National SCIENCE Challenges

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Brief Evidence Reviews for the Well Child Tamariki Ora Programme

Report submitted to MoH on 11 December 2019

Whakapūpūtia mai ō mānuka,
kia kore ai e whati

Cluster the branches of the manuka,
so they will not break

Foreword

The Ministry of Health is responsible for the development of policy advice on children's health and the future direction of the Well Child Tamariki Ora (WCTO) programme. The WCTO programme is the universal health service in New Zealand, which is responsible for protecting and improving the health and wellbeing of children from birth to 5 years of age. This is achieved through health and development screening and surveillance, whānau care and support, and health education.

The current programme is based on the evidence available at the time of the last programme update in 2007. Therefore, the Ministry of Health is reviewing the current WCTO Framework and associated Schedule (developed in 2002) to ensure that WCTO services meet the current needs of children and their whānau, and address the issues they face. The present review was initiated in 2019 and is the second review of the programme, as the first was carried out in 2006. In preparation for this review, the Ministry of Health has commissioned an evaluation of the recent literature on some of the new and emerging issues for preschool children, as well as possible ways to address them.

The purpose of this review includes ensuring that the programme is underpinned by the latest research and evidence. This is particularly pertinent to the current Schedule of Universal Contacts delivered, and one of the work-streams of the review is to consider the timing, content, and intensity of the Schedule, and associated additional contacts. This work stream will support the development of an integrated framework of universal wellbeing contacts for the pregnancy to 24 years of age life course.

The Ministry of Health require the brief evidence reviews (BERs) to synthesise relevant evidence about what works in key areas for children, including development, vision, hearing, emotional and mental health, and growth. The BERs adopted the He Awa Whiria – Braided Rivers approach and include consideration of what will work for Māori tamariki and whānau, and Pacific children and families within each domain. The BERs have helped to identify any knowledge gaps where further work and research may be needed, to inform further development of the WCTO programme.

The WCTO review is a key health contribution to the Government's Child and Youth Well-being Strategy. It forms part of the Ministry of Health's work programme to transform its approach to supporting maternal, child, and youth well-being.

The Ministry of Health have commissioned A Better Start: E Tipu E Rea National Science Challenge to undertake 11 health related BERs that will inform the WCTO review and decision making on the future core service schedule, and additional health and social services for children in New Zealand. The aim of the BERs is to ensure that decisions are grounded in, and informed by, up-to-date evidence. BERs are intended to synthesise available evidence and meet time constraints of health care decision makers. Internationally health technology agencies have embraced rapid reviews, with most agencies internationally offering these alongside standard reviews. These 11 BERs that we have conducted have been performed in a very short time which was a very challenging task.

A Better Start is a national research programme funded by the Ministry of Business Innovation and Employment (MBIE). The objective of A Better Start is to improve the potential for all young New Zealanders to lead a healthy and successful life. To achieve this, A Better Start is researching methods and tools to predict, prevent, and intervene so children have a healthy weight, are successful learners, and are emotionally and socially well-adjusted. A Better Start consists of more than 120 researchers across 8 institutions.

The BERs cover 11 domains critical to the WCTO programme, which are: neurodevelopment (#1); parent-child relationships (#2); social, emotional, and behavioural screening (#3); parental mental health problems during pregnancy and the postnatal period (#4); parental alcohol and drug use (#5); excessive weight gain and poor growth (#6); vision (#7); oral health (#8); adverse childhood experiences (#9); hearing (#10); and family violence (#11). The BERs have synthesised relevant evidence about what works in key areas for children across these domains, which were assessed with careful consideration of what will work for Māori tamariki and whānau and Pacific children and families. They have also identified knowledge gaps where further work and research may be needed to inform further development of the WCTO programme.

Within each domain, a series of 6–14 specific questions were drafted by the Ministry of Health, and subsequently refined with input from the large team of researchers assembled by A Better Start. A Better Start established discrete writing teams to undertake each BER. These teams largely consisted of a post-doctoral research fellow and specialty expert, often in consultation with other experts in the field. Subsequently, each BER was peer reviewed by at least two independent experts in the field, as well as two Māori and a Pacific senior researcher. In addition, senior clinical staff from the Ministry of Health have reviewed each BER. These were then revised to address all the feedback received, checked by the editors, and finalised for inclusion in this report.

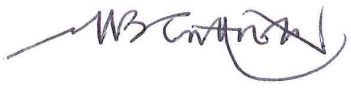
Whilst each of these domains are reviewed as discrete entities, there is considerably inter-relatedness between them. In particular, neurodevelopmental problems can be impacted by parent-child relationships, parental mental health, and pre- and postnatal drug exposure. Similarly, children who have problems with growth, vision, or oral health may also have neurodevelopmental disorders.

Most of the evidence available for these BERs comes from international studies with limited data from New Zealand, in particular there is limited information about Māori, Pacific, and disadvantaged families. These are the tamariki and whānau in whom the WCTO Programme services are more scarce, yet could potentially offer the greatest benefit.

The criteria for screening include the requirement for an effective and accessible intervention; the corollary is that screening should not be offered if there is no benefit to the individual being screened. The essential issue is therefore to identify those infants and preschool children and their whānau who would have better outcomes following intervention; this includes better outcomes for the whānau.

The current WCTO programme has had a greater emphasis on surveillance rather than screening. Many of the questions in the BERs address screening. A change in the WCTO programme that further extends into screening will require substantial upskilling of many WCTO providers, as well as redirection of resources. Importantly, Māori and Pacific iwi and community views must be considered before any new screening programmes are to be included.

