td>
</tr>
<tr>
<td>Brugha, 2000 UK [136]</td>
<td>1300</td>
<td>Hospital ANC</td>
<td>&lt;16, NES, multiparae, had considered termination, not living locally</td>
<td>SSQ (iv) GHQ @12-20 weeks</td>
<td>GHQD &gt; 2 EPDS &gt; 11 SCAN @ 3months</td>
<td>Derived from prior large prospective cohort study in the same setting 29.</td>
</tr>
<tr>
<td>Austin, 2005 Australia [135] (PRQ)</td>
<td>1296</td>
<td>Tertiary obstetric hospital midwives’ low-risk clinics patients.</td>
<td>NES</td>
<td>PRO ≥ 46 (18 AN items) and EDS &gt; 12 @ 3rd trimester (mean 32.2 weeks GA)</td>
<td>EDS @ 2 and 4 months (If EDS &gt; 12 or reported &gt; 1 week subjective depression, then CIDI)</td>
<td>PROQ validated for AN use to predict PN depression (and EDS).</td>
</tr>
<tr>
<td>Green, 1994 UK [140]</td>
<td>1272</td>
<td>Hospital ANC</td>
<td>None described</td>
<td>EPDS &gt;14 35 weeks</td>
<td>EPDS &gt;12 @ 6 weeks</td>
<td>EPDS, validated for use in pregnancy 26.</td>
</tr>
<tr>
<td>Leverton, 1989 UK [63]</td>
<td>999</td>
<td>Hospital ANC</td>
<td>Population but with major exclusions</td>
<td>Single, &lt;18 or &gt;40 years, moving, ≥2 children, 1st ANC visit &gt;18wk</td>
<td>PSE @ 3 months</td>
<td>Sub-samples of women screened as ‘more’ and ‘less’ vulnerable, not offered the intervention.</td>
</tr>
<tr>
<td>Johanson, 2000 UK [143]</td>
<td>509</td>
<td>Hospital ANC</td>
<td>No written consent</td>
<td>SSQ (vi) # EPDS &gt;14 @ 28-34 weeks</td>
<td>EPDS&gt;14 @ 3 month</td>
<td>EPDS validated for use in pregnancy 28.</td>
</tr>
<tr>
<td>Buist, 1999 Australia [150]</td>
<td>348</td>
<td>Tertiary hospital ANC, low socio-economic status</td>
<td>Multiparae, NES</td>
<td>SSQ (vi) BDI, STAI, EPI, SSS, SDA @12-24 weeks</td>
<td>EPDS&gt;12, BDI, STAI @ 6 weeks &amp; 6 months</td>
<td>Not described.</td>
</tr>
<tr>
<td>Author, Year</td>
<td>Country</td>
<td>Sample Size</td>
<td>Sample Description</td>
<td>Screening Measure(s)</td>
<td>Validation Measure(s)</td>
<td>Notes</td>
</tr>
<tr>
<td>-------------</td>
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<td>-------------</td>
<td>--------------------</td>
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<td>-----------------------</td>
<td>-------</td>
</tr>
<tr>
<td>Glasser, 1998</td>
<td>None described</td>
<td>None</td>
<td>BDI &gt; 9 @ 26 weeks</td>
<td>EPDS &gt; 9 @ 6 weeks</td>
<td>Not described</td>
<td></td>
</tr>
<tr>
<td>Honey, 2003</td>
<td>Women attending antenatal clinic in 3rd trimester</td>
<td>&lt;18 years, not primiparous</td>
<td>SSQ (The Predictive Index) @ 3rd trimester</td>
<td>EPDS and CSI @ 6 weeks PNI</td>
<td>Performance increased, validated against EPDS.</td>
<td></td>
</tr>
<tr>
<td>Hobfol, 1995</td>
<td>Clinic for low income women, mostly Afro-American</td>
<td>&lt;17 or &gt;40 years, very ill, first antenatal visit &gt;24 weeks</td>
<td>SADS (mod) RDC/DSM-III @ 31-33 weeks</td>
<td>SADS[mod] RDC/DSM-III @ 7-9 weeks</td>
<td>Standard instrument.</td>
<td></td>
</tr>
<tr>
<td>Posner, 1997</td>
<td>'Private and service patients'</td>
<td>None described</td>
<td>SSQ (viii) 2nd T (BDIx3) &gt;27 SADS (subset)</td>
<td>BDI @1-3 days, 4-6 weeks and 12 weeks SADS (subset)</td>
<td>Separate prediction and validation samples.</td>
<td></td>
</tr>
<tr>
<td>Appleby, 1994</td>
<td>Tertiary hospital ANC, None described</td>
<td>SSQ(ix) @ 36 weeks, EPDS&gt;11</td>
<td>EPDS &gt;11 @ 8 weeks</td>
<td>Not described.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zlotnick, 2001</td>
<td>General hospital ANC, pregnant women receiving public assistance</td>
<td>None described</td>
<td>SSQ xi [4 questions] @ 20-32 weeks</td>
<td>BDI @ 3 months</td>
<td>Not described.</td>
<td></td>
</tr>
<tr>
<td>Stamp, 1996</td>
<td>Tertiary hospital ANC, low socio-economic status</td>
<td>NES, no consent</td>
<td>SSQ (v) @ 2nd Trimester</td>
<td>EPDS &gt;9 for minor depression, &gt;12 for major depression@ 6 &amp; 12 weeks &amp; 6 months</td>
<td>Replication with SSQ (v), screening properties re-evaluated for the Australian population.</td>
<td></td>
</tr>
<tr>
<td>Areias, 1996</td>
<td>'Maternity clinics'</td>
<td>Multiparae</td>
<td>SADS/EPDS§* @ 6th month</td>
<td>SADS/EPDS§* @1yr</td>
<td>Not described.</td>
<td></td>
</tr>
</tbody>
</table>
Table 6: Antenatal assessment for risk of developing postnatal depression: sensitivity, specificity, predictive values, likelihood ratios, proportion defined as ‘at risk’ of depression, and cases of depression missed by assessment.

<table>
<thead>
<tr>
<th>Study</th>
<th># of subjects after birth (PN)</th>
<th>Pop. prevalence of depression after birth</th>
<th>Sens</th>
<th>Spec</th>
<th>PPV</th>
<th>NPV</th>
<th>% of women defined as ‘at risk’ by screen</th>
<th>% of women with PN depression defined as ‘not at risk’ by screen</th>
<th>LLR + ve</th>
<th>LLR -ve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forman, 2000 [138]</td>
<td>5091</td>
<td>5.5%</td>
<td>0.79</td>
<td>0.50</td>
<td>0.08</td>
<td>0.98</td>
<td>52%</td>
<td>21%</td>
<td>1.58</td>
<td>0.42</td>
</tr>
<tr>
<td>Cooper, 1996 [273]</td>
<td>3038</td>
<td>16.3%</td>
<td>0.35</td>
<td>0.87</td>
<td>0.35</td>
<td>0.88</td>
<td>16%</td>
<td>65%</td>
<td>2.69</td>
<td>0.74</td>
</tr>
<tr>
<td>Green, 1994 [140]</td>
<td>1272</td>
<td>13.8%</td>
<td>0.38</td>
<td>0.93</td>
<td>0.45</td>
<td>0.90</td>
<td>14%</td>
<td>62%</td>
<td>5.43</td>
<td>0.67</td>
</tr>
<tr>
<td>Austin, 2005 [135]</td>
<td>1198 (only 245 for CIDI)</td>
<td>5.2%</td>
<td>0.44</td>
<td>0.92</td>
<td>0.24</td>
<td>0.97</td>
<td>9.9%</td>
<td>56%</td>
<td>5.5</td>
<td>0.61</td>
</tr>
<tr>
<td>Josefsson, 2001 [144]</td>
<td>1192</td>
<td>12.7%</td>
<td>0.45</td>
<td>0.86</td>
<td>0.33</td>
<td>0.92</td>
<td>18%</td>
<td>55%</td>
<td>3.21</td>
<td>0.64</td>
</tr>
<tr>
<td>Webster, 2000 [148]</td>
<td>574</td>
<td>15.6%</td>
<td>0.29</td>
<td>0.90</td>
<td>0.32</td>
<td>0.87</td>
<td>14%</td>
<td>71%</td>
<td>2.90</td>
<td>0.79</td>
</tr>
<tr>
<td>Johanson, 2000 [143]</td>
<td>417</td>
<td>7.4%</td>
<td>0.23</td>
<td>0.66</td>
<td>0.17</td>
<td>0.94</td>
<td>10%</td>
<td>77%</td>
<td>0.67</td>
<td>1.17</td>
</tr>
<tr>
<td>Glasser, 1998 [139]</td>
<td>288</td>
<td>22.7%</td>
<td>0.68</td>
<td>0.74</td>
<td>0.44</td>
<td>0.88</td>
<td>35%</td>
<td>32%</td>
<td>2.62</td>
<td>0.43</td>
</tr>
<tr>
<td>Honey, 2003 [142]</td>
<td>223</td>
<td>17.5%</td>
<td>0.51</td>
<td>0.79</td>
<td>0.35</td>
<td>0.89</td>
<td>26%</td>
<td>48%</td>
<td>2.4</td>
<td>0.62</td>
</tr>
<tr>
<td>Hobfoil, 1995 [141]</td>
<td>192</td>
<td>23.4%</td>
<td>0.53</td>
<td>0.62</td>
<td>0.30</td>
<td>0.81</td>
<td>42%</td>
<td>47%</td>
<td>1.39</td>
<td>0.76</td>
</tr>
<tr>
<td>Brugha, 2000 [136]</td>
<td>190</td>
<td>NR</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
<td>0.19</td>
<td>NE</td>
<td>31%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Leverton, 1989 [63]</td>
<td>140</td>
<td>23.6%</td>
<td>0.61</td>
<td>0.70</td>
<td>0.38</td>
<td>0.85</td>
<td>33%</td>
<td>39%</td>
<td>2.44</td>
<td>0.52</td>
</tr>
<tr>
<td>Appleby, 1994 [133]</td>
<td>126</td>
<td>12.7%</td>
<td>0.44</td>
<td>0.65</td>
<td>0.16</td>
<td>0.89</td>
<td>36%</td>
<td>56%</td>
<td>1.26</td>
<td>0.86</td>
</tr>
<tr>
<td>Stamp, 1996 [147]</td>
<td>109</td>
<td>13.8%</td>
<td>0.73</td>
<td>0.43</td>
<td>0.17</td>
<td>0.91</td>
<td>58%</td>
<td>27%</td>
<td>1.30</td>
<td>0.61</td>
</tr>
<tr>
<td>Posner, 1997 [146]</td>
<td>106 (P) 99 (V)</td>
<td>10.4% 27.3%</td>
<td>0.82</td>
<td>0.78</td>
<td>0.43</td>
<td>0.97</td>
<td>28%</td>
<td>18%</td>
<td>3.73</td>
<td>0.27</td>
</tr>
<tr>
<td>Areias, 1996 [134]</td>
<td>54</td>
<td>31.5%</td>
<td>0.29</td>
<td>0.89</td>
<td>0.56</td>
<td>0.73</td>
<td>17%</td>
<td>71%</td>
<td>2.64</td>
<td>0.80</td>
</tr>
<tr>
<td>Buist, 1999 [150]</td>
<td>38</td>
<td>NR</td>
<td>NR</td>
<td>0.0</td>
<td>NR</td>
<td>25%</td>
<td>100%</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Zlotnick, 2001 [149]</td>
<td>37</td>
<td>NR</td>
<td>NE</td>
<td>0.33</td>
<td>NE</td>
<td>67%</td>
<td>NE</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

