Perinatal Mental Health Project
Caring for Mothers. Caring for the Future.

Screening for Common Perinatal Mental Disorders in South Africa

The need, the research, the tool. Let's do it.

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The Perinatal Mental Health Project (PMHP) is an independent initiative based at the University of Cape Town. It is located within the Alan J. Flisher Centre for Public Mental Health. The Project has been operating since 2002 and provides mental health services in public maternity facilities in Cape Town as well as builds capacity among health, social and development workers, conducts research and engages in advocacy and policy development activities.

Alan J. Flisher Centre for Public Mental Health

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Executive summary and the tool

Common perinatal mental disorders (CPMDs): depression and anxiety, directly impact a staggering 21-39% of South African mothers, which results in significant, intergenerational, wide-reaching effects on the health of both women and their children.[1–6] The short and long-term impacts of anxiety and depression are magnified during the perinatal period, with outcomes including premature delivery, low birth weight, poor child cognitive development, stunting, social and emotional behavioral issues in childhood and beyond, and a myriad of other social problems.[3]

However, the perinatal period also offers several important contact-points for prevention, detection, treatment and education for CPMDs for vulnerable women. Pregnant women are more likely to access health care during this period, such that prevention and management for CPMDs are not only feasible, but essential.

Screening for CPMDs in antenatal settings is an essential first step in meaningfully addressing this health burden. While globally, varying guidelines for CPMD screening exist, mounting evidence demonstrates how it can be an important feature of an integrated approach to antenatal care in South Africa.

This briefing document aims to convince senior health officials and stakeholders to generate pragmatic and evidence-based policy, guidelines and standard operating procedures (SOPS) for maternal mental health screening that are consistent with achieving existing South Africa's policy goals.

To support this effort, the Perinatal Mental Health Project (PMHP) at the University of Cape Town has, over several years, developed a locally validated and tested ultra-short CPMD screening tool that can be administered by non-specialist care providers in the antenatal primary care setting:

Validated CPMD Screening Questions for use in South African Settings

In the last 2 weeks, have you on some or on most days:

	Questions	**YES**	**NO**
1	Felt unable to stop worrying, or thinking too much?		
2	Felt down, depressed or hopeless?		
3	Had thoughts **and** plans to harm yourself or commit suicide?		

The document will argue the feasibility and beneficial impact of this screening and show:

- mental health screening is highly acceptable among women
- mental health screening is highly acceptable among health care providers
- the addition of a risk factor assessment can assist with streamlining and targeting interventions, including prevention activities
- CPMD screening will not necessarily overburden strained health resources
- CPMD screening facilitates appropriate follow-up and referral when integrated into primary care
- CPMD screening requires supportive health system elements while CPMD screening is likely to be cost-effective
- CPMD screening improves health outcomes
- offering CPMD screening has positive impacts independent of follow-up

South Africa has made forward strides in developing policy to improve both maternal health and mental health care, which include objectives to integrate mental health care and maternal mental health care into the general health service environments. However, details on detection of CPMDs are absent from guidelines and programme procedures. Even without large budget investments, stepped and collaborative screening and care for mothers experiencing mental health problems is feasible and possible within the public health sector. This can be achieved through capacity building and task sharing, and with optimization of available resources.

Updating guidelines to include evidence-based CPMD screening will allow health services to fulfill their objectives and represent a critical investment in ensuring a healthy future for South Africa's mothers and their children.

1. The South African policy environment

Integrating mental health into general health care, including maternity care, has been recognized by South African policy makers as a valuable strategy that effectively and feasibly leverages available resources.

South Africa's health policies mandate integrated perinatal mental health care.

Integrated maternal mental health interventions, which include mental health screening for CPMDs, can feasibly be incorporated into routine physical health screening procedures at community level and within most priority programme areas at the primary health care level.[7] Further, there is a wide body of evidence from low resource settings demonstrating that non-specialist health workers can provide brief, effective interventions for common mental disorders.[8,9]

One of the key objectives of South Africa's Mental Health Care Act 2002 (No. 17 of 2002) is to *integrate the provision of mental health care services into the general health services environment*.[10] This is further supported by the subsequent National Mental Health Policy Framework and Strategic Plan 2013-2020,[11] in which maternal mental health is incorporated into the general health environment, including through the treatment of perinatal depression and anxiety within antenatal and postnatal clinics. The policy states:

> *Specified micro and community level mental health promotion and prevention intervention packages will be included in the core services provided, across a range of sectors, to address the particular psychosocial challenges and vulnerabilities associated with different lifespan developmental stages. These will include:*
>
> - ***Motherhood**: treatment programmes for maternal mental health as part of the routine antenatal and postnatal care package; and programmes to reduce alcohol and substance use during and after pregnancy.*
> - ***Infancy and Early childhood**: programmes to increase maternal sensitivity and infant-mother attachment.*
>
> *Introduce routine indicated assessment and management of common mental disorders in priority programmes at PHC level, among others, antenatal mothers and postnatal care.*

In addition, the South African National Development Plan 2030 (2012)[12] makes specific reference to early childhood development by emphasizing the importance of the first 1000 days of life, describing how pregnant women need access to both emotional and material support, and explaining that empowered mothers lay a solid foundation for healthy children.

2. Guidelines, Standard Operating Procedures and Stationery

Despite policies emphasizing the importance of integrating mental health care into primary care, and specifically into maternal care, current national guidelines do not address CPMD screening, an essential aspect of any effort to implement the policies successfully.

The Adult Primary Care guidelines (APC) 2016/2017[13] have been adopted by the National Department of Health and form part of Ideal Clinic programme. Although risk screening is not advocated, the APC indicates that 'mental health' should be assessed at the booking visit and at every follow up visit, including during postnatal care.*****

These guidelines provide two questions which are amended versions the British Whooley screening tool[14] and pertain, for the past month, to being down, depressed or hopeless or having little interest/pleasure in things. An endorsement of one or more of these two items leads to the "Depression and Anxiety: Diagnosis" page which proscribe another set of questions to assess for depression. This page has several weaknesses which include; mention of anxiety only within the context of trauma or phobia and reliance, for diagnosis of depression, on many somatic features which may ordinarily be prominent in the perinatal period. The routine care page for depression and/or anxiety has an evidence-based, stepped care approach for primary level provider engagement and treatment.