It should be noted that a shift towards screening rather than surveillance may prevent health and behavioural problems. The economic benefits of prevention and early intervention are well documented, with early interventions showing that for every dollar spent there are substantial savings to health, social services, police, and special education resources.



Professor Wayne Cutfield
Director of A Better Start National Science Challenge
On behalf of the editors, authors and reviewers of the brief evidence reviews

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4 Parental mental health problems during pregnancy and the postnatal period

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Disclaimer

This brief evidence review was commissioned by A Better Start National Science Challenge (the Challenge) on behalf of the New Zealand Ministry of Health. It was prepared over a relatively short time based on the evidence available to the authors at the time of its preparation. The authors have made considerable efforts to perform a comprehensive and balanced evaluation of the existing evidence. However, this brief evidence review cannot be considered an exhaustive analysis of the existing peer-reviewed and grey literature on the topic, and it may not reflect the potentially conflicting views of all experts in the field. There could have been important omissions, and additional evidence might have also come to light since completion of this final draft. Thus, this brief evidence review should be considered with the appropriate caution. A previous version of this document was peer-reviewed by Māori and Pacific researchers and by independent experts in the field. Peer reviewers were anonymous, unless they have otherwise been identified by name. Please note that this brief evidence review does not represent the views of the Challenge or the Ministry of Health; rather, it reports the independent conclusions of the listed authors.

Conflicts of interest: The authors have no financial or non-financial conflicts of interest to declare that may be relevant to this work.

Abbreviations

AND	Antenatal depression
ADHD	Attention deficit hyperactivity disorder
CBT	Cognitive behavioural therapy
EPDS	Edinburgh Postnatal Depression Scale
EPDS-3A	Edinburgh Postnatal Depression Scale Anxiety Subscale
HVP	Home visiting program
IH-CBT	In home CBT
IPT	Interpersonal psychotherapy
K-10	Kessler Psychological Distress Scale
LMC	Lead maternity carer
MGMQ	Matthey generic mood questionnaire
PHQ-9	Patient health questionnaire
PMH	Perinatal mental health
PND	Postnatal depression

Summary

Parental depression during pregnancy and in the first year after birth is a significant public health problem that has serious consequences for the parent and the developing child. A higher proportion of Māori, Pacific and Asian mothers are at risk in New Zealand. There is extensive evidence linking child outcomes to maternal depression and anxiety. There is less research to inform us about Māori, Pacific and Asian women, or the long term impact of mental health problems for fathers. However, evidence shows identifying parental mental illness early is associated with better outcomes for parents and their children.

- Depression and anxiety in women is common perinatally, particularly for Māori and Pacific women. Fathers also experience depression and anxiety, but New Zealand-specific prevalence is not known
- Women with a history of mental illness are at high risk for relapse during the perinatal period, but the prevalence of mental health problems other than depression and anxiety perinatally is not clear.
- Mental health problems can affect parents' ability to engage in positive parenting behaviours.
- Parental mental health problems put children at risk for long-term adverse effects on social-emotional and behavioural development, particularly if there is severe illness or additional life stressors.
- All women should be asked about their mental health history at the first opportunity antenatally.
- In NZ it is not clear which tools are most appropriate for screening for depression and anxiety.
- There are barriers which result in poor uptake of interventions for people with screen-detected mental health problems in the perinatal period.
- Non-pharmacological and pharmacological treatments for depression and anxiety are effective in perinatal populations. There are potential benefits for child outcomes but these are less well understood.
- Mild-to-moderate illnesses may have culture-specific solutions.
- More research informed by Māori and Pacific values is needed to explore barriers to uptake of care, culture-specific interventions, and validation of screening tools.

4.1 Introduction

4.1.1 Background

Poor perinatal mental health (PMH) can have life-long consequences for the parent and the developing child. The main predictor of PMH is a past history of mental illness, but it may also occur for the first time during pregnancy or postnatally[1]. Susceptibility to mental health problems in both mothers and fathers is influenced by co-occurrence of stressful life experiences such as poverty, unemployment, physical illness, substance abuse, relationship breakdown and social isolation[2-5]. In addition, the level of stressful life events combined with the stressors of being a new parent may increase the severity and duration of the parent's mental illness[6].

Maternal suicide is associated with PMH and in New Zealand (NZ) is the leading cause of maternal death in pregnancy or during the 6 weeks after birth or termination of a pregnancy[7]. Maternal suicide is seven times higher in NZ than in the United Kingdom (UK), and disproportionately affects young Māori women[7,8]. Pregnancy and immediately after birth is a period in which common mental health problems occur at increased prevalence, including relapses[9,10], increased risks of both suicide and infanticide[10], and in some instances mental health-related hospitalisation[11].

Parents with a range of mental health problems may have difficulties with parenting[12,13], and their children may be more likely to have social, behavioural, and emotional issues later in life[14,15]. Until recently, research has concentrated on the effects of maternal mental health. However, there is an increasing recognition that fathers' mental health during the perinatal period may play a unique role in their child's development and their family's well-being[16-18]. Importantly, poor outcomes are not inevitable for the parent or the child and may vary depending on the severity and duration of illness, access to culturally appropriate mental health services, and the timing and delivery of interventions[6,19,20].