P prediction sample  V validation sample
NR not reported      NE cannot be estimated
Table 7: Sample source, characteristics, prevalence, timing and methods of assessment in studies establishing anxiety prevalence or screening for anxiety in women perinatally.

<table>
<thead>
<tr>
<th>First author, year &amp; Country</th>
<th>Final Sample size</th>
<th>Methods of screening</th>
<th>Response rate</th>
<th>Prevalence &amp; Timing of Anxiety Disorders</th>
<th>Exclusion Criteria:</th>
<th>Population Selected:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establishing anxiety prevalence:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anderson, 2006* [206] Sweden</td>
<td>650</td>
<td>PRIME-MD (DSM-IV diagnosis) @ 2nd trimester and @ 3-6 months PN</td>
<td>NA</td>
<td>11.4% Anxiety disorder (8.9% Anxiety NOS, 0.5% GAD, 2.5% OCD, 0.9% social phobia, 0.5% eating disorder)@ 2nd trimester 8.0% Anxiety disorder (3.8% Anxiety NOS, 0.9% GAD, 1.4% panic, 2.8% OCD, 1.5% social phobia, 0.8% eating disorder) @ 2-6 months PN</td>
<td>Non-Swedish speaking. Fetal malformation or miscarriage detected.</td>
<td>Women attending 2nd trimester routine ultrasound screening at a university hospital 10/2000-10/2001.</td>
</tr>
<tr>
<td>Ayers and Pickering, 2001 [207] UK</td>
<td>222</td>
<td>MMPI-2 PTSD Scale</td>
<td>NA</td>
<td>8.1% PTSD @ 36 weeks GA</td>
<td>NES, not planning elective caesarean, not suffering a perinatal or neonatal death.</td>
<td>Women at antenatal clinics at a large London hospital 12/1996-3/1998 who were at 16-38 weeks GA.</td>
</tr>
<tr>
<td>Ballard, 1993 [208] UK</td>
<td>148</td>
<td>EPDS ≥ 12 @ 6 mo. PN 80% given PSE and PAS (RDC diagnosis)</td>
<td>NA</td>
<td>6.1% GAD @ 6 months PN</td>
<td>NES</td>
<td>Married or cohabiting mothers on postnatal wards at a general hospital.</td>
</tr>
<tr>
<td>Loveland Cook et al., 2004 [209] US</td>
<td>744</td>
<td>DIS @ any time during pregnancy</td>
<td>85%</td>
<td>7.7% PTSD @ any point in pregnancy</td>
<td>NES, &lt; 13 years old, significant cognitive impairment.</td>
<td>Economically disadvantaged (Medicaid-eligible) Missouri sample with 23% under 19 years old.</td>
</tr>
<tr>
<td>Matthey et al., 2003 [210] Australia</td>
<td>408</td>
<td>Diagnostic Interview Schedule (DSM-IV)</td>
<td>69%</td>
<td>13.2% @ 6 weeks PN (8.3% phobia, 1.7% panic, 2.5% acute adjustment disorder with anxiety, 1% combination) [7.4% Depression @ 6 weeks PN] (excluding depression in those subjects here recorded as having anxiety, excluding anxiety in those subjects recorded as depressed).</td>
<td>First-time mothers recruited from antenatal classes.</td>
<td></td>
</tr>
<tr>
<td>Smith, 2004 [42] US</td>
<td>387</td>
<td>PRIME-MD BPHQ. MINI (PTSD module only)</td>
<td>98%</td>
<td>5% @ any time during pregnancy (2% panic disorder, 3% post-traumatic stress disorder) [23% major or minor depressive disorder]</td>
<td>Not fluent in English or Spanish.</td>
<td>Pregnant women receiving prenatal care from a federally-funded hospital 11/2001-4/2002.</td>
</tr>
<tr>
<td>Sutter-Dallay et al., 2004* [128] France</td>
<td>598</td>
<td>MINI (DSM-IV diagnosis)</td>
<td>63%</td>
<td>24% @ 32-40 weeks GA (14% agoraphobia, 8.5% GAD, 1.4% panic, 1.2% OCD, 10.2% social phobia) [5.7% Major Depression @ 32-49 weeks GA]</td>
<td>History of psychotic illness. Multiple pregnancy or in vitro fertilization for the current pregnancy, &gt; 1 week of hospitalization due</td>
<td>Women fluent in French attending antenatal clinics at a university hospital in Bordeaux.</td>
</tr>
<tr>
<td>Smith, 2004 [42] US</td>
<td>387</td>
<td>PRIME-MD BPHQ. MINI (PTSD module only)</td>
<td>98%</td>
<td>5% @ any time during pregnancy (2% panic disorder, 3% post-traumatic stress disorder) [23% major or minor depressive disorder]</td>
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<td>Loveland Cook et al., 2004 [209] US</td>
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<td>NES, &lt; 13 years old, significant cognitive impairment.</td>
<td>Economically disadvantaged (Medicaid-eligible) Missouri sample with 23% under 19 years old.</td>
</tr>
<tr>
<td>Study</td>
<td>Sample Size</td>
<td>Measure</td>
<td>Diagnosis and Outcome</td>
<td>Reference</td>
<td></td>
<td></td>
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<tr>
<td>-----------------------------------------</td>
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<td>--------------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
<td>-----------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wenzel et al., 2005 [212] US</td>
<td>147</td>
<td>SCID-DSM-IV (DSM-IV diagnosis) BAI, BDI, PSWQ, SIAS, DAS</td>
<td>54.2% of those contacted; 19.5% of birth announcements</td>
<td>16.3% Anxiety PN (8.8% endorsed a PN onset) (8.2% GAD, 2.7% OCD, 1.4% panic, 4.1% social phobia, no PTSD or agoraphobia) [4.8% Major Depressive Disorder PN (2% endorse PN onset) 2.7% Dysthymic Disorder PN]</td>
<td>Subjects without contact information available through public databases. Women with birth records in North Dakota newspaper.</td>
<td></td>
</tr>
<tr>
<td>Wenzel et al., 2003 [213] US</td>
<td>68</td>
<td>SCID-DSM-IV GAD and MDD modules (DSM-IV diagnosis)</td>
<td>64% of those contacted; 18.2% of birth announcements</td>
<td>4.4% GAD @ 8 weeks PN [2.9% Major Depressive Disorder @ 8 weeks PN]</td>
<td>Subjects without contact information available through public databases. Women with birth records in North Dakota newspaper.</td>
<td></td>
</tr>
<tr>
<td>Zar et al., 2002* [214] Sweden</td>
<td>453</td>
<td>ASQ I ADIS-R (DSM-IV diagnosis)</td>
<td>83% (subject selection biased to those with anxiety disorders)</td>
<td>@ 32 weeks GA: 1.3% panic disorder, 0.9% agoraphobia, 19.9% specific phobia, 2.4% extreme fear of childbirth, 2.7% social phobia, 1.3% PTSD, 0.9% GAD, 0.2% OCD</td>
<td>Non-Swedish speaking. Women in gestational week 28 attending an Ob/Gyn clinic at a Swedish hospital.</td>
<td></td>
</tr>
</tbody>
</table>