On the other hand, the current Maternal Care Guidelines include only a vague reference to mental health.[15] There is no reference to assessing or documenting current mental state nor recommendations regarding stepped referral for mental health care; instead, the document states:

> *If a woman is considering pregnancy, the following considerations will assist in preparing her in terms of her own health and that of the baby that will be conceived:*
>
> - *Social, economic and family issues*
> - *Mental health issues*
>
> *At the first visit take a full and relevant history including:*
>
> - *Medical conditions, including psychiatric problems, and previous operations*
> - *Family and social circumstances*

A brief and validated screening tool designed to identify CPMDs in South African perinatal women would be a valuable addition to update APC and for inclusion in the Maternal Care Guidelines. This would be strengthened by the development of supporting standard operating procedures and amendments to relevant stationery, especially **the Maternity Case Record**.

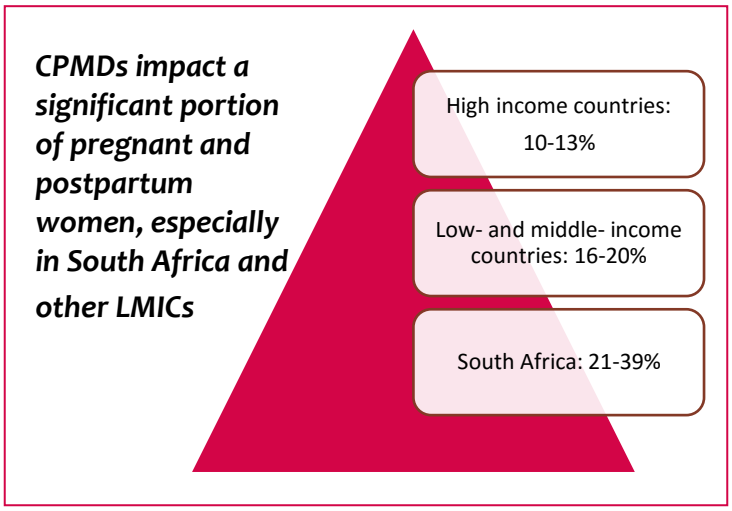
In the future, integrating screening into existing mobile health platforms, such as MomConnect and NurseConnect, may facilitate population coverage, ease of administration, and linkage to mobile management strategies and referral algorithms.

* A prior version of the PMHP screening tool has been incorporated in to the Western Cape version of APC, called Practical Approach to Care Kit – Adult (PACK), and the updated PACK-Adult will include the latest PMHP tool.

3. Common Perinatal Mental Disorders: the burden and the impact

Very high burden of common perinatal mental disorders

In the perinatal period, (the time during pregnancy and throughout the first postpartum year), women confront **increased psychological vulnerability** to both new and worsening common mental disorders; depression and anxiety.[16,17] These common perinatal mental disorders (CPMDs) affect 15.9% of pregnant and 19.8% of postpartum women in low and middle income countries, a significantly higher rate than the 10% of pregnant and 13% of postpartum women with CPMDs in high-income countries.[16]

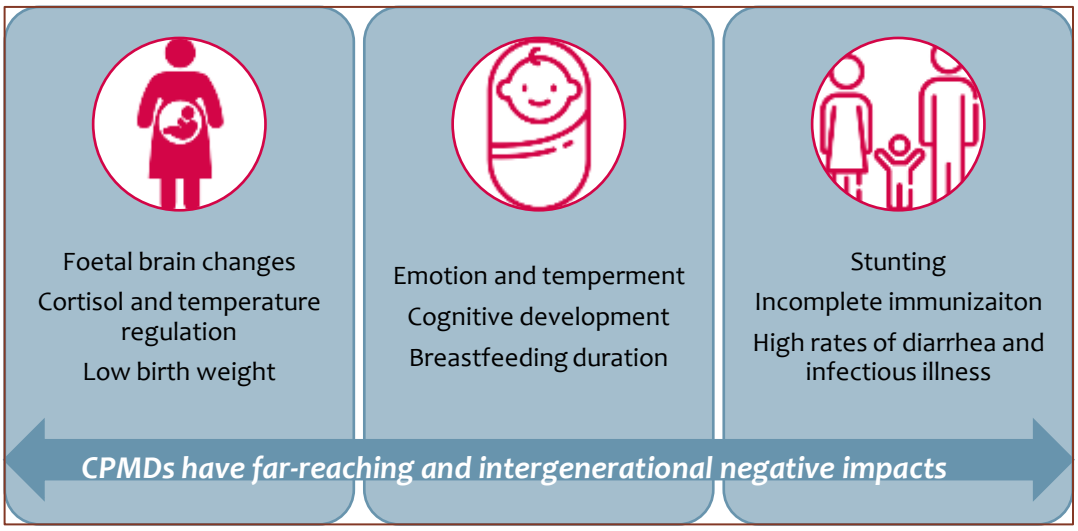


Studies conducted in South Africa show even higher prevalence rates, with depression found in an estimated 22% (diagnosed)[1] to 39% (screened)[2] of pregnant women and 34.7% (screened)[4] of postpartum women in Cape Town, 47%[5] (diagnosed) of pregnant women in rural South Africa, and 21%[6] (screened) in the Western Cape.