PMH care may require access to several services including primary care, maternity care, substance use or addiction services, specialist mental health services, and social services. A culturally appropriate integrated care pathway involving communication between these services to create consistent care with equitable access was recommended in 2012[21]. This recommendation is consistent with international guidelines and has subsequently been endorsed by several NZ stakeholders[7,22]. There have since been some changes to services and training of healthcare professionals which prioritise maternal mental health and cultural competency in line with these recommendations[7,8]. However, the latest Perinatal and Maternal Mortality Review Committee report demonstrates that there have not yet been any downstream benefits of these changes for Māori maternal suicide prevention[7].

Although a range of mental illnesses can occur during pregnancy, most common are depression and anxiety[23-25]. Therefore, to address questions posed by the Ministry of Health as part of a review of the Well Child Tamariki Ora programme, these illnesses, during pregnancy and in the first year after birth, are the focus of this rapid review.

4.2 Search Methods

Systematic searches were conducted between 1 and 30 August 2019 using PubMed, Ovid Medline, the Cochrane Library, Embase, and PsycINFO (EBSCO). Our search was also broadened to include grey literature reports, as well as searches using the Informit database, the New Zealand Ministry of Health and Statistics New Zealand websites, and Google. All searches were limited to English language publications and human subjects.

Searches varied slightly depending on the database, but all included the search terms 'pregnancy', 'pregnant', 'prenatal', 'antenatal', 'perinatal', 'postnatal', 'postpartum', 'birth' AND 'mental health', 'mental disorders', 'depression', 'mood disorders', 'anxiety disorders', 'bipolar disorder', 'psychotic disorders'. All searches were initially conducted including 'New Zealand' as a search term. Where this search did not provide enough information to address a question, the 'New Zealand' search term was removed and the search expanded to include meta-analyses and systematic reviews published after 1 Jan 2010.

4.3 What is the prevalence of common mental health problems (depression, anxiety, psychosis, bipolar disorder) for parents during pregnancy and in the first year postnatally?

4.3.1 Prevalence of depression and anxiety in mothers and fathers

Depression is common during this period, often co-occurring with anxiety. As rates vary between studies, an accepted estimate is that it affects one in five mothers worldwide[26,27]. This is in part explained by the different measures used to detect depression, as well as varying socio-economic determinants. In NZ, there are no studies which quantify the prevalence of depression or anxiety according to clinical criteria. However, recent studies using the Edinburgh Postnatal Depression Scale (EPDS) screening tool[28] suggest rates of 12-15% during pregnancy[4,29,30] and 8% of mothers at 9 months postpartum[5]. Māori have higher rates than non-Māori, with recent data indicating 22% of Māori women screen positive for depression late pregnancy[4,31]. The prevalence for Pacific Island women is possibly even higher[32], but rates vary depending on the Pacific culture of origin: from 7.6% for Samoan, to 30.9% for Tongans, and also on the extent of assimilation[33].

It is estimated that around 30% of NZ women have significant anxiety during pregnancy[34], which may diminish postnatally, as one NZ study reports that only 7.7% of women had moderate or severe symptoms of anxiety nine months after their child's birth[35]. However, these two studies used different anxiety screening tools, which may account for some of the variation in prevalence between the two time points.

Prevalence data for other mental health problems in the perinatal period are scarce, but in 2017, 4,448 NZ women were referred to maternal mental health services during pregnancy or in the first postpartum year for severe or persistent metal health issues (approximately 7% of total births)[36,37].

Bipolar disorder is present in nearly 5% of NZ women aged 16-44, and affects more Māori and Pacific Islanders than other ethnicities[23]. Women who are taking medication for mood stabilisation may discontinue medication on recognition of pregnancy if concerned about its safety for fetal development[21]. Discontinuation is associated with a high risk of relapse. Meta-analysis suggests that two thirds of women with bipolar disorder who are medication-free will have a relapse postnatally, and

17% will have a severe episode[24]. Psychosis is rare in the general population (0.1-0.5%), but is significant perinatally, as women with schizophrenia are at high risk for psychotic relapse in the postpartum period (37.5% in one meta-analysis)[13].

The worldwide prevalence of perinatal depression in fathers is estimated to be 8%[38], but in New Zealand lower rates have been identified, varying between 2.3% antenatally and 4.3% postnatally[39]. Rates are likely to be higher among men whose partner has a depressive disorder[40-42]. An Australian study reported that 9.7% of first-time fathers likely meet criteria for an anxiety disorder at 6-8 weeks postpartum[43].

4.3 Summary

- ***Perinatal depression and anxiety are common in NZ mothers, particularly for Māori and Pacific women.***
- ***Lower levels of perinatal depression have been reported in NZ fathers than internationally, but there are few NZ studies of paternal mental health.***
- ***Perinatal anxiety in NZ fathers is unknown, but Australian prevalence data suggests that nearly 10% of first-time fathers may meet criteria for an anxiety disorder in the early weeks after birth.***
- ***There is no information available to determine if illnesses are newly diagnosed pre- or post-birth, or a relapse of an existing illness for any diagnosis.***

4.4 What is the impact of the common parental mental health problems on (1) parenting, including on the parent-child relationship/ attachment? and (2) child outcomes (cognitive, behavioural, social, and emotional)?

PMH problems are associated with a variety of effects on the offspring's behaviour, cognition and emotional development[6,44-48].These problems are not observed universally, but depend on the duration and severity of illness, and genetic and environmental factors[2,6,19,49,50]. Research generally focuses on maternal mental health[49,51-53] but emerging evidence suggests associations between the father's mental health and child outcomes as well.