**Screening for Anxiety:**

<table>
<thead>
<tr>
<th>Study</th>
<th>Sample Size</th>
<th>Measure</th>
<th>Diagnosis and Outcome</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heron et al., 2004 [97] England</td>
<td>8323</td>
<td>CCEI ≥ 9 [EPDS ≥ 13]</td>
<td>61%</td>
<td>14.6% @ 18 weeks GA 15.6% @ 32 weeks GA 8.1 @ 8 weeks PN 9.1% @ 8 months PN</td>
</tr>
</tbody>
</table>
References


73. Goldberg, D.P., **The detection of psychiatric illness by questionnaire.** In Maudsley Monographs no. 21. 1972, Oxford University: Oxford.


169. Royal Women's Hospital (Melbourne Vic.). Pharmacy Dept., *Drugs and breastfeeding.* 2004, [Carlton, Vic.]: Pharmacy Department, The Royal Women's Hospital. 261 p.


**APPENDIX A:**

Criteria for Designation of Levels of Evidence, National Health and Medical Research Council, 2000

<table>
<thead>
<tr>
<th>Level</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level I</td>
<td>Evidence obtained from a systematic review of all relevant randomised controlled trials.</td>
</tr>
<tr>
<td>Level II</td>
<td>Evidence obtained from at least one properly designed randomised controlled trial.</td>
</tr>
<tr>
<td>Level III-1</td>
<td>Evidence obtained from well-designed pseudorandomised controlled trials (alternate allocation or some other method).</td>
</tr>
<tr>
<td>Level III-2</td>
<td>Evidence obtained from comparative studies (including systematic reviews of such studies) with concurrent controls and allocation not randomised, cohort studies, case-control studies, or interrupted time series with a control group.</td>
</tr>
<tr>
<td>Level III-3</td>
<td>Evidence obtained from comparative studies with historical control, two or more single arm studies, or interrupted time series without a parallel control group.</td>
</tr>
<tr>
<td>Level IV</td>
<td>Evidence obtained from case series, either post-test or pretest/post-test.</td>
</tr>
</tbody>
</table>
APPENDIX B:

Criteria for appraising the viability, effectiveness and appropriateness of a screening programme*, National Screening Committee, 1998

The condition
1. The condition should be an important health problem.
2. The epidemiology and natural history of the condition, including development from latent to declared disease, should be adequately understood and there should be a detectable risk factor, disease marker, latent period or early symptomatic stage.
3. All the cost-effective primary prevention interventions should have been implemented as far as practicable.

The test
4. There should be a simple, safe, precise and validated screening test.
5. The distribution of test values in the target population should be known and a suitable cut-off level defined and agreed.
6. The test should be acceptable to the population.
7. There should be an agreed policy on the further diagnostic investigation of individuals with a positive test result and on the choices available to those individuals.

The treatment
8. There should be an effective treatment or intervention for patients identified through early detection, with evidence of early treatment leading to better outcomes than late treatment.
9. There should be agreed, evidence-based policies covering which individuals should be offered effective treatment and the appropriate treatment to be offered.
10. Clinical management of the condition and patient outcomes should be optimised by all health care providers prior to participation in a screening programme.

The screening programme
11. There should be evidence from high quality randomised controlled trials that the screening programme is effective in reducing mortality and morbidity.
12. There should be evidence that the complete screening programme (test, diagnostic procedures, treatment/intervention) is clinically, ethically and socially acceptable to health professionals and the public.
13. The benefit from the screening programme should outweigh the physical and psychological harm (caused by the test, diagnostic procedures and treatment).
14. The opportunity cost of the screening programme (including testing, diagnosis and treatment) should be economically balanced in relation to expenditure on medical care as a whole.
15. There should be a plan for monitoring the screening programme and an agreed set of quality assurance standards.
16. Adequate staffing and facilities for testing, diagnosis and programme management should be available prior to the commencement of the screening programme.
17. All other options for improving the condition should have been considered (e.g. improving treatment, providing other services) to ensure that no more cost effective intervention could be introduced or current interventions increased within the resources available.

18. Evidence-based information, explaining the consequences of testing, investigation and treatment, should be made available to potential participants to assist them in making an informed choice.

19. There should be a plan for monitoring the screening programme and an agreed set of quality assurance standards.

20. The opportunity cost of the screening programme (including testing, diagnosis and treatment) should be economically balanced in relation to expenditure on medical care as a whole.

21. Public pressure for widening the eligibility criteria for reducing the screening interval, and for increasing the sensitivity of the testing process, should be anticipated. Decisions about these parameters should be scientifically justifiable to the public.

*[Note: additional specific criteria exist for genetic screening, which are excluded here]*
Appendix 4: Modelling the direct cost of establishing routine assessment for perinatal mental health and wellbeing and delivering a training program to support the delivery of assessment

1. Objectives
To measure the direct cost of establishing a national program for:

- training health care providers to deliver routine assessment of antenatal and postnatal mental health and wellbeing; and
- delivery of routine assessment of mental health and wellbeing for pregnant and postnatal women

The target providers of assessment for the purposes of the model are primarily Midwives, Maternal Child and Family Health Nurses (MCFHNs), Allied Health professionals and Edinburgh Depression Scale General Practitioners

2. Broad assumptions
As for the majority of health services, perinatal mental health assessment is highly labour intensive and most elements of the cost of the service will be extremely sensitive to the cost of professional labour. Midwives, MCFHNs, Allied Health professionals and GPs, however, all possess skills and work in settings that are relevant to perinatal assessment and may therefore readily substitute for each other. Moreover, because the program is to be delivered in all States and Territories, the labour mix in delivering the service will be highly sensitive to local conditions and local work practices and managerial autonomy. Local consumer preferences may also exert a powerful influence upon the actual choice of disciplines that are used.

In the absence of a series of microcosmic local data sets (eg actual labour mix, how salary scales are used, overtime worked, etc) it is not feasible to attempt to measure the cost of the program by constructing and aggregating a series of local payrolls based upon local jurisdictional practice. Program cost is rather projected with the aid of a model that utilises broad, high level national assumptions about the character of the workforce and its remuneration.

The model has two variants, which are described below, each of which accordingly relies to, varying degrees, upon generic workforce definitions such as ‘full time equivalent (FTE) assessment provider’ and ‘FTE trainer’. For costing purposes, remuneration for each of these classes of activity relies upon weighted annual averages, based upon plausible workforce mixes based upon the Consortium’s planning criteria. The model permits sensitivities associated with variations to workforce mixes and remuneration.

The model is demographically-driven and determined by needs. In Australia’s Medicare environment, patients are assumed to gain access to perinatal assessment services without incurring a cost at the point of consumption. Service demand is hence driven by solely needs associated with pregnancy and birthing, although in reality patient travel costs may have some bearing on the demand for the service.

Costs will vary between locations and with respect to different classes of clientele. Thus allowance is made for trainer travel in non-metro locations and assessment costs are weighted more heavily relative to the general population for Aboriginal and Torres Strait Islander (ATSI) pregnancies and births. Similarly, culturally and linguistically diverse (CALD) pregnancies and births are appropriately weighted relative to others. Allowance is also made for differences in client mix between jurisdictions.

3. Description of activities
The Program consists of the introduction of universal, routine psychosocial assessment of mental health and wellbeing in perinatal women and workforce training to educate relevant providers how to assess for perinatal mental health and wellbeing. While many workforce programs will be delivered on site—eg for hospital-based Midwives—delivery of training services will also involve travel by trainers to deliver training in the regional and remote parts of Australia. Trainers may also provide trainee providers with literature and appropriate documentation. Trainers may work through recognised channels such as AGPN or the APS. Other training modalities could consist of the design and construction of a web site, production of a DVD and the delivery of continuing professional development (CPD) activities to continually reinforce and emphasise the values and content of the program after it becomes operational.