A recent South African study (Hanover Park, Cape Town) found a **33%** prevalence of diagnosed of CPMD.[2,18] In the same study, there was a prevalence of suicidal ideation and behavior of 18%.[18,19]

Intergenerational impacts for both mothers and their children

Studies have linked untreated CPMDs to a **wide range of negative outcomes for mother and child, from foetal stages to childhood and beyond**. While common mental disorders in the perinatal period may be either new onset or continuations of disorders, the outcomes of these disorders are magnified in the perinatal period.[20] These include impacts on the development of the foetal brain, premature delivery, lower birth weight, impaired infant cortisol and temperature regulation, negative emotional, cognitive and temperamental development, and shorter duration of breastfeeding.[20–28]



Maternal mental disorders are linked to adverse outcomes in children such as poor cognitive development and performance in school, emotional and social behavior problems, significant psychological difficulties, decreased growth, incomplete immunizations, and higher rates of diarrhoea, stunting, infectious illness and hospital admission. [20–29] Increases in children's emotional and behavioral problems are linked to maternal depression after controlling for later maternal mental health problems.[3] In addition, negative outcomes persist into adolescence, with maternal CPMDs linked to increased risk in their offspring of internalizing symptoms such as depression and anxiety disorders, and antisocial behavior.[28,30]

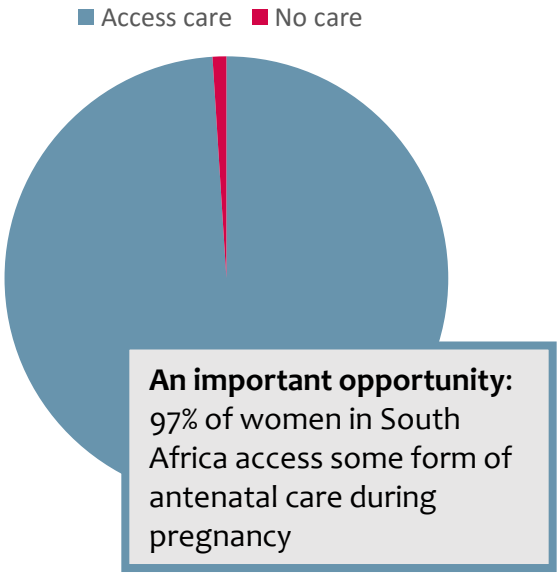
Not only are these negative impacts significant, **they have multigenerational effects** on family unit functioning, next generation health outcomes and chronic health conditions. Many of these outcomes are particularly pronounced in low income settings, and *independent of other factors* like malnutrition, chronic social adversity and poverty.[20–28] Importantly, factors leading to these outcomes are modifiable, emphasizing the importance of early detection and treatment of CPMDs.[28]

4. The Development of a brief South African Screening Tool for CPMD

Why? Perinatal women have increased health care contact opportunities

SCREENING IS A CRITICAL ENTRY POINT TO CARE
For common mental disorders, including depression and anxiety, screening represents a critical entry point to care. **This is particularly true when health providers are not skilled in other forms of detection and when disorders are not clinically manifest.**

Despite the high prevalence and far-reaching impacts of CPMDs, few women receive adequate treatment. Pregnancy provides an **opportunity for prevention, detection, treatment and education for vulnerable women**. Pregnant women in South Africa have frequent health care visits during pregnancy, with 97% of pregnant women accessing some type of antenatal care.[20,23,31] There is thus great opportunity to leverage this increased contact with caregivers to ensure that women suffering from both new and continuing common mental disorders may have access to care. A further opportunity is that during pregnancy, women may be more **highly motivated to pursue health treatment** in order to achieve positive outcomes for their children.[20,23]



Local tool reflecting real world local realities

Effectively screening for CPMDs in low resource settings requires a tool that is brief, locally validated, simple to use, culturally relevant and transdiagnostic. Screening tools created and validated in high income settings rely on an interpretation of mental disorders that are not necessarily directly applicable in low income settings. Hence, cultural translation of depression screening has been shown to increase efficacy.[32–35]

Commonly used tools do not sufficiently meet needs within the South African maternal health care setting. The Edinburgh Postnatal Depression Scale (EPDS) [36,37] and the Whooley Depression Screen[38] have both been validated in South Africa, within research contexts. However, in busy real world settings, the EPDS's 10 multiple-choice items has not been shown to be feasible due to its length and scoring system. For the Whooley validation study, the item pertaining to low mood contributed strongly to the diagnosis while the item pertaining to loss of interest did not significantly impact the diagnosis. The researchers had concerns about the complexity and cultural relevance of the tool's language, especially for those for whom English is not a first language.[38]

Both tools include language usage and culture-bound questions which may detract from screening utility within the South African service context.[36] Furthermore, according to the local validation studies, neither tool screens adequately for anxiety.

In addition, suicide is a leading cause of maternal mortality in high income countries,[39] and contributes significantly to maternal mortality in low and middle income countries.[40] At one PMHP research site, **18%** of the sample demonstrated medium to high risk suicidal ideation and behaviours (SIB) according to the Mini International Neuropsychiatric Interview (MINI). About half of these women had neither depression nor anxiety.[19]

There is thus a need to screen for **suicidal ideation and behaviours <u>in addition to</u>** symptoms of **depression and anxiety.**

PMHP developed and tested a short screening tool designed to detect depression, anxiety and suicidality among perinatal women in South Africa.

How was PMHP's tool developed?

The screening tool development study was conducted at Hanover Park Midwife Obstetric Unit, Cape Town. The periurban area has high rates of adversity, food insecurity and violence. The sample included 376 pregnant women (35% Black and 60% "Coloured").[41] Screening tests and a diagnostic interview were conducted during an initial antenatal visit, with participants 18 years or older. The diagnostic prevalence for antenatal depression was 22% (with half of the depressed women also expressing suicidality) and 23% of women were diagnosed with any anxiety disorder.[18,41]

Psychometric analysis was conducted based on item-by-item analysis, and whole tool analysis, of several commonly used screening questionnaires compared against the MINI diagnostic gold standard. (More detail on the study methods is available in appendix 1). This yielded a few short tools which compared favourably to the performance of longer tools. The best-performing short tool (four items) for depression, anxiety and suicidality was selected. It comprised the two questions from Whooley Depression Screen (excluding the 'help' item), one item from the Generalized Anxiety Disorder Scale-2, and item 10 on the EPDS for suicidality, i.e. four items in total. In this cohort of women, the tool performed well for depression and/or anxiety and/or suicidal ideation and behaviour against the diagnostic MINI assessment. Using a cut-point of 2 or greater, the sensitivity was 65%, with an 82% specificity and 75% of people correctly classified.*

Construct validation study

The PMHP then underwent a careful process of testing the new tool in the real-world setting. We adapted the four-item tool to have a standard recall period of four weeks and some language was changed to be less culture-bound: for example, the Whooley Depression Screen uses the term 'being bothered,' which is not well understood in a South African context. Two of the four questions were adapted to the binary form (yes/no).