4.4.1 Fetal and birth outcomes

A recent meta-analysis that examined birth outcomes in women with untreated depression (not receiving any pharmacological or non-pharmacological treatment) found depressed women were at higher risk of preterm delivery (<37 weeks and <32 weeks of gestation) and having a low birth weight infant (<2500 grams) compared to non-depressed women. A trend for greater risks with more severe maternal depression was also observed[54]. Symptoms of depression in pregnancy have also been associated with physiological changes that render the infant more vulnerable due to an altered stress response and lowered immunity, and more vulnerable than average to intrusive, hostile or withdrawn parental interactions[55].

4.4.2 Parenting and attachment

Healthy infant brain development depends on the interaction between genes and early experiences, and essential to these experiences are responsive interactions with adult caregivers. The extent of these interactions over time build neuronal connections in the brain that support early social development and a secure attachment to the caregiver and provide a strong foundation for later learning, behaviour and health[56-58]. Attachment is when a young child uses a caregiver as a secure base from which to explore and, when frightened or distressed a source of comfort and support[59]. A parent or caregiver's mental illness has been shown to interfere with these interactions when parents are non-responsive or withdrawn or through hostile, insensitive or intrusive responses[12,13]. Multiple studies have shown that secure patterns of attachment are related to more optimal cognitive, social and behavioural outcomes across childhood, whereas two meta-analyses[60,61] found maternal mental illness is associated with disorganised attachment (a form of insecure attachment). Clinically diagnosed postnatal depression (PND) is associated with an increased likelihood of insecure attachment[6] and in severe cases with rejection of the infant[62].

Both depression and anxiety in the perinatal period have been associated with lower maternal parental self-efficacy (self-confidence in parenting ability)[63], which in turn can predict parental competence, adjustment, and child outcomes[64]. Mothers and fathers with symptoms of depression are less likely to engage in positive parenting behaviours[65]. Compared to non-depressed parents they display less verbal, physical and eye contact with their infants, are less likely to follow healthy sleep and feeding practices and may breastfeed for a shorter duration, and less frequently engage in activities such as singing, reading and playing outside with their child[65-67]. Mothers with depression score poorly on measures of maternal sensitivity compared to those who are not depressed, and are more attuned to negative emotions and less to positive emotions in their infants[66,68].

4.4.3 Child outcomes of parents with perinatal depression and anxiety

Meta-analysis indicates that maternal postnatal depression (PND) increases the odds of a child being hospitalised, and almost doubles their risk of death in the first year of life[69]. Further differences between offspring of women with and without depression begin in infancy, with depressed women's children less likely to express joy and rated as being more fearful and fussy[70,71]. This finding may contribute to bonding difficulties between mother and infant.

Children of mothers with depression or anxiety that occur during pregnancy or depression that occurs in the postnatal environment remain at increased risk for behavioural difficulties throughout childhood and adolescence[44,47,48,71]. A number of studies have examined the effects of both antenatal depression (AND) and PND on child cognitive, social and emotional development and internalising and externalising behaviour. Social development is the development of a child's social skills such as perspective taking, empathy and cooperation. Emotional and behavioural research in older children is usually associated with internalising and externalising problems with internalising referring to symptoms or diagnoses of depression and anxiety and externalising referring to attention deficit hyperactivity disorder (ADHD), oppositional defiant disorder and conduct disorder or symptoms of these.

Longitudinal studies have shown that AND is associated with an increased risk for child emotional problems; both maternal self-reported symptoms and depressive disorder are associated with increased risk of clinical depression in late adolescence. Infants of mothers with PND have an increased risk of difficulties in early emotional regulation and social behaviour[44,47]. Associations later in childhood may depend on concurrent maternal depression[71]. Longitudinal studies also show associations between PND

and social and emotional outcomes across a number of developmental domains and age ranges[6,72,73], including internalising disorders, poor social competence in school years, and an increased risk of depression during adolescence.

Multiple studies have reported associations between AND and difficulties in child externalising behaviour including ADHD, oppositional defiant disorder and conduct disorder or symptoms of these. Longitudinal studies provide evidence that symptoms and disorders of PND are associated with child externalising behaviour, particularly ADHD up to age 16[6,73]. Self-reported symptoms of maternal anxiety both antenatally and postnatally are associated with externalising disorders in childhood[74].

Meta-analyses demonstrate a relatively small negative association between maternal perinatal depression and offspring cognition throughout childhood[6,44-46], with some corresponding effects on school achievement in adolescence, particularly for boys[71]. Many studies describe a negative association between maternal depressive symptoms and child language development, potentially as a result of changes to parent-child interactions early in life[75].

Although the recognition of the importance of father's mental health is emerging, there is little evidence to date. Fathers can affect child outcomes through genetics, and also of importance are the quality of his interactions with the child, support to the mother, and contributions to the family environment. Both AND and PND show some evidence for poorer outcomes, and although there is evidence that paternal and maternal depression in the postnatal period have similar effects on behavioural outcomes, maternal depression has a greater risk for child emotional outcomes[6].

Most studies focus on psychological effects of parental mental health problems, but there is some evidence that maternal depression in the perinatal period is associated with preschool-age obesity[76]. However, there is a lack of high-quality data to elucidate the contributions of environmental factors to this relationship.

4.4.4 Anxiety

Anxiety and depression commonly co-exist, and few studies examine the individual effect that anxiety may have on child outcomes. Antenatal anxiety has been associated with increased offspring anxiety, internalising and externalising behaviour and emotional difficulties in childhood[6,50,77], while effects of postnatal anxiety have been observed as greater distress, hyperactivity and emotional problems for infants up to two years of age[6,50,53]. One systematic review reported no evidence that anxiety in the perinatal period is related to child cognition[6], but measures of perceived stress during pregnancy have been associated with an increased risk of depression for offspring 11 years later, with children born small for gestational age particularly vulnerable to this effect[78].