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30 This document does not provide a commentary on, or seek to interpret the findings of the costing model, since at the time of writing the Consortium had not finalised the value of the model’s parameters and key ‘start up’ variables.
31 MCFHNs are referred to as Child and Family Health Nurses (CFHNs) in some jurisdictions
Although the Program will be delivered in all parts of Australia, it is likely to be rolled out jurisdiction by jurisdiction, so that its phasing may vary by jurisdiction and by region or area within a jurisdiction. Each State or Territory will represent a separate jurisdiction.

Variations in the roll out are related to the availability of infrastructure and access to training. For example, in metropolitan Sydney, where infrastructure for the Program largely exists, the transition from set-up to operational phase could occur quickly. Areas of the Northern Territory, however, where the existing infrastructure for the Program is minimal, would require investment in workforce recruitment and training before assessments could commence. The efficiency of the Program within the business planning horizon will be sensitive to the celerity of the overall roll out.

4. Phases of the program

The business horizon of the Program within each jurisdiction will consist of two broad phases extending over a total of six years as follows:

4.1. A set-up, establishment and maintenance phase of between 1 - 5 Years (2008-2012).

The set-up phase will be needed to ensure assessment protocols are passed through the hospital / regional authorities and to ascertain which pathways to care are available at each jurisdictional level (as ethically, routine assessment cannot be done without adequate pathways to care and appropriate workforce training). Although assessment tools and training programs will have been conceptualised and will be made available, modification of the base training model to suit local circumstances may be required.

During the set-up phase business, marketing and operational plans will be developed; detailed state mapping will be conducted; assessment and training coordinators will be recruited; trainers will be recruited and trained; the assessment workforce comprising Midwives, MCHNs, Allied Health professionals and GPs, will need to familiarise themselves with the assessment tools and the assessment process will need to be cleared through (intra-jurisdictional) regional or area health authorities. The latter will need to be publicised and promoted prior to commencement of both the training for the assessment as well as the assessment itself. Evaluation of the program will need to be conducted in key sites.

4.2. An operational phase up to six years duration (2008-2013).

This will be characterised by the delivery of training services to the relevant assessment providers; the delivery of CPD services to trained assessors; and the delivery of antenatal and postnatal assessment services by a trained assessor workforce.

Assessment services cover the antenatal and postnatal periods, and it is assumed that postnatal assessments will be delivered within the same year as antenatal assessments (i.e. there will be one antenatal and one postnatal assessment per year).

It is acknowledged that the current beyondblue funding cycle will end in 2010.

5. Phasing of the program

There will be overlap between the set-up and operational phases. Thus, even though not all localities in a jurisdiction may have signed off on the Program set up, where clearance may have occurred, training may commence once trainers were available and ready to start. Assessment would then commence as soon as providers were trained. This approach will allow for optimal continuity and maintenance of momentum of the Program and likely maximise thereby its cost effectiveness.

For purposes of the costing, the following phasing will be used as a working approximation within each jurisdiction:

| Year 1 | Set-up, establishment and maintenance phase commences. Delivery of assessment training services commences in localities where the Program has been accepted |
| Year 2 | Set-up, establishment and maintenance phase continues Delivery of assessment training services continues in localities where the Program has been accepted Providers who have received their baseline training commence the delivery of assessment services |
Year 3  
Set-up, establishment and maintenance phase continues  
Baseline assessment training and assessment service delivery continue in parallel with the tail-end of the set-up phase  
Commencement of CPD training for assessment providers who received their baseline training in Year 2  

Years 4 – 6  
Set-up, establishment and maintenance phase continues  
Assessment service delivery continues  
Baseline training for new entrants to the assessing workforce is undertaken  
CPD continues for trained assessment providers.

As the business horizon of the costing is limited to six years, the operational phase within any jurisdiction will vary depending upon the speed of training implementation and perinatal assessment uptake.

6. Baseline training versus training for continuing professional development
Addressing universal, routine assessment for mental health and wellbeing at a national level is a developing initiative that will build on the workforce training and depression screening undertaken in Phase 1 of the beyondblue Postnatal Depression Program (2001-2005). Hence, the volume and intensity of training for antenatal and postnatal assessment required at the point of its implementation in Years 2 or 3 (immediately after set up clearance) will be considerably greater than for providers, who by Years 3 – 6, will have gained assessment experience.

The costing model treats all assessment providers, apart from new entrants to the assessment workforce, as having received their baseline training by the end of Year 5 (Option 1: Gradual Uptake) or Year 3 (Option 2: Rapid Uptake). Baseline training will incorporate training for assessment, intervention, and pathways to care, as appropriate to the setting and professional group.

The bulk of ongoing training is hence for CPD for trained assessment providers. Providers will receive training for CPD once a year in the years following their baseline training. They will also need ongoing supervision on site from a designated member of staff—eg a clinical nursing educator in a maternity setting or a Perinatal Mental Health coordinator either in an antenatal or postnatal setting.

7. Nature and determinants of costs
Projected costs are limited to the direct costs of the Program set up and training service delivery in antenatal and postnatal settings, both in hospital antenatal clinics and in the community (eg through Allied Health professionals, General Practitioners, MCFHNs and Midwives).

Costs excluded in the model include:
- office space
- hire of venues
- business equipment
- communication
- recruitment

Costs are measured in real terms—ie at constant prices 2007 prices. This enables year-to-year costs to be compared without regard to the effects of inflation.

Costs will be a function of:
- the number of full time equivalent (FTE) trainers required to deliver the training services to the assessment workforce required to perform the assessments, and
- the number of FTE assessment providers delivering assessments.

8. Modelling the requirement for the assessment workforce
There are two variants of the costing model in which different assumptions are made about training requirements. These assumptions do not affect the delivery of assessments or the determinants of assessments required.

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32 The term 'full time equivalent' (FTE) covers all dimensions of the workforce enumerated by headcount, including full time permanent or casual personnel as well as fractional and backfill appointments.
The fundamental driver of each version of the model will be the number of women that are projected to fall pregnant. This in turn drives the requirement for antenatal and postnatal assessments (see Figure). The size of this workload can be calibrated for costing purposes by the quotient of the number of women who are pregnant and the average assessment caseload that a typical FTE assessment provider would carry. In the next section alternative approaches are considered for training the number of assessors required to deliver this assessment workload.

The model distinguishes between assessments for general population women and for Aboriginal and Torres Strait Islander and culturally and linguistically diverse women. Assessments for Aboriginal Torres Strait Islander women who fall pregnant are likely to differ from, and be more time consuming than assessment for the general population of women who fall pregnant. Annual assessment caseloads are thus likely to vary inversely with the ratio of Aboriginal and Torres Strait Islander clients in an assessment provider’s practice. Similar considerations will apply for women from culturally and linguistically diverse backgrounds, where, for example, interpreters may be needed.

9. Alternative approaches to modelling the training requirement for assessors

There are two different approaches to modelling the requirement for training assessors. In the first, the requirement for training is integral to the projected requirement for assessment and is limited simply to FTE trainers required to train the FTE assessment workforce necessary to cater for the projected assessment needs of women who are pregnant or who have given birth. This variant may be described as an integrated training approach (the lower stream in the Figure).

In the alternative approach, the training requirement is linked to a target headcount of various types of assessors that the Consortium may nominate as ‘appropriate’ in accordance with its planning criteria. This variant may be described as a target training approach (the upper stream in the Figure below).

In the integrated training model, the volume of training services to be delivered during any one year, and their distribution, will be a function of the size and distribution of the FTE workforce that would deliver assessment services to women in the perinatal period. In the integrated model, the size of the FTE assessment workforce will be synonymous with the FTE assessment workload—ie it will be driven by the quotient of the projected number of perinatal women and the average assessment caseload that a typical FTE assessment provider might carry.

The demand for, and location of, training services onwards from operational Year 1 will in turn derive from the quotient of the size of the FTE workforce delivering assessments, where they practise and the workload of an average FTE trainer. The demand for training for assessment providers in the integrated model can hence be thought of as a ‘derived’ demand from the projected demand for pregnancies.

Figure: Schematic representation of assessment and alternative training models

The target training model breaches the nexus between the projected number of mothers to be assessed and, based on their screening needs, the training required. Here the demand for training instead is expressed in terms of FTE trainers and simply driven by an identified target number of assessor heads to be covered each year for training. The FTE requirement for trainers will hence derive from the quotient of the identified headcount of the assessment workforce considered to be ‘appropriate’ for the population-driven assessment needs, and the workload of an average FTE trainer.

The underlying philosophy of the integrated training model is one of efficiency and maintaining an inventory of trained FTE assessors that is precisely related to the projected volume of assessment work that has to be
undertaken. The philosophy underlying the deterministic target training model, on the other hand, is based on the principle of assuring an adequate stock of trained providers on hand.