Then, a formal consultative process of translation and back-translation assisted with further refinement of language usage for all three languages. The tool then underwent a construct** validation process, with 66 women from three language groups (English, Afrikaans and isiXhosa). The sample included those who screened positive as well as those who screened negative for depression on the EPDS. Then, in-depth construct validation interviews enabled further refinement of the tool, through a 2-phase iterative process, with adjustments made to the time recall construct as well as removing the item pertaining to loss of interest, which was ambiguously understood***. Thus, the final tool consisted of three items only (see below). There were no statistically significant differences between the language groups.

*The EPDS also performed relatively well against the MINI, using the standard cut-point of 13: AUC of 0.83, sensitivity of 75% and specificity of 78%, with 77% correctly classified.
** Construct validation is assessing the degree to which a test measures what it claims, or purports, to be measuring. The question testing or cognitive interviewing technique is used to determine respondents' interpretation of the questions asked.
*** This links with the findings of the Johannesburg Whooley validation study[14].

Validated CPMD Screening Questions for use in South African Settings

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3	Had thoughts **and** plans to harm yourself or commit suicide?		

The sensitivity/specificity balance and deciding the cut-point

Given the variable specificity and sensitivity characteristics of screening tools for CPMD's, selecting the appropriate screening tool in any given setting requires careful consideration of the impacts of false positives and negatives. For CPMD screening, concerns have been raised that high numbers of false positives would result in costs to the system including unnecessary referrals, diagnostic testing, and treatments.[42]

Specificity and sensitivity values greater than 80% are typically considered "adequate" for screening tests (including for the commonly used EPDS and Postpartum Depression Screening Scale), with a direct trade-off between increasing one characteristic with a decrease in the other.[20,24,42–44]

For the construct validation sample, 22.7% of women scored >= 13 on the EPDS which corresponds closely to the diagnostic data from the original study. Based on the EPDS as a 'silver standard', the psychometric classifications are presented in the table over page.

Using the EPDS* as a reference standard (with a cut-point of >= 13), then a score of 1 out of 3 on the PMHP brief 3-item tool, yields a sensitivity of 100% and specificity of 43%, and the tool correctly classifies 54% of women. Should a cut-off point of 2 out of 3 be used, there will be fewer false positive cases (increased specificity of 93%) being referred in to the system, at the expense of an increased rate of false negative cases (decreased sensitivity to 86%). This means that with the higher cut-point (i.e. 2 out of 3), 14% fewer women with symptoms of mental distress will be referred, but far fewer false positive cases will be referred. Health managers will need to weigh these trade-offs in terms of service capacity, and the ultimate cost to the health system and society of untreated illness.

Different score cut-points result in differing test characteristics and referral rate

Score cut-point	AUC	Sensitivity	Specificity	% correctly classified	% screened women who would need referral
3/3	0.928	14.29	100	82.86	3.24
2/3	0.928	85.71	92.86	91.43	19.46
1/3	0.928	100	42.86	54.29	22.70

Suggested scoring guide

A score of 2 or more out of 3 - referral is needed to available resources for further assessment or psychosocial counselling

HOWEVER, if 1 out of 3 is scored on basis of the *suicidality item* – referral for assessment is still required

It must be noted that this screening tool is not a diagnostic tool, and should instead be used to identify women who may, in turn, need to be either:

- referred to a second stage of assessment by a qualified clinician (e.g. mental health nurse, medical officer) to establish diagnosis and need for care
- or referred directly to services which may benefit those 'true' cases
- or referred for early, preventive interventions for those who may have early or pre-clinical symptoms of depression and anxiety (e.g. social support, problem management)

*The original study demonstrated good performance of the EPDS against the MINI diagnostic categories of major depressive episode and/or anxiety: AUC 0.83; sensitivity 75%, specificity 78% and correctly classified 77%.

Service utilisation

PMHP's service implementation indicators derive from three service sites in Cape Town where 80% of women attending for their booking visit were offered screening. We have shown that about one third of women qualify for referral to an on-site counsellor based on screening scores and clinical judgment of staff. About 60% of these women take up this on-site care. However, the uptake of first line care is thus roughly 14.5% of the population (all booking mothers).

Of those women having on site counselling, 20% are referred to the next level of care, including shelters and other NGOs, including 8% of whom are referred to specialist mental health care (medical officers, mental health nurses and psychiatrists). However, 40% of these 79 psychiatry referrals are taken up, which represents roughly 0.005% of the population of booking mothers.

This indicates that when integrated, primary level counselling is available, CPMD screening will not result in overwhelming uptake of health care resources (see more detail in appendix 2).

Universal versus targeted screening

An alternative to universal screening, would be to take a targeted screening approach. This may be used for highly resource-constrained settings. In these situations, only certain high-risk groups could be offered CPMD screening, e.g. adolescents, those with chronic diseases such as HIV, those below a certain income threshold, or those whom care providers suspect may require screening.

The disadvantages of this approach include;

- a reliance on the care providers' clinical skills and inclination if targeted screening protocols are not explicit and supervised
- loss of strong messaging to both care providers and women, that a holistic (incl. physical and emotional wellbeing) approach to maternity care is the 'norm'
- loss of the message to women that the health system is interested or cares about the woman's emotional wellbeing
- loss of opportunity to provide education or resources for mental health issues at this time
- loss of the opportunity to improve outcomes not only for women, but for the offspring and families

5. Considerations for Implementation

What are the risks and benefits of screening?