4.4 Summary

- ***Mental health problems in the perinatal period can affect parents' ability to engage in positive parenting behaviours.***
- ***Parental mental health problems put children at risk for long-term adverse effects on their social-emotional development and internalising and externalising behaviour and to a lesser extent cognitive development.***
- ***Child outcomes vary depending on the severity of depression and anxiety and the extent of other life stressors.***

4.5 What is the reported accuracy of screening tools to detect antenatal and postnatal mental health problems?

A history of mental health problems is the strongest predictor of poor PMH[79]. If this history can be identified antenatally, there is an opportunity to refer preventatively for women at risk of deterioration in mental health, including those with bipolar disorder and psychotic illnesses, for whom illness recurrence may heighten the risk for mother and baby[37,80,81].

Early detection of depression and anxiety during the perinatal period using a standardized screening tool results in better outcomes than simple clinical assessment[82-84]. For instance, lead maternity carers' (LMC) estimations of mothers' distress correlate poorly with mothers' self-report[85]. While screening is desirable for fathers and any primary caregiver, regardless of their biological relationship to a child, antenatal care and the relationship with the LMC offers an opportunity to do this systematically. However, at this point there is no universal screening for maternal mental health and LMCs reports and research suggest there are a number of barriers to universal screening at this time[86-88].

Given the transience of mood and anxiety in the perinatal period, repeat screening is recommended for early identification and to ensure help is sought for enduring distress[89]. International guidelines suggest that antenatal screening should be undertaken as early as practical in pregnancy and repeat screening at least once later in pregnancy. Postnatal screening is recommended 6–12 weeks after birth and again at one further time within the first postnatal year[80].

Diagnostic assessment may be an important part of screening follow-up[80] as some women who screen positive for depression may have non-specific distress or other psychiatric disorders including bipolar disorder rather than unipolar depression[90,91].

4.5.1 Screening for depressive disorders

Four screening tools for depression in the antenatal and postnatal period are commonly cited: the Edinburgh Postnatal Depression Scale (EPDS), the depression module of the Patient Health Questionnaire (PHQ-9), the Whooley Questions and the Kessler Psychological Distress Scale (K-10)[80]. In New Zealand, research has been conducted using the EPDS, the K-10, and the PHQ-9.

The EPDS is the most widely used perinatal screening tool[26,82] and the most commonly recommended in international guidelines[80,92]. The scale consists of 10 questions relating to symptoms of depression and has a maximum score of 30 (Appendix I). Cut-off scores vary, but ≥ 12 is most common and has good sensitivity and specificity for identifying people with probable depression[29,90,93].The final question of the EPDS enquires about self-harm and a positive response to this question could indicate maternal risk even with a low overall score.

In many cases elevated EPDS is transient, and around half of women who have an elevated score in pregnancy will no longer score above the cut-off two weeks later[26,51,89,94]. In contrast, two elevated scores at different time points are more likely to predict those who will go on to seek mental health treatment[51,90]. Nausea and fears of miscarriage are common in the first trimester of pregnancy and may contribute to transient elevated EPDS scores[89].

The EPDS has been used to estimate prevalence of AND in NZ fathers[39], but lower cut-off scores are recommended as depression presents differently in men, with greater anger and irritability, as well as being masked by interpersonal conflict, and drug and alcohol use[17].

The PHQ-9 consists of nine questions that assess the presence of depressive symptoms (Appendix I). Studies which compare it to the EPDS suggest high concordance[95]. There are fewer studies which examine its use in the perinatal period, but it is in common use in primary care and has been demonstrated to perform adequately in a NZ population[96]. It has also been used in NZ in an electronic format for patients who screened at risk for depression on an 'eCHAT' online screening tool[97]. Electronic self-administration can overcome poor screening practices, facilitate disclosure and improve dialogue with clinicians[97].

Use of pen-and paper to undertake screening is at risk of significant scorer error (up to 29% in one study[98], and a small number of studies have demonstrated that electronic screening (e-screening) may have several advantages. In addition to greater reliability, e-screening has been described as helping with poor literacy, overcoming concerns about privacy and is time-efficient[99,100]. Despite the appeal, e-screening remains within the research space, as it does not overcome high false positive rates and high costs of screening[101].

4.5.2 Screening for anxiety disorders

There are many aspects of anxiety in the perinatal period which set it apart from anxiety in the general population, including fear of childbirth and worry about being a good mother. Furthermore, physiological symptoms of anxiety may be missed in pregnancy, and sleep deprivation may exacerbate symptoms. As a result, few screening tools for anxiety have been validated for perinatal use[102] and none are currently recommended in current international guidelines[80].

Though not specifically designed to detect anxiety disorders, the EPDS includes three items that relate to symptoms of anxiety, which create an anxiety subscale, known as EPDS-3A[103,104]. This has been shown to be a better predictor of an anxiety disorder diagnosis than four other anxiety screening tools with the exception of the Matthey Generic Mood Questionnaire (MGMQ)[104].