In the case of the integrated model, there is a presumption of flexible management processes that would be capable of rapidly responding to immediate needs such as, for example, the capacity to strategically adjust training in the short run to meet possible changes in projected needs.

In the context of the Plan, however, the target training approach is preferable, as it acknowledges the significant number of trained ‘heads’ that will be required to perform the assessments nationally, and recognises that conducting assessments is a small component of an ‘assessor’s’ overall duties. The notion of FTE assessors, as modelled in the integrated training approach, will in reality rarely (if ever) be represented in clinical practice.

10. Baseline assessment and training costs
Perinatal assessment will take place for each woman on two occasions:
- antenatally – eg. at a booking in visit: by Midwives, GPs, Allied Health
- postnatally – eg. at between 2 - 3 months by MCFHNs, GPs, Allied Health

The cost of assessment and training services in the first operational year will be the number of FTE trainers and assessment providers needed to deliver the required number of training sessions (on either integrated or target criteria) and assessments (recognising the Aboriginal Torres Strait Islander / non-Aboriginal and Torres Strait Islander and culturally and linguistically diverse / non-culturally and linguistically diverse split for each locality) multiplied by the respective FTE unit costs of trainers and assessment providers. The latter will consist of:
- the average remuneration per trainer (based upon a mix of trainer disciplines)
- travel costs per trainer to the training venue (in non-metro settings)
- the average remuneration per FTE assessment provider (also based on an mix of disciplines)

The travel costs of trainers to rural and remote training venues may be higher than for travel to deliver training in metropolitan settings. Because of travel time, the model allows for lower workloads for rural and remote trainers than for metropolitan trainers. The cost of non-metro training will hence exceed the cost of training in metropolitan centres (even though average remuneration per trainer, because of uniform State awards will not differ).

It will be necessary to manage, administer and train the trainers. It is assumed that this will be part of the set up phase and delivered by way of contract consultancy services.

It is also assumed that all training services will be fully funded at the point of delivery to trainee assessment providers. Thus, trainee providers will not incur out-of-pocket expenses in attending training sessions. The only costs that trainee providers may hence incur are the sacrifice of professional income earning time to attend training sessions, in the case of self employed GPs, as well as travel costs to attend the training venue. In rural and remote localities, travel and time costs may be considerable and may deter General Practitioners attendance unless they are reimbursed. The model accordingly also makes allowance for these costs in the case of General Practice trainee assessors.

The demand for assessment and training services and their unit costs will follow logically from the definitions and functional relationships inherent in the workforce model described above.

The number pregnancies will be given by the projected number of births plus some factor to account for second trimester terminations and miscarriages (as routine assessment is unlikely to occur prior to the second trimester).

It is assumed that the vast majority of the cost of assessment for perinatal mental health and wellbeing will be met from Government sources. Examples of costs incurred by private individuals might be the travel costs that pregnant or postnatal women incur to attend assessment venues. For the most part, however, the overall costing will represent a cost to Government.

11. Replacement and incremental training costs, including supervision
Assuming that all assessment procedures are established and that the entire assessment workforce is baseline-trained by the end of Year 3 or Year 5 (see Section 5 above), the demand for training services (both on integrated and target criteria) in years thereafter will be confined to:
- the requirement for the CPD of assessment providers; and
- the requirement for baseline training to meet the needs of new entrants to the assessment workforce— driven by retirement or occupational separation of members of the existing trained
workforce plus growth in the workforce required to accommodate increased training service needs associated with year-to-year increases in the total number of pregnancies; and

- ongoing workplace supervision (eg fortnightly).

Ongoing supervision will require both:

- establishment of networks with appropriate supervisors—eg through the APS or the new MBS-funded mental health nurses (situated in General Practice and who might be available to MCFHNS); and
- the creation of new Perinatal Mental Health coordinators in each jurisdiction.

12. Data on births

The model relies on ABS data for projected births over the period 2008 – 2013\(^{33}\). These data are broken down by State and Territory and by metro and non-metro locality within State and Territory. The data in each case are distributed between mothers in the general, Aboriginal and Torres Strait Islander and culturally and linguistically diverse populations. Data on projected pregnancies are obtained by factoring births to account for miscarriages and terminations. Pregnancies and births are assumed to occur in the same year and together drive the assessing workload, assuming a requirement of one assessment per pregnancy and one per birth.

13. Modelling costs

Making assumptions about the timing of the set up phase of the program and the (overlapping) operational phase, formal models for the direct cost of delivering perinatal assessments have been developed in two separate Excel worksheets: one embodying the integrated training approach and the other the target training approach. In these worksheets, costs are represented as series financial flows at constant 2007 prices. As outlined in Section 9, only costs embodied in the target training approach are presented in detail in the Plan.

Each cost element (itemised below in Section 14) is phased over the 2008 - 2013 time horizon and summed for each year as well as over the whole period. In the case of the latter, costs are expressed as constant net present values (NPV) at varying rates of discount (0%, 3% and 5%).

The workbooks contain separate tables for each State and Territory. The sum of all the rows for all types of costs (including factoring for the client mix of general, Aboriginal and Torres Strait Islander and culturally and linguistically diverse women) for metro and non-metro localities within each State and Territory represent the projected direct cost of the national Program. This would represent one component of a cost-benefit and / or a cost effectiveness study.

In so far as the Program has a fixed, 6-year time horizon and runs off its own infrastructure, it follows that it is likely to be most cost effective the more rapid both its set up and its implementation and uptake, although this will not be demonstrable from a stand alone cost model. In modelling cost effectiveness as part of a full economic evaluation, it would thus be appropriate to consider and compare the costs of alternative set up and implementation strategies and to compare the integrated and target training models.

A description of the further work that would be required to conduct a formal economic evaluation of perinatal mental assessment is set out in another document\(^{34}\).

14. Summary identification and definition of cost elements\(^ {35}\)

Set-up, Establishment and Maintenance Costs, Years 1 – 3/5

- Internal establishment costs, including conceptualisation of the training model (modified as appropriate to suit local circumstances) business planning, etc
- Retention of external consulting services to plan, recruit trainers and deliver ‘train the trainer’ services, conduct detailed state mapping
- Piloting, evaluation and fine tuning of training services
- Promotional and marketing costs, including web site, DVD, etc
- Facilitation costs through agencies such as AGPN and APS
- Negotiating clearance of the Program through the respective regional or area health authorities within the State or Territory concerned
- Establishing which local pathways to care are available for referral of clients as necessary and appropriate

\(^{33}\) Series A: *Population Projections, Australia 2004—2101*, ABS cat. no. 3222.0 (unpublished); includes fetal deaths.


\(^{35}\) See also definitions of variables and parameters in the Tables in worksheets of the model.
Operational Costs Years 1 - 6

Initial baseline training, Years 1-3/5:
- Requirement for assessment services (from projected pregnancies and births and their mix)
- Requirement for FTE assessment providers (assessment services ÷ average assessment caseload per FTE provider)
- Requirement for FTE trainers (Integrated model: number of FTE assessment providers × baseline training sessions required per FTE provider ÷ FTE baseline workload per year per FTE trainer; Target model: baseline sessions required to deliver targeted assessor headcount ÷ FTE baseline workload per year per FTE trainer)
- Unit time and travel costs per non-metro training session (implicit allowance for the former by way of lower trainer productivity for non-metro assessments; explicit allowance for the latter by way of motor vehicle costs per training session)
- Cost per FTE trainer per annum (remuneration + on costs)
- Unit cost per FTE trainer per annum (trainer remuneration + travel costs)
- **Cost of baseline training** (number of FTE trainers × unit cost per FTE trainer)
- Unit time and travel costs of assessment providers to attend training venues (weighted cost, integrated model; GP cost, target model)
- **Cost of provider attendance at training** (number of provider heads × unit time and travel costs)
- **Total cost of baseline training** (cost of training + cost of provider attendance at training)

Replacement and incremental baseline training, Years 2 – 6:
- Requirement for incremental assessment services (from projected incremental pregnancies and births and their mix)
- Requirement for incremental FTE assessment providers (incremental assessment services ÷ average assessment caseload per FTE provider)
- Requirement for assessment providers associated with exits from the assessment workforce by the end of Year 2 (number of occupational separations)
- Requirement for FTE trainers (Integrated model: incremental number of FTE assessment providers × baseline training sessions required per FTE provider ÷ FTE baseline workload per year per FTE trainer; Target model: baseline sessions required to maintain targeted assessor headcount ÷ FTE baseline workload per year per FTE trainer)
- Unit cost per FTE trainer per annum (trainer remuneration + travel costs)
- **Cost of replacement and incremental training** (number of FTE trainers × unit cost of FTE trainers)
- Unit time and travel costs of assessment providers offers of LD / non-CALDate.ll be based on projected birth figures provided for each State/Territory and will to attend training venues (weighted cost, integrated model; GP cost target model)
- **Cost of provider attendance at training** (number of provider heads × unit time and travel costs)
- **Total cost of replacement and incremental training** (cost of training + cost of provider attendance at training)