Screening guidelines for CPMDs have generated controversy in both high and low-income countries, and their risks and benefits, substantiated by available evidence, must be carefully weighed before introduction. Most frequently raised concerns include acceptability of screening for both women and health providers, limitations of screening tools leading to false positives and negatives, feasibility of follow-up and access to quality mental health care, financial cost, and evidence supporting the positive impact of screening on health outcomes.[24,43,45]

While this academic debate continues, women and their families in South Africa face an enormous burden of CPMDs, even as we now have effective and sufficiently specific and sensitive screening tools that could begin to address this care gap but remain unintegrated into perinatal health care. Health care contact in the perinatal period provides an opportunity to identify women suffering from mental disorders who might otherwise not access any health infrastructure. Robust evidence exists for screening rationale, tools, acceptability and feasibility, and shows how leveraging this important health milestone increases access to mental health services (especially when paired with mental health task-shifting to primary health care for screening and early intervention).[8,46–48]

While research must continue to increase understanding of the overall long-term impacts of CPMD screening, sufficient data already exist to support screening introduction. Action must be taken to improve the health of women and their children, so we 'do not let perfect be the enemy of the good'.

In South Africa, antenatal care procedures already integrate a variety of physical health screenings and leverage maternal care as a capture point for various treatments of health conditions (e.g., HIV, TB, diabetes). These physical screenings could feasibly be augmented with a very brief CPMD screening.

There are several international policies and attendant CPMD Screening Guidelines from which to draw reference (see appendix 3).

The table over page illustrates how CPMD screening in South Africa aligns with World Health Organisation (WHO) principles and practice of screening for disease.

WHO Principles and Practice of Screening for Disease: Appraising CPMD Screening	
Principles for Disease Screening[49]	**Common Perinatal Mental Disorders Screening**
The condition sought should be an important health problem.	CPMDs impact 21-39% of women in South Africa, resulting in significant, varied and multigenerational effects on mothers and their children.[1,2,5,6,20–27,50]
There should be an accepted treatment for patients with recognized disease.	Effective, evidence-based, biological and nonbiological treatment methods can be offered by specialized and non-specialized care givers.[24,51,52]
Facilities for diagnosis and treatment should be available.	CPMD treatment can be offered by specialized and non-specialized providers, and stepped care approaches to accessing perinatal mental health services in South Africa and other LMICs have been effective.[8,24,53]
There should be a recognizable latent or early symptomatic stage.	Care providers are likely to miss CPMD diagnoses when not conducting systematic screenings, indicating less severely symptomatic stages.[46] Thus, without screening, the opportunity may be lost for secondary prevention.
There should be a suitable test or examination.	Accurate, specific and sensitive tests like the Perinatal Mental Health Project's three-to-four question screener would be suitable in the South African context.
The test should be acceptable to the population.	Perinatal women across health care settings and locations report high acceptance of mental health screening.[24,54]
The natural history of the condition, including development from latent to declared disease, should be adequately understood.	A wide body of research on CPMDs exists, as does a growing body of literature on relevant risk factors. In particular, antenatal depression is considered one of the strongest predictors of postnatal depression.[46]
There should be an agreed policy on whom to treat as patients.	A variety of governments and international organizations have issued guidelines for CPMD screening, but South Africa has yet to do so.
The cost of case-finding (including diagnosis and treatment of patients diagnosed) should be economically balanced in relation to possible expenditure on medical care as a whole.	Cost-effectiveness must continue to be studied, and must consider the intersectoral and financial impacts of untreated CPMDs on women and their families in the short and long-term.[46]
Case-finding should be a continuing process and not a "once and for all" project.	National guidelines by a variety of medical organizations state that depression screening should be repeated throughout the perinatal period and each pregnancy.[46] High uptake of antenatal care and immunization services for infants provide ideal contact points for repeat screening.

Acceptability for women

Studies done across different economic, health care and geographic settings show that perinatal women not only accept mental health screening, they welcome it and believe it should be a part of primary care.[24,54] Despite some clinicians and researchers raising concerns that women fear the stigma associated with a positive screening result,[42] the evidence suggests an alternate perspective.

A systematic review of perinatal depression screening shows that the vast majority of participants approve of screening, even across the variability of screening tools and of acceptability measurements.[54] This high acceptability was shown in studies conducted with different screening tools, by different health professionals, and in a variety of settings within Australia, Canada, England, Nigeria, Norway, Scotland, Singapore and the United Sates.[54,55]

In addition, various other studies have shown that a wide variety of participants indicate that depression and mental health screening are acceptable and/or desired, including across:

- **South Africa**, where participants reported high acceptability of routine depression screening in an HIV clinic and comfort with screening by counselor or nurse (South Africa, women at an HIV clinic, n=70)[56]
- Both **depressed and not depressed women** (Australia, postpartum women, n=920)[57]
- Antenatal and postnatal women with a **non-English speaking** background in Australia (Arabic and Vietnamese women, n=98)[58]
- **E-screening and paper screening** (Canada, pregnant women n=636)[59]
- **Provider types and demographic factors** (Canada, pregnant women, n=460)[60]

This high level of acceptability of CPMD screening among women is an important prerequisite for implementation and suggests that a screening programme will be well utilized by the vulnerable women for whom it is designed.[54]

Acceptability for health care providers

In addition to high levels of screening tool acceptance among women, health care providers (including non-specialized caregivers) across the spectrum indicate high acceptance of mental health screening tools, as well as ability and capacity to offer them.[24] In fact, not only do care providers, including those in South Africa, accept these tools, they suggest that screening is an important part of a feasible approach to improving perinatal mental health.[24,77]

Given the lack of trained mental health professionals and human resources in low and middle-income settings, including South Africa, significant research focuses on task shifting by having primary health care and lay workers offer mental health screening. Integrating mental health interventions into primary care has been widely accepted by caregivers, which has resulted in various population-level advantages like reduction of stigma of mental disorders, increased contact and uptake coverage of the population, and a more efficient use of health care staff.[22,47,61] For example, a meta-analysis of ten trials in low and middle-income countries showed that not only did caregivers accept mental health care roles, offering interventions by non-mental health specialists in perinatal care reduced CPMD symptoms, emphasizing the potential for implementing both screening and treatment by non-specialized care givers.[62]

To maintain the high acceptability of CPMD screening (and, ultimately, treatment) among non-specialized health care workers, key conditions must be met, including ensuring adequate training, continued supervision and support, increasing human resources or otherwise mitigating overburdening, and ensuring adequate compensation.[56,63] Through meeting these conditions, the evidence suggests that a variety of health care workers may support the implementation of CPMD screening.