4.5 Summary

- ***Asking about a history of mental illness is essential at the first antenatal visit.***
- ***The Australasian COPE guidelines suggest routine screening should be conducted as early as practical antenatally and at least once later in pregnancy. After delivery, screening should be undertaken again in the first six to twelve weeks, and again later in the first postnatal year.***
- ***Both the EPDS and the PHQ-9 have been used as screening tools in New Zealand studies. The EPDS has a larger, international evidence base, has been evaluated in Pacific women and may also have value in detecting anxiety disorders. However, a high score on the EPDS is not diagnostic, but suggests that a further assessment needs to be undertaken.***
- ***E-screening using the PHQ-9 may be feasible in primary care settings in NZ to support decision-making for further assessment and intervention. This has not been tested in a perinatal setting.***
- ***There are a range of general anxiety and pregnancy-specific anxiety screening tools, but more research is needed to determine the best approach.***

4.6 Are there effective interventions for screen detected mental health problems antenatally and postnatally, and do they improve child outcomes?

While approaches to the prevention and treatment of mental health conditions during the perinatal period do not differ greatly to interventions at other times in a woman's life, potential for harm to the fetus and the breastfed infant must be balanced against the potential harms associated with untreated illness. Mothers with depression are often younger, less well-educated, socially isolated and more burdened by substantial family conflict than mothers without depression. Mothers who report chronic depression are more likely to experience more adversity including intimate partner violence, poorer health, and to have co-morbid anxiety and substance abuse problems[2,4,26,33,105-107]. Therefore, more complex interventions may be required to target different ages and treat multiple risks.

4.6.1 Barriers to treatment

Despite identification of PMH problems through screening, there is a low uptake of follow-up appointments and recommended interventions[80]. Only half are likely to attend follow-up appointments[80,108]. NZ data indicate that around 30% of those scoring >12 on the EPDS either do not want help or do not know how to access it[93]. Poor access to resources, transport, and social support, as well as perceptions of stigma and cultural inadequacy of services suggest that those at highest risk for mental health problems may be least likely to access care[109].

Fathers in general have fewer opportunities or expectations to engage with healthcare services in the perinatal period. Further, many value self-reliance and believe that mental health problems are something they should 'just deal with'[110].

4.6.2 Non-pharmacological Interventions

Non-pharmacological intervention should be considered first line for mild-to-moderate mental health problems, particularly in early pregnancy[84]. There is good evidence that psychoeducation, support, sleep hygiene, physical activity and guided self-help approaches can have positive effects on symptoms of mild to moderate PND[111].

4.6.3 Psychological Interventions

For people who have not responded to the psychosocial interventions, or with more severe symptoms, there are several psychological interventions for treating depression, of which cognitive behavioural therapy (CBT) and interpersonal psychotherapy (IPT) appear to have the most robust evidence base[111] and produce the largest effects on symptoms of depression in the perinatal period[112]. Both IPT or CBT are more effective than treatment as usual in reducing depression diagnosis, but long-term effects are more equivocal[22]. Behavioural activation, couples' therapy and mindfulness-based therapies are recognised alternatives, though there is perhaps less evidence of effectiveness at this stage[111].

IPT had no significant effect on parenting when women with AND were targeted[113], but was associated with a higher likelihood of secure attachment and higher intelligence scores in one study of toddlers of women with PND[113]. There is some evidence that antenatal CBT improves child behaviour and self-regulation at 9 months when delivered antenatally[113], but effects were not sustained into childhood in this study.

Home visiting programmes (HVP), have been successful in helping mothers develop sensitive, responsive parenting skills that facilitate infant development, particularly among low-income mothers, but are less successful with depressed mothers[114]. However, an adaptation of HVP, In Home CBT (IH-CBT) has shown promising outcomes. In an ethnically diverse sample of mothers and 5 month-old babies randomly assigned to HVP or IH-CBT, mothers receiving IH-CBT were less likely than mothers receiving HVP alone to meet diagnostic criteria for major depressive disorder at posttreatment (IH-CBT 29.3% vs home visiting 69.8%), reported fewer depressive symptoms 20.5% vs 52.6%, and obtained lower clinician ratings of depression severity.

A meta-analysis of programmes targeting fathers in the perinatal period found a lack of support and tailored treatment options for men. Of the limited options available, CBT, group work and blended delivery programmes, including e-support approaches were most effective in helping fathers with perinatal depression and anxiety[17]. There is no current data to indicate how many fathers with mental health problems in the perinatal period engage with treatment services in NZ.

4.6.4 Pharmacological interventions for depression and anxiety

Prescription of any psychiatric medication during pregnancy or breastfeeding should involve discussion of risks and benefits to the mother and baby and, ideally, consultation with maternal mental health services[80,84,92].

Antidepressants are a first-line treatment for adults with moderate-to-severe depression, including pregnant women[92,111]. Though long-term effects have not been fully clarified in the literature[115], most selective serotonin reuptake inhibitors (SSRI) and some tricyclic antidepressants are considered safe during pregnancy[92,116,117] and breastfeeding[92,118]. For women already taking antidepressants when they begin pregnancy, continuation of medication is recommended to prevent relapse of illness[119], however there may be need to consider the appropriateness of specific medications[118].

There is good evidence for the efficacy of antidepressants[111], however, there are few high-quality longitudinal studies comparing antidepressant use perinatally to alternative or no treatment for depression, and most published data focusses on the safety of medications rather than potential benefits of successful treatment[80,120,121]. One meta-analysis reported an increased likelihood of behavioural difficulties in children of women who took antidepressants compared to women who were healthy during pregnancy, but not compared to women with untreated mental health problems[117]. However, they did not compare mothers' treatment outcomes with later child outcomes.