CPD and supervision Years 2 – 6:
- Requirement for FTE trainers (Integrated model: number of FTE assessment providers × CPD training sessions required per FTE provider ÷ FTE CPD workload per year per FTE trainer; Target model: CPD sessions required to deliver targeted assessor headcount ÷ FTE CPD workload per year per FTE trainer)
- Unit time and travel costs per non-metro training session
- **Cost of CPD** (number of FTE trainers × unit cost per FTE trainer)
- Unit time and travel costs of assessment providers to attend venues (weighted cost, integrated model; GP cost target model)
- **Cost of provider attendance** (number of provider heads × unit time and travel costs)
- **Total cost of CPD** (cost of CPD + cost of provider attendance)
- Note: It is assumed that CPD for trainers will be the same individuals as the trainers used in the baseline and incremental training.
- Unit cost of supervisors × number of births covered per supervisor

Assessment, Years 1 - 6
- **Total cost of assessment** (requirement for FTE assessment providers × weighted unit cost of assessors, including allowance for GP travel time)
Appendix 4.1: National Totals – the direct cost of modelling a national program of universal routine psychosocial assessment and associated workforce training, Years 1-636

Table 1: Option 1 (Preferred)37, Gradual Uptake: Projected National Total, $M 2007 prices

<table>
<thead>
<tr>
<th>Yr 1</th>
<th>Yr 2</th>
<th>Yr 3</th>
<th>Yr 4</th>
<th>Yr 5</th>
<th>Yr 6</th>
<th>TOTAL COSTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NPV, 0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NPV, 3%</td>
</tr>
</tbody>
</table>
TOTAL set up, establishment and maintenance costs 1.9 2.3 2.9 3.0 3.1 2.2 15.4 13.9

Variable costs

Local Coordinators, FTE 1.0 2.4 3.6 3.7 3.8 3.8 18.3 16.3

- Metro

Total baseline training 0.4 0.9 1.2 1.2 1.1 0.1 4.9 4.4
Total CPD 0.0 0.3 0.6 0.7 0.8 0.7 3.0 2.7
Total assessment 0.8 2.3 5.3 7.4 7.5 7.6 30.9 27.2
TOTAL Australia metro costs 1.2 3.4 7.1 9.3 9.4 8.5 38.9 34.3

- Non metro

Total baseline training 0.2 0.5 0.6 0.6 0.6 0.1 2.6 2.4
Total CPD 0.0 0.1 0.3 0.4 0.4 0.4 1.5 1.3
Trainer travel costs 0.0 0.1 0.2 0.2 0.2 0.1 0.9 0.8
Total assessment 0.2 0.7 2.1 3.7 4.0 4.1 14.8 13.0
TOTAL Australia non-metro costs 0.5 1.5 3.2 4.9 5.2 4.6 19.9 17.5

TOTAL variable costs 2.6 7.3 13.9 18.0 18.4 16.9 77.1 68.1

GRAND TOTAL Australia 4.6 9.6 16.8 21.0 21.5 19.1 92.5 82.0

Table 2: Option 2, (Comparison)38, Rapid Uptake: Projected National Total, $M 2007 prices

<table>
<thead>
<tr>
<th>Yr 1</th>
<th>Yr 2</th>
<th>Yr 3</th>
<th>Yr 4</th>
<th>Yr 5</th>
<th>Yr 6</th>
<th>TOTAL COSTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NPV, 0%</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NPV, 3%</td>
</tr>
</tbody>
</table>
TOTAL set up, establishment and maintenance costs 2.2 3.3 4.1 3.1 2.6 2.1 17.5 15.8

Variable costs

Local Coordinators, FTE 1.9 2.8 3.6 3.7 3.8 3.8 19.6 17.6

- Metro

Total baseline training 0.8 1.8 1.9 1.2 1.1 0.1 6.9 6.3
Total CPD 0.0 0.5 1.1 1.2 0.9 0.8 4.6 4.1
Total assessment 1.8 3.9 5.8 7.4 7.5 7.6 34.9 30.2
TOTAL Australia metro costs 2.6 6.2 8.9 9.8 9.5 8.6 45.5 40.5

- Non metro

Total baseline training 0.4 1.0 1.0 0.6 0.5 0.1 3.5 3.2
Total CPD 0.0 0.3 0.6 0.6 0.4 0.4 2.2 2.0
Trainer travel costs 0.1 0.2 0.3 0.2 0.1 0.0 1.0 0.9
Total assessment 0.8 1.8 2.8 3.6 4.0 4.2 17.3 15.3
TOTAL Australia non-metro costs 1.3 3.3 4.7 5.0 5.0 4.7 24.0 21.4

TOTAL variable costs 5.8 12.3 17.2 18.5 18.3 17.1 89.2 79.5

GRAND TOTAL Australia 8.1 15.6 21.4 21.6 20.8 19.2 106.7 95.4

36 Figures may not add due to rounding
37 Option 1 (preferred) assumes a more gradual rate of program uptake (target workforce to be trained by Year 5 and a more gradual rate of program coverage)
38 Option 2 assumes a more rapid rate of program uptake (target workforce to be trained by Year 3 and a more accelerated rate of program coverage).
Appendix 4.2: Summary of Key Costing Model Assumptions

1. Average proportion of perinatal coverage for each month of the year

1A: OPTION 1 (preferred): Gradual uptake

<table>
<thead>
<tr>
<th></th>
<th>METRO</th>
<th>NON-METRO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yr 1</td>
<td>Yr 2</td>
</tr>
<tr>
<td>NSW</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATSI</td>
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<td>10</td>
</tr>
<tr>
<td>CALD</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
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<tr>
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<td>CALD</td>
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<td>General</td>
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<tr>
<td>Tasmania</td>
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<td>CALD</td>
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<tr>
<td>General</td>
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<tr>
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</tr>
<tr>
<td>General</td>
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</tr>
</tbody>
</table>

39 Option 1 (preferred) assumes a more gradual, sustainable rate of program uptake (target workforce to be trained by Year 5 and a more conservative rate of program coverage)

40 For the purposes of the costing model, all ACT is assumed to be metro
1B: Option 2 (comparison): Rapid uptake

<table>
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<th>NON-METRO</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Yr 2</td>
</tr>
<tr>
<td>NSW</td>
<td></td>
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<td>50</td>
</tr>
<tr>
<td>Tasmania</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>50</td>
</tr>
<tr>
<td>General</td>
<td>20</td>
<td>50</td>
</tr>
</tbody>
</table>

For Tables 1A and 1B above: Note that coverage will be determined by the rate of the program’s assumed implementation; coverage may not be 100% for all groups in all areas, even though implementation may be complete for all practical purposes; coverage also assumes the development and endorsement of an Aboriginal and Torres Strait Islander PMH National Action Plan 2008-09.

---

41 Option 2 assumes a more rapid rate of program uptake (target workforce to be trained by Year 3 and a more accelerated rate of program coverage).

42 For the purposes of the costing model, all ACT is assumed to be metro.
2. Proportion of target assessor workforce to receive baseline training, Years 1-6

<table>
<thead>
<tr>
<th></th>
<th>Yr 1</th>
<th>Yr 2</th>
<th>Yr 3</th>
<th>Yr 4</th>
<th>Yr 5</th>
<th>Yr 6</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1</td>
<td>10%</td>
<td>20%</td>
<td>25%</td>
<td>25%</td>
<td>20%</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td>Option 2</td>
<td>20%</td>
<td>40%</td>
<td>40%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>100%</td>
</tr>
</tbody>
</table>

3. Distribution of national assessment workforce targets between States and Territories

<table>
<thead>
<tr>
<th></th>
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<th>Vic</th>
<th>Qld</th>
<th>SA</th>
<th>WA</th>
<th>Tas</th>
<th>NT</th>
<th>ACT</th>
<th>Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>35%</td>
<td>26%</td>
<td>16%</td>
<td>8%</td>
<td>9%</td>
<td>3%</td>
<td>1%</td>
<td>2%</td>
<td>100%</td>
</tr>
</tbody>
</table>

4. Distribution of assessor population to be trained between metro and non-metro areas

<table>
<thead>
<tr>
<th>Metro</th>
<th>NSW</th>
<th>Vic</th>
<th>Qld</th>
<th>SA</th>
<th>WA</th>
<th>Tas</th>
<th>NT</th>
<th>ACT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>71%</td>
<td>76%</td>
<td>49%</td>
<td>81%</td>
<td>80%</td>
<td>46%</td>
<td>81%</td>
<td>100%</td>
</tr>
<tr>
<td>Non-metro</td>
<td>29%</td>
<td>24%</td>
<td>51%</td>
<td>19%</td>
<td>20%</td>
<td>54%</td>
<td>19%</td>
<td>0%</td>
</tr>
</tbody>
</table>