Adding psychosocial risk factor screening

Understanding the psychosocial risk factors for CPMDs can inform screening programs and resource allocation to target those most in need, and identifying mothers who are most 'at risk' of relapse or new onset depressive or anxiety disorder, may assist in the early intervention or prevention of depression and anxiety. [64]

Robust literature on psychosocial risk factors for CPMDs has shown how increased risk has been linked with past history of mental disorders, poverty (which may be assessed using food insecurity as a proxy measure), intimate partner violence, unsupportive partners, limited social support, negative life events, migration status and poor relationship quality. [2,22,44,51,59–63,65]

Risk factors can inform the application of CPMD screening programmes and are recommended, in a published position statement, by the Marcé International Society for Perinatal Mental Health.[20] There is evidence that risk assessment tools have been successfully used in conjunction with symptom screens to improve outcomes.[24]

Assessment of risk factors is important as these are potentially <u>modifiable targets</u> for <u>prevention and treatment</u>.

Pregnant women are especially motivated to address issues that will impact the wellbeing of their baby.[66] Psychosocial risk screening may thus inform prevention activities that may prevent development of mental illness or worsening of mental health status.

Psychosocial risk factor assessment benefits include:

- Targeting of risk reduction interventions: referral for social grants, domestic violence advocacy or to a women's shelter
- Activation of protective factors: interpersonal therapy for relationship difficulties, activating social support networks
- Assistance in identifying women with increased risk of developing postpartum depressive or anxiety disorder (primary or secondary prevention)
- Provision of support for women with current CPMD but who are false negative on the symptom screens. (This may be particularly helpful in circumstances when women with CPMD do not endorse symptom screening items, which may occur for a range of reasons such as stigma and poor contextual validity of the screening tool).[67]

Multiple structured psychosocial risk assessment tools have been developed, but these should be contextualised and evaluated for each setting. The PMHP has developed one such tool, a 5-item risk assessment, specifically for South African women (see appendix 4).

Further, by combining the evidence of several South African screening studies for alcohol and substance use disorder, a group of researchers at the University of Cape Town has suggested a screening protocol for pregnant women to the Western Cape Department of Health (see appendix 5).

Task shifting and triage: essential for next steps after screening

Effective screening programmes require adequate follow-up to achieve positive results. This is of particular concern in settings with limited mental health infrastructure.[44] However, implementation research conducted in South Africa has shown that not only can CPMD screening be integrated into primary antenatal care settings, women with positive screening results can be triaged and treated within those settings. Using a stepped care approach, with women referred from nonspecialized counsellors to mental health professionals, as necessary, both screening and treatment for CPMDs can be included in primary care settings.[8,56,65] Offering effective screening tools is an essential step in supporting health workers in triaging and rationalizing these referral decisions.

CPMD screening facilitates appropriate follow-up and referral when integrated into primary care

Steps to strengthen follow-up for women with positive CPMD screening results include:

Task-shifting to non-specialized providers: Making use of existing resources and task-shifting care for CPMDs to non-specialized health workers reduces the need for specialized, higher level mental health professionals.[8,68,69]

Developing clear referral pathways and resource maps: Even without mental health resources integrated into a specific maternity clinic, providers can develop and use site-specific mental health resource maps and refer those with positive screening results based on local needs and availability. Established protocols on available follow-up resources and clear referral pathways are an essential aspect of screening follow-up.[8,70] A careful resource-mapping process, including relationship-building and collaborative components, may identify underutilized options such as NGOs and social services that may be well positioned to take certain referrals, thereby reducing the numbers referred for services provided by the formal health sector.

Training and support: Providers who offer mental health screening require ongoing supervision, training and support, which can be offered by external clinical supervisors, peer support protocols and/or training manuals, based on local availability. This additional training and support does not overwhelm health workers; in fact, studies show that offering CPMD training and support empowers health workers to attend to issues with their patients that they were previously unable to address.[8]

Building capacity: Introducing mental health resources within primary care settings improves the use of existing resources and helps build health care capacity. Increased referrals from screening may, over time, require additional specialized health providers, but task-shifting minimizes this need and increases contact coverage and service efficiency.[8,56] Any increased injection of resources is likely to be off-set by decreased use of health system resources due to improved obstetric and neonatal physical and mental health.

Integrating mental health screening and providing the necessary follow-up within South African antenatal care settings will certainly present implementation challenges, but research shows that doing so is feasible, efficient and effective. Introducing CPMD screening to support care referral and triaging processes is an important first step in closing the mental health treatment gap.[71]

Other health system elements required

Screening implementation in South African settings will need to include various elements to support both roll-out of the screening itself and uptake of those who need additional resources based on screening outcomes.

Within each setting, implementing CPMD screening will require:[8]

- **Engaging stakeholders** including mothers, communities, clinic and management staff
- **Training** primary health staff (all maternity staff cadres) in maternal mental health and empathic engagement skills
- **Screening** women at the first antenatal visit and first baby clinic appointment and offering referrals based on pre-determined cut-points
- **Counselling women,** ideally within the clinical setting or local area, with stepped referral to more specialised care, as necessary
- **Supervising** screening staff and counselors – including debriefing and self-care components
- Ongoing **monitoring and evaluation –** including relevant indicators into standard Health Information System platforms

The specific implementation of these steps will vary across settings.