Moderate-to-severe anxiety disorders may also be managed with SSRIs in the perinatal period, based on evidence that they are effective for managing anxiety in general adult populations[111] and appear to be safe during pregnancy and breastfeeding[80,92,116,117]. Very few studies of perinatal SSRI use include participants with anxiety, so little is known about their long-term effects on child development. Antidepressants in combination with CBT can produce better results than either approach alone for treatment of either depression or anxiety[111], and CBT is often introduced once antidepressant drug effects are established[80].

4.6.5 Other considerations

It is important to note that many women will decline, or chose to discontinue, medication in pregnancy regardless of healthcare providers' recommendations[122], and international data suggest that few of these women will access non-pharmacological treatment as an alternative[123].

4.6 Summary

- ***People who screen positive for mental health problems in the perinatal period may not attend further appointments for assessment or intervention.***
- ***Non-pharmacological and pharmacological treatments are effective in perinatal populations and some show promise for improving child outcomes, however, women often choose to stop taking prescribed medications during pregnancy and don't replace medications with non-pharmacological interventions.***

4.7 What do we know from a Māori and Pacific knowledge basis about screening (including consent process, reliability and construct validity), as well as cultural perspectives on assessment, diagnosis and treatment?

Māori, Pacific (and Asian) women have higher rates of mental health problems in the perinatal period[4,5,93] and also experience the poorest maternal and fetal outcomes[7]. No data is available on the mental health of fathers and non-parental caregiving.

4.7.1 Screening

Ensuring psychometric and cultural validity of perinatal screening tools is also needed. It is recognised internationally that the EPDS has a highly variable sensitivity (34%–100%) and specificity (44%–100%) amongst different ethnic groups internationally[124]. The psychometric properties of the EPDS have been validated in a Pacific population[125], but not in Māori. In addition, cultural validation has not been performed for any perinatal screening tools. Qualitative studies of other pen-and-paper questionnaires suggest that this may be culturally inappropriate, and a general conversation and relationship building are needed prior to disclosure of sensitive information[126].

4.7.2 Cultural perspectives on assessment, diagnosis and treatment

To date, there is no published research which informs our understanding of this area. There are epistemological, theoretical, and political aspects to the delivery of mental health care, which would be expected to be of seminal importance to the care of parents and infants.

Persistent stigma about mental illness reduces help-seeking in people who are experiencing distress. Negative experiences of health care professionals[105] and a reliance on seeking advice from friends and family rather than services[127] also contribute to lower rates of seeking advice from health professionals.

Incorporation of cultural beliefs and values into mental health practices has been actively pursued since the 1980's, as a biomedical model of diagnosis and interventions are not satisfactory for Māori, for

whom identity and relationships can be central to healing[128]. Practices to address mental illness which are inclusive of families have been reported to be of significance to women of many ethnicities[129], but are central to care provision for Māori and Pacific, for whom family are central in providing support and advice[130].

International evidence shows that only one third of women find taking antidepressants during pregnancy an acceptable treatment option[131]. Lower rates of antidepressant use in Māori has been identified generally[132], which suggests that undertreatment may be a significant issue when Māori women are seeking help. The Eleventh Perinatal and Maternal Mortality Review Committee report[8] had a specific focus on Māori women. In this, the Māori Caucus made recommendations about the urgent need to improve awareness, responsiveness and introduce antenatal screening for risk.

As the perinatal period is a time of heightened cultural significance[133], the need for more research into delivery of PMH care is needed, particularly research employing kaupapa Māori methodologies.

4.7 Summary

- ***Higher rates of PMH problems are seen in Māori, Pacific and Asian populations***
- ***Screening is recommended but evaluation of cultural validity is incomplete***
- ***Mild-to-moderate illnesses in particular may have culture-specific solutions***
- ***Access to health services and evidence-based interventions for serious illness is lower for Māori than for Non-Māori.***

4.8 Recommendations for further action

Policy and practice

- Universal screening is needed to identify depression and anxiety at the first antenatal visit, and repeatedly over the course of pregnancy and in the first year after birth.
- Prevention services are needed which improve maternal symptoms of depression, anxiety and distress antenatally, as intervening before birth appears to have greater positive effect on child outcomes.

Further research

- Research is needed to validate and determine the acceptability of measures of mental illness in Māori and Pacific that might include the EPDS and/or PHQ-9.
- More research is needed to determine the barriers to the uptake of PMH care, particularly in Māori, Pacific, and Asian populations.
- More longitudinal research into interventions specifically designed to treat depression and anxiety are needed, including interventions that are informed by Māori and Pacific cultures and parenting practices, and the unique needs of fathers in general.

4.9 Graded evaluations

Table 4.1. Graded evaluation of screening tools and associated recommendations for policy and practice.

Screening tool	Grade	Estimated net benefit	Level of certainty	Recommendation
EPDS	C	Moderate	Moderate	Recommended for women and is in wide use internationally. There are concerns about using it in men and in different cultural groups.
PHQ-9	B	Moderate	Moderate	Recommended for both parents, both perinatally and outside of the perinatal period. It needs to be validated to determine the optimal cut-off score for Māori, Pacific, Asian people.

Grade: A, B, C, D, or I.
Estimated net benefit: substantial, moderate, small, nil or harmful, or insufficient (evidence).
Level of certainty: high, moderate, or low
For more detailed explanation see Supplementary Information - Grade definitions and levels of certainty.

Table 4.2. Graded evaluation of interventions and associated recommendations for policy and practice.