5. Target assessment workforce heads to be trained, 2008-13, allowing for occupational separation rate of 15%

<table>
<thead>
<tr>
<th></th>
<th>Baseline-trained</th>
<th>CPD</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPs</td>
<td>5,228</td>
<td>4,573</td>
</tr>
<tr>
<td>Midwives &amp; MCFHNs</td>
<td>18,064</td>
<td>15,237</td>
</tr>
<tr>
<td>Allied Health</td>
<td>5,747</td>
<td>4,847</td>
</tr>
<tr>
<td>Total</td>
<td>29,039</td>
<td>24,657</td>
</tr>
</tbody>
</table>

6. Percentage share of training services delivered

<table>
<thead>
<tr>
<th>Trainer</th>
<th>Share of training services delivered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coordinator</td>
<td>10%</td>
</tr>
<tr>
<td>Clinical nurse consultant</td>
<td>35%</td>
</tr>
<tr>
<td>Clinical nurse educator</td>
<td>35%</td>
</tr>
<tr>
<td>Psychologist</td>
<td>10%</td>
</tr>
<tr>
<td>Psychiatrist</td>
<td>10%</td>
</tr>
</tbody>
</table>

7. Average workload of an FTE trainer: for each face-face training session hour, there is an equivalent hour comprising eg. preparation, report writing, supervision

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43 AIHW (2004) Medical labour force survey
44 Gadiel D and L Ridoutt (1995) The specialist medical workforce and specialist service provision in rural areas, DHS & HA and MDWRC, AGPS
8. Population data values

<table>
<thead>
<tr>
<th></th>
<th>NSW</th>
<th>Vic</th>
<th>Qld</th>
<th>SA</th>
<th>WA</th>
<th>Tas</th>
<th>NT</th>
<th>ACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATSI births&lt;sup&gt;45&lt;/sup&gt;</td>
<td>3.5%</td>
<td>1.0%</td>
<td>6.8%</td>
<td>3.5%</td>
<td>6.5%</td>
<td>5.8%</td>
<td>40.0%</td>
<td>1.7%</td>
</tr>
<tr>
<td>CALD births&lt;sup&gt;46&lt;/sup&gt;</td>
<td>27.7%</td>
<td>24.0%</td>
<td>16.9%</td>
<td>14.7%</td>
<td>29.9%</td>
<td>5.9%</td>
<td>14.4%</td>
<td>17.8%</td>
</tr>
</tbody>
</table>

9. Duration of Assessments (minutes): ATSI = 40; CALD = 30; General = 20

Average extra time to allow for non-metro travel = 10%
Extra to allow for CALD interpreter time, where necessary = 50%

10. Local Coordinators required, FTE: 1 FTE Coordinator: 7000 births covered by the program. The number of coordinators in any given year is a function of the projected births covered by the program in the following year.

11. Projected births, 2008-2013

(Series A: Population Projections, Australia 2004—2101, ABS cat. no. 3222.0; includes fetal deaths)

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
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<tbody>
<tr>
<td>NSW</td>
<td>92,280</td>
<td>92,464</td>
<td>93,204</td>
<td>93,952</td>
<td>94,730</td>
<td>95,534</td>
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<tr>
<td>Vic</td>
<td>64,208</td>
<td>64,583</td>
<td>64,987</td>
<td>65,418</td>
<td>65,877</td>
<td>66,372</td>
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<tr>
<td>Qld</td>
<td>53,913</td>
<td>54,949</td>
<td>55,983</td>
<td>57,028</td>
<td>58,095</td>
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<td>SA</td>
<td>16,907</td>
<td>17,452</td>
<td>17,466</td>
<td>17,490</td>
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<td>WA</td>
<td>26,580</td>
<td>26,974</td>
<td>27,385</td>
<td>27,805</td>
<td>28,223</td>
<td>28,658</td>
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<tr>
<td>Tas</td>
<td>6,178</td>
<td>6,219</td>
<td>6,265</td>
<td>6,310</td>
<td>6,360</td>
<td>6,412</td>
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<td>3,956</td>
<td>4,034</td>
<td>4,120</td>
<td>4,208</td>
<td>4,297</td>
<td>4,382</td>
</tr>
<tr>
<td>ACT</td>
<td>4401</td>
<td>4450</td>
<td>4497</td>
<td>4547</td>
<td>4595</td>
<td>4643</td>
</tr>
<tr>
<td>Australia</td>
<td>268,423</td>
<td>271,125</td>
<td>273,907</td>
<td>276,758</td>
<td>279,696</td>
<td>282,744</td>
</tr>
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</table>

<sup>45</sup> Average of ratio of ATSI births to all births 1995 - 2005 in each State and Territory (1996 - 2005 for Queensland); 2005 Births Australia, ABS, cat. no. 33010
<sup>46</sup> CALD births assumptions drawn from Table 3.6: Australia's Mothers and babies 2004, AIHW
Appendix 5: Feasibility of doing a cost-benefit analysis of universal and routine psychosocial assessment and subsequent treatment and missed cases in the perinatal period

1. Summary

Economic evaluation of a health service would entail a comparative analysis of the costs and benefits of alternative courses of action, such as whether or not to deliver a service or intervention. Summarising all the costs and benefits of an intervention would facilitate a comparison between treatment options within health care and even with options in other public sectors. A cost-benefit framework could hence provide a balance sheet to highlight which services or interventions provided the greatest net social benefit and were most worthy of being implemented (Shiell et al., 2002).

A cost-benefit analysis of a universal perinatal program of routine psychosocial assessment for the interception of perinatal depression would require the collection of data on all the costs and all the benefits of the program and then subtracting the costs from benefits to arrive at the net benefit. The costs would be the direct costs of implementing the program and the cost of treating ‘mild’ cases that would have not have been detected, but for the existence of the program. The benefits would be the dollar savings flowing from the reduced incidence of perinatal depression. These would consist of the associated overall reduction in the cost of treating perinatal depression and its consequences as well as the savings in personal and emotional costs. The latter would generally be measured in terms of the amount that persons at risk would be prepared to pay to gain quality years of life (or avoid disability years of life) as a result of avoiding perinatal depression.

Costs and benefits would be calibrated in terms of their unit costs (eg the cost of a perinatal assessment, the direct cost per incident case of perinatal depression or the value of a healthy year) multiplied by the quantities involved (eg the number of assessments required, number of cases avoided or quality life years gained).

As the sum of the series of costs and benefits will accrue at different points in time during the program, they would be discounted so that they could all be compared as if they had occurred at the same time.

Various approaches would available for gauging the impact of routine psychosocial assessment in reducing perinatal depression. These would include an ex ante analysis where the Base Case or status quo associated with no intervention were compared with a possible future intervention scenario. Data on the impact effect over the prospective life of the program could be gained from the literature and stakeholder opinion. Sensitivities could be allowed for by assuming alternative scenarios. Another approach would be an ex post evaluation of a program or setting up a clinical trial based on sample populations.

As a by-product of the cost-benefit analysis it would also be possible to undertake a cost effectiveness analysis and a cost utility analysis of routine assessment. The former would measure the economic impact of the perinatal assessment with reference to non-monetary outcomes. It would measure the unit cost of each extra unit of outcome (eg cases avoided) and could facilitate an assessment of efficiency between different methods of delivering the outcome.

Cost utility analysis, on the other hand, enables broader comparisons to be made between treatments for different disease groups because the end point is denominated in quality adjusted or disability life years.

47 While this document refers to perinatal depression only, the approach to conducting a CBA described herein could be employed for additional perinatal mental health and wellbeing outcomes
2. Introduction
The aim of a cost-benefit analysis of universal, routine psychosocial assessment for the interception of depression in the perinatal period would be to assess the economic consequences of its contribution to a reduction in perinatal morbidity and mortality. This contribution could be valued in dollar terms and expressed as a "net benefit".

The net benefit would represent the difference between all the costs and all the benefits associated with routine psychosocial assessment over the period of years during which the program were to be funded. For the purposes at hand, the funding horizon / planning period would be assumed to cover the six-year period 2008-2013.

The net benefit would be measured by estimating the value of the savings of the program relative to the status quo, representing a situation without the program—often referred to as the “Base Case”. These savings associated with the reduced incidence of perinatal depression could be compared with the cost of the perinatal assessments. The contribution of any such savings, less the cost of the perinatal assessments, could then be expressed at constant prices (i.e. controlled for the effect of inflation) as a net benefit and projected for each year over the period 2008 - 2013. The sum of the series of annual net benefits over these years could then be summed, discounted and expressed as a net present value.

3. Constituent elements of cost
Monetary values of reduced morbidity and mortality of perinatal depression will be a function of:

3.1) the direct costs of reduced medical care and treatment and long term care costs as well as the reduced collateral cost of social dislocation, marital disharmony and its effect upon children and other family members; and
3.2) the indirect benefits of improved health.