What about costs?

Weighing the financial costs and benefits of CPMD screening is a complex process, and must integrate both the direct health care costs for screening and treating CPMDs (including that of incorrect labeling and over-detection), as well as the indirect costs in lost work productivity and children's health outcomes of untreated CPMDs.[24] While evidence evaluating cost effectiveness remains fairly scarce, studies investigating costs for untreated CPMDs demonstrate the significant and long-reaching financial outcomes of this high burden of disease.[24,42]

In South Africa, specifically, studies have shown that mental illness has a significant financial impact, with costs of severe depression and anxiety estimated at $4,789 annually in lost earnings for each affected adult South African, or $3.6 billion across the country.[72] Studies investigating perinatal mental disorders, specifically, show that CPMDs in the perinatal period have additional costs beyond lost work productivity due to their impact on children.[24,73]

While CPMD screening cost -effectiveness data remains limited in low resource settings, research shows that untreated CPMDs have significant financial impacts

A 2014 study conducted by the London School of Economics found that perinatal mental disorders cost £8.1 billion for every annual cohort of births in the United Kingdom (approximately £10,000 per birth), with 72% of that cost from the negative impacts of these disorders on the child (although the study did not include loss of productivity in the analysis).[73] A 2012 analysis in Australia estimated total direct health services for CPMDs at $78.66 million combined across private and public services, while indirect costs to the larger economy totaled $354.87 million, including $310.34 million in productivity lost (although the study did not investigate costs of negative child outcomes).[74] Further studies done in the UK investigating the costs of CPMDs on child development showed that exposure to perinatal depression resulted in costs per child directly to the public sector (greater than £3030), reduced earnings (£1400), and quality of life loss through health-related factors (£3760), while lifetime costs of perinatal depression for the mother were £75,728 for women suffering from depression and £34,811 for women suffering from anxiety.[75,76]

While these data indicate the high financial cost of untreated CPMDs, no studies have investigated the scaled cost of introducing CPMD screening or treatment into antenatal care across South Africa, and the country's fiscal constraints will require that any CPMD screening and treatment policy includes a plan for sustainable financing. However, mounting evidence indicates that investing in treatment for mental disorders in South Africa will save more money than it costs.[71,73,74]

6. CPMD screening improves health outcomes

Controversy remains around the quality and quantity of evidence indicating the positive health impacts of CPMD screening. National guidelines recommending universal depression screening in perinatal women, like those issued by the United States Preventative Task Force (2016), have generated criticism suggesting that the evidence does not specifically address the direct health impacts of screening.[42,43,45] Despite these criticisms, a growing evidence base demonstrates how screening and treating CPMDs improves outcomes, including in low and middle-income countries utilizing non-specialized workers.

One criticism of the evidence argues that screening studies do not use equivalent treatments across screening and control groups, and that not enough research evidence comes from well-designed randomized control trials.[45] However, rigorous studies do show that integrated systems of screening, diagnosis and treatment result in positive maternal outcomes, that comprehensive programmes of care are necessary and sufficient to improve those maternal health outcomes, and that no evidence indicates negative outcomes from screening.[45,46] In addition, several meta-analyses investigating the evidence for screening

and treating CPMDs (especially using non-specialized health care workers) in low and middle income countries have shown robust positive outcomes.

For example, a systematic review of thirteen trials with 20,092 participants in LMICs with non-specialized health and community workers conducting CPMD interventions, found an effect size in addressing maternal depression of -0.38 (95% confidence interval: -0.56 to -0.21; I^2 = 79.9%). Beneficial outcomes included improved child growth and cognitive development, better maternal-infant interaction, fewer diaorrheal episodes, and increased immunization. Integrating interventions into community care also reduced stigma around mental illness.[22]

Another systematic review of 11 studies on screening and treating CPMDs in LMICs, also with interventions provided by non-mental health specialists, showed an overall reduction in symptoms of mental illness as compared to usual perinatal care. Interventions shown to have a positive impact during both pregnancy and the postnatal period included group and individual interventions, psychotherapy, cognitive behavioral therapy, and health promotion.[62]

While still more data are needed to understand better the impacts of screening and treating CPMDs, evidence gathered in South Africa and other LMICs demonstrates that addressing this prevalent health challenge is not only feasible, but has positive health outcomes for mothers and their families.

While waiting for the evidence of bespoke and expensive randomized controlled trials on CPMD screening, we should caution against "throwing the baby out with the bath water."

CPMD screening has positive impacts independent of follow-up

In addition to mounting evidence showing how an integrated system of screening and treatment improves health outcomes, data also demonstrate that offering screening and psychosocial assessment, in and of itself, may improve women's health outcomes, regardless of follow-up.[77–79] For example, in 2013, the Western Cape Department of Health initiated a screening and brief intervention programme for maternal depression and substance use. Although the intervention provided focused predominantly on substance use, at the 3 month follow-up a significant reduction in depression was reported.[77]

It is suggested that these positive outcomes may occur because opening a conversation about mental health helps develop an empathic relationship between health workers and mothers, lowers stigma and raises awareness of mental illness and options for self-care or formal management.[20] Specific studies of outcomes of mental health assessment show that women who are interviewed about their emotional health during pregnancy are more likely to seek formal mental health during pregnancy.[20,24]

The preamble before starting the screening and the manner in which screening is conducted is likely to determine the success of the screening as much as individual performance of the items.

Staff conducting screening are required to engage gently and empathically with women to optimize the accuracy of responses and increase the likelihood of appropriate uptake of care.

7. Conclusion

While policies and practice for CPMD screening remain controversial in some settings, *significant and growing evidence demonstrates the need, feasibility and effectiveness of introducing CPMD screening, especially within a South African context*. South African mental health and maternal health policy has laid the groundwork for integrating maternal mental health into primary care. Developing clear screening guidelines and standard operating procedures are logical next steps to ensure implementation.

CPMD screening can be an effective and impactful intervention in the South African setting.

Screening enables frontline providers to identify and treat vulnerable women at a critical juncture in their lives and the lives of their offspring. CPMD screening constitutes a smart investment in the future of the country.

8. Appendices

Appendix 1: Hanover Park screening tool development study methods[41]

In primary care antenatal settings where resources are scarce, there is a need to develop screening tools that are accurate, brief and easy to administer and score. Shorter screens with binary-type scoring may be more clinically useful than Likert-type scales (multiple choice), which have more complex scoring. This is especially true in busy, low resource antenatal settings where the tools may be used by non-physician and community health workers.[80] A brief, dichotomous screening tool may prove more feasible and acceptable to health workers who are burdened with high patient numbers and have to perform a range of other antenatal tasks.[8,81]

In 2011-2012, the PMHP conducted a study in Hanover Park, Cape Town, an area with high levels of violence, unemployment and food insecurity. The study aimed to develop a brief mental health screening tool for CPMD that may be used in a range of low resource primary care settings.

Nearly 400 pregnant women (35% Black and 60% "Coloured") were recruited and administered a series of socio-demographic and psychosocial risk questionnaires, mental health screening tools. The Expanded Mini-International Neuropsychiatric Interview (MINI Plus) Version 5.0.0 was used as the gold standard diagnostic interview.[82]

The breakdown of MINI-defined disorders is summarised in the table below. The sample size was 376 pregnant women.

Table 2. The breakdown of MINI defined disorders. N = 376

MINI diagnosis	n	%
Major depressive episode (MDE)	81	22
Any anxiety disorder	86	23
Meets criteria for MDE and/or anxiety disorder	122	33
Suicidal ideation or behaviour (SIB)	69	18
Suicidal ideation only	47	12
Suicidal behaviour	22	6
Any substance use disorders	57	15
Any psychotic disorders	5	1

The most common comorbid diagnosis was MDE and anxiety disorder (11.9%). The MINI diagnostic tool **suicide module** includes a series of seven items pertaining to current or recent suicidal ideation (items 2-4) and behavior (items 5-8). All those that endorsed any items 5-8 were considered to have suicidal behavior. These individuals were included in the analysis as "cases". It is noteworthy that 54% of women with suicidal ideation and behaviour had **neither MDE nor an anxiety disorder**.

The brief screening tools

We analysed the performance of all the mental health screening tools against the MINI and found that the brief tools of 2-3 items performed comparably well with longer tools of 9 or more items. The brief tools are discussed below. We analysed the performance of all the mental health screening tools against the MINI and found that the brief tools of 2-3 items performed comparably well with longer tools of 9 or more items. The brief tools are discussed below.

Depression

The **Whooley questions** are two questions that emerged from the 27-item screening questionnaire used in the Primary Care Evaluation of Mental Disorders Procedure (PRIMEMD) to facilitate diagnosis of **depression** in primary care:[14]

1. During the past month, have you often been bothered by feeling down, depressed, or hopeless? (depressed mood)
2. During the past month have you often been bothered by little interest or pleasure in doing things? (anhedonia)

An additional "help" question can be asked if the woman responds positively to either of the first two questions. These questions have not yet been validated for use in the South African antenatal setting.

The wording of the Whooley questions is the same questions as that of the first two items from the PHQ9,[83] however, the time period differs in that the Whooley enquires about the past month of symptoms, whereas the PHQ9 enquires about the past two weeks. The PHQ9 instrument has been widely used and advocated for use in South Africa and in other LMIC settings.[84–86] It has been validated in a range of settings and with various population groups including women during the perinatal period.[87–90]

Anxiety

The Generalised Anxiety Scale (revised) (GAD-2) is a 2-item form of the GAD-7:

> 1. Over the last 2 weeks, how often have you been bothered by feeling nervous, anxious or on edge?
> 2. Over the last 2 weeks, how often have you been bothered by not being able to stop or control worrying?

Although it has not yet been validated for use in South Africa or with antenatal populations, the GAD-2 is regarded as being a clinically useful, brief screening tool for Generalised Anxiety Disorder and other anxiety disorders in primary care.[91] The GAD-2 is designed as a Likert scale. For the purposes of our analyses, we binarised the four items into a "non-case" for the two lower scoring responses (not at all, several days) and a "case" for the two higher scoring responses (more than half the days, nearly every day).

The British guidelines developed by the National Institute for Clinical Excellence[92,93] recommend the use of the two Whooley questions to screen for perinatal depression, as well as enquiry about past personal and family history of serious mental health issues. The updated guidelines recognise that a range of anxiety disorders (including generalised anxiety disorder, obsessive- compulsive disorder, panic disorder, specific phobias, post-traumatic stress disorder and social anxiety disorder) are under-recognised during the perinatal period. The updated, 2014, recommendation for perinatal mental health screening include the GAD-2 questions in addition to the two Whooley questions. (These guidelines also proscribe use of GAD-2 for detecting any anxiety disorders in primary care settings amongst the general populations.[92])

Suicide

The **Edinburgh Postnatal Depression Scale (EPDS)** is the most widely used tool in the perinatal period for screening for anxiety and depression.[94] The EPDS has been validated in a range of settings, including South Africa[95] The last item of the 10-item scale pertains to self-harm "The thought of harming myself has occurred to me". This Likert-item was binarised for the analysis to reflect a "non-case" for the two lower[8,81] scoring responses (never, hardly ever) and a "case" for the two higher scoring responses (sometimes, quite a lot).

Analysis

We combined the three brief tools above into a screening measure to screen for depression, anxiety and suicidal behaviour. Using Receiver Operating Characteristic (ROC curve) analysis, we examined the performance of this 5-item tool against diagnostic data. Various cut point were created to investigate maximum sensitivity and specificity and correct classification of cases. The areas under the curves (AUC) were compared, as were the positive and negative likelihood ratios and positive and negative predictive values, in order to determine the best combined screening tool and cut-point for our sample.

Table 3. Results of receiver operating characteristic (ROC) analysis