Intervention	Grade	Estimated net benefit	Level of certainty	Recommendation
Education	B	Moderate	Moderate	This should be available to all parents at first antenatal visit and links to website(s) for further information.
Cognitive behavioural therapy (CBT)	A	Moderate	HIgh	Dependent on diagnosis and severity of illness. This intervention should be available for every person who needs it.
Interpersonal psychotherapy (IPT)	A	Moderate	Moderate	Dependent on diagnosis and severity of illness. This intervention should be available for every person who needs it.
Antidepressants	A	High	High	Dependent on diagnosis and severity of illness. This intervention should be available for every person who needs it.

Grade: A, B, C, D, or I.
Estimated net benefit: substantial, moderate, small, nil or harmful, or insufficient (evidence).
Level of certainty: high, moderate, or low.
For more detailed explanation see Supplementary Information - Grade definitions and levels of certainty.

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Appendix I – EPDS and PHQ-9

EPDS

In the past 7 days:		
1.	I have been able to laugh and see the funny side of things	As much as I always could Not quite so much now Definitely not so much now Not at all
2.	I have looked forward with enjoyment to things	As much as I ever did Rather less than I used to Definitely less than I used to Hardly at all
*3.	I have blamed myself unnecessarily when things went wrong	Yes, most of the time Yes, some of the time Not very often No, never
4.	I have been anxious or worried for no good reason	No, not at all Hardly ever Yes, sometimes Yes, very often
*5.	I have felt scared or panicky for no very good reason	Yes, quite a lot Yes, sometimes No, not much No, not at all
*6.	Things have been getting on top of me	Yes, most of the time I haven't been able to cope at all Yes, sometimes I haven't been coping as well as usual No, most of the time I have coped quite well No, I have been coping as well as ever
*7.	I have been so unhappy that I have had difficulty sleeping	Yes, most of the time Yes, sometimes Not very often No, not at all
*8.	I have felt sad or miserable	Yes, most of the time Yes, quite often Not very often No, not at all
*9.	I have been so unhappy that I have been crying	Yes, most of the time Yes, quite often Only occasionally No, never
*10.	The thought of harming myself has occurred to me	Yes, quite often Sometimes Hardly ever Never

Response categories are scored 0, 1, 2, and 3 according to increased severity of the symptom. Items marked with an asterisk (*) are reverse scored (i.e. 3, 2, 1, and 0). The total score is calculated by adding together the scores for each of the ten items.

PHQ-9

Over the last 2 weeks, how often have you been bothered by any of the following problems? *(Use "✔" to indicate your answer)*	**Not at all**	**Several days**	**More than half the days**	**Nearly every day**
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

FOR OFFICE CODING 0 + _____ + _____ + _____
=Total Score: _____

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all	**Somewhat difficult**	**Very difficult**	**Extremely difficult**
☐	☐	☐	☐

Developed by Dr Robert L. Spitzer, Dr Janet B.W. Williams, Dr Kurt Kroenke and colleagues.
https://www.phqscreeners.com/sites/g/files/g10016261/f/201412/PHQ-9_English.pdf

Supplementary Information - Grade definitions and levels of certainty

Table S1. Grade definitions for screening tools and interventions

Adapted with permission from the U.S. Preventive Services Task Force 2012.[i]

Grade	Definition	Recommendation for policy and practice
A	• The authors recommend this screening tool/intervention. • There is high certainty that the net benefit is substantial.	• This screening tool/intervention should be offered or provided.
B	• The authors recommend the screening tool/intervention. • There is high certainty that the net benefit is moderate, or there is moderate certainty that the net benefit is moderate to substantial.	• This screening tool/intervention should be offered or provided.
C	• The authors recommend selectively offering or providing this screening tool/intervention to patients based on professional judgment and patient preferences. • There is at least moderate certainty that the net benefit is small.	• This screening tool/intervention should be provided for selected patients depending on individual circumstances.
D	• The authors recommend against this screening tool/intervention. • There is moderate or high certainty that the screening tool/ intervention has no net benefit or that the harms outweigh the benefits.	• The authors discourage the use of this screening tool/intervention.
I	• The authors conclude that the current evidence is insufficient to assess the balance of benefits and harms of the screening tool/intervention. • Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.	• If the screening tool/intervention is offered, patients should understand the uncertainty about the balance of benefits and harms.

Table S2. Levels of certainty regarding net benefit

Adapted with permission from the U.S. Preventive Services Task Force 2012 [1].

Level Of Certainty	Description
High	• The available evidence usually includes consistent results from well-designed, well-conducted studies in representative populations. • These studies assess the effects of the preventive service on health outcomes. • This conclusion is therefore unlikely to be strongly affected by the results of future studies.
Moderate	• The available evidence is sufficient to determine the effects of the preventive service on health outcomes, but confidence in the estimate is constrained by such factors as: – the number, size, or quality of individual studies; – inconsistency of findings across studies; – limited generalizability of findings to routine practice; – lack of coherence in the chain of evidence. • As more information becomes available, the magnitude or direction of the observed effect could change, and this change may be large enough to alter the conclusion(s).
Low	• The available evidence is insufficient to assess effects on health outcomes, because of: – the limited number and/or size of studies; – important flaws in study design and/or methods; – inconsistency of findings across individual studies; – gaps in the chain of evidence; – findings not generalizable to routine practice; – lack of information on important health outcomes. • More information may allow estimation of effects on health outcomes.

[i] https://www.uspreventiveservicestaskforce.org/Page/Name/grade-definitions