The direct cost of reduced morbidity, item 3.1 above, will consist of:

a) savings in the treatment cost and management of perinatal depression—including savings in medical, hospital, pharmaceutical, allied health and long term institutional care costs as a consequence of incident cases of perinatal depression that are avoided or made less severe or both; and

b) savings associated with socially distressed families manifesting, for example, as reduced pressure on the justice system, housing support and social security benefits.

It would be possible to construct the lifetime case costs of perinatal depression and to arrive at the total savings in direct costs by multiplying the unit case cost by the number of cases avoided / made less severe as a consequence of the program.

Data on health, social and justice costs, etc, as elements of lifetime case costs, would be available from Medicare as well SCRGSP (2007). The quantities of such services used during the various pathways of lifetime perinatal depression could be obtained from the literature and stakeholder consultation. They could be modelled, using a Markov chain with assumptions about the relevant transition probabilities (i.e concerning the likelihood of the manifestation of different stages of the disease and movement from one stage to the next). Unit case cost of perinatal depression would be expressed as a present value, based on years of survival of the sufferer, discounted back to the date of incidence.

4. Valuation of human life
The indirect benefits, item 3.2 above, would be associated with years of life gained and improved quality of life as a consequence of each case of perinatal depression that were avoided or mitigated as a result of the program. The economic valuation of years of life gained and improved quality of life follows from the ability to place a dollar valuation on the worth of a life.

Two alternative approaches are available to valuing life—often referred to as the value of a statistical life (VOSL). These are the human capital approach and the willingness to pay (WTP) method. The former depends upon estimating net earnings lost from premature death or retirement, and the latter upon what
people pay or indicate they would be prepared to pay for preventive measures to protect or restore their health or avoid ill health.

The human capital approach measures the loss of productivity and estimates the cost of death and disability as a loss of productive potential. This provides transparent results, but it does not provide a methodology for costing emotional loss privately incurred by individuals.

The WTP approach, on the other hand, is based on individual preferences. Data for willingness to pay can be approximated from the values for disability weights ascribed to a large number of diseases, including depression, in the Australian burden of disease studies by Mathers et al (1999) and Begg et al (2007). Based upon the VOSL year, it would be possible to value the indirect benefits of routine psychosocial assessment by valuing lives saved and too, because of the lower incidence of perinatal depression morbidity, gains associated with improvements to the quality of life.

Although WTP and human capital methods purport to measure the same thing, it is possible for a VOSL, using the WTP method, to exceed the present value of an individual’s future earnings. Most cost-benefit studies now use the WTP approach to obtaining a VOSL. It is recommended that a WTP approach be adopted for valuing the indirect gains from perinatal assessments.

It would be possible to calculate the total indirect cost savings by multiplying the value of healthy life years gained per case of perinatal depression avoided / made less severe by the number of cases avoided / made less severe as a consequence of the program.

5. Calculating benefit
The gross benefit of the program would be given by the sum of the series of savings associated with perinatal assessment by way of:

- reduced treatment cost and management of perinatal depression in conjunction with the reduced collateral cost of social dislocation (direct costs, item 3.1); and
- years of life gained and improved quality of life as a consequence of the avoidance or reduced severity of perinatal depression (indirect costs, item 3.2).

The net benefit of the program could be obtained by subtracting the cost of delivering the program from the value of the gross benefit of the program.

The cost of delivering the program would consist of:

5.1) the cost of the sum of the series perinatal assessments and the associated training and set up costs inherent in the delivery of the program; and

5.2) the treatment costs of cases of ‘mild’ perinatal depression that would not have been diagnosed and would have remained untreated, but for the existence of the program.

Under Australia’s Medicare arrangements most of these costs would represent a cost to Government.

The series of year-to-year net benefits during the lifetime of the program (2008 – 2013) would be summed, discounted back to the commencement of the program and expressed in constant prices.

Net benefit could be separately calculated for each State and Territory as well as on a national basis.

6. Calibrating the impact of universal routine psychosocial assessment
One of the difficulties confronting economic evaluation in public health is that of effectively identifying what would have happened, but for the willingness of Government to commit funding for universal and routine psychosocial assessments to intercept and mitigate the risk of perinatal depression.

Expected incident cases, calculated in the absence of the program from projected births from ABS (2007) and inferred pregnancies, would constitute the Base Case. This would represent the comparator against
which the performance of the program of routine assessments would be calibrated. Clearly the extent of the net benefit will be highly sensitive to the impact of the program, relative to the Base Case, in mitigating the risk of perinatal depression.

There would be two approaches to assessing the impact. One method would be to prospectively hypothesise a counterfactual situation in which the program were assumed to yield a certain percentage reduction in incident cases / cases of reduced severity relative to the Base Case. Evidence for this could be gathered from stakeholder opinions as to the effectiveness of perinatal assessment in reducing perinatal depression or from international literature or both (see for example Gadiel, 2005). Hypothesising a counterfactual based on plausible impact assumptions would facilitate an indicative cost-benefit analysis prior to the commencement of the program. By providing a rationale as to why Government should commit funding to a program, an ex ante counterfactual may frequently be employed for purposes of program advocacy.

Another approach to assessing impact would be to collect data ex post, either from the experience of a fully funded program or from a clinical trial (see for example Stone et al, 2004). Such data could then be compared with the experience in the absence of the program or with control groups. Data would need to be collected over time and there may be considerable costs involved in appropriate experimental design, in gaining ethics approval and in gathering them, etc.

Using an ex ante counterfactual, a cost-benefit analysis would include sensitivities by allowing for different scenarios arising from varying assumptions concerning the parameters of the model and the discount rate. Different net benefit scenarios could also arise from varying assumptions about the ultimate coverage of the program, the speed of its implementation, the composition of the workforces delivering training and assessments, the competence of the workforce in administering the assessment and the effectiveness of the test instrument itself. The latter would include recognition of false positives and false negatives, each of which could adversely affect the value of the net benefit.

In the case of an ex post clinical trial, the sensitivity should advert to the standard errors in extrapolating from the sample to the population.

The sensitivity analysis would also draw attention to any assumptions of special consequence which may cause significant variance to the sign or value or both of the results of the cost-benefit model.

7. Measuring the efficiency of universal routine psychosocial assessment

As a by-product of the cost-benefit analysis it would also be possible to deliver a cost effectiveness analysis and a cost utility analysis of routine psychosocial assessment. Data for the latter would be inherent in the modelling for the cost benefit study.

Whereas a cost-benefit analysis would provide monetary estimates of all costs and benefits (as far as this were possible from the data available), a cost effectiveness analysis would simply compare net program cost with an identified end point—for example, the detection of a true positive case of perinatal depression; a case of perinatal depression avoided; a suicide avoided, etc. A cost effectiveness analysis would avoid the challenge of cost-benefit analysis in putting a value on human life (and for this reason is often preferred to cost-benefit analysis). It would be a useful tool for comparing the relative efficiency of different types of organisational structure or labour mix in delivering the desired objectives of the perinatal program. For example, it might be found that the cost per suicide avoided were say 20% lower with a mix of Midwives and nurses conducting assessments than with a mix of Midwives, nurses and GPs.

A variant of cost effectiveness analysis is cost utility analysis, where the end point would take into consideration mothers’ health state preferences. Here the end point would be a quality adjusted life year or a disability adjusted life year. A cost utility analysis would measure the efficiency of a perinatal

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48 For example—the cost of the assessment program minus perinatal case costs incurred divided by incident cases of suicide avoided.

49 A quality adjusted life year (QALY) weight is a metric in which perfect health = 1 and death = 0; a disability adjusted life year (DALY) weight is a metric where perfect health = 0 and death = 1.
program with reference to the cost of a quality adjusted life year gained or a disability adjusted life year avoided.

An advantage of cost utility analysis is that it could be used to make an absolute statement about the efficiency of perinatal assessment because it is always possible to reduce the measure of health gain to a common denominator (a quality adjusted life year gained or disability adjusted life year averted). From a public health perspective it would thus be possible to compare, and set up ‘league tables’ for completely different types of programs—eg programs as diverse as swimming pool safety, implementing food standards, road safety, standards for sterility in drug manufacture, etc. ‘Cost-effective’ assessments are often defined as those that avert a disability adjusted life year at a cost of between one to three times per capita gross domestic product (WHO, 2002).

8. Cost-benefit versus cost effectiveness
Tests for cost effectiveness would simply measure the technical efficiency of the program (or the least cost pathway into a program) whereas a cost benefit analysis would measure the net social benefit of the program and could hence fit universal routine psychosocial assessment into the spectrum of national health priorities. This criterion is referred to as ‘allocative efficiency’ and may be an important consideration in determining which programs should receive funding (Folland et al, 2004).

It is recommended that any evaluation of universal routine psychosocial assessment should include tests for both technical and allocative efficiency.

References

Australian Bureau of Statistics (ABS) Population projections, Australia 2004—2101 (2007), Series B (medium series), cat. no. 3222.0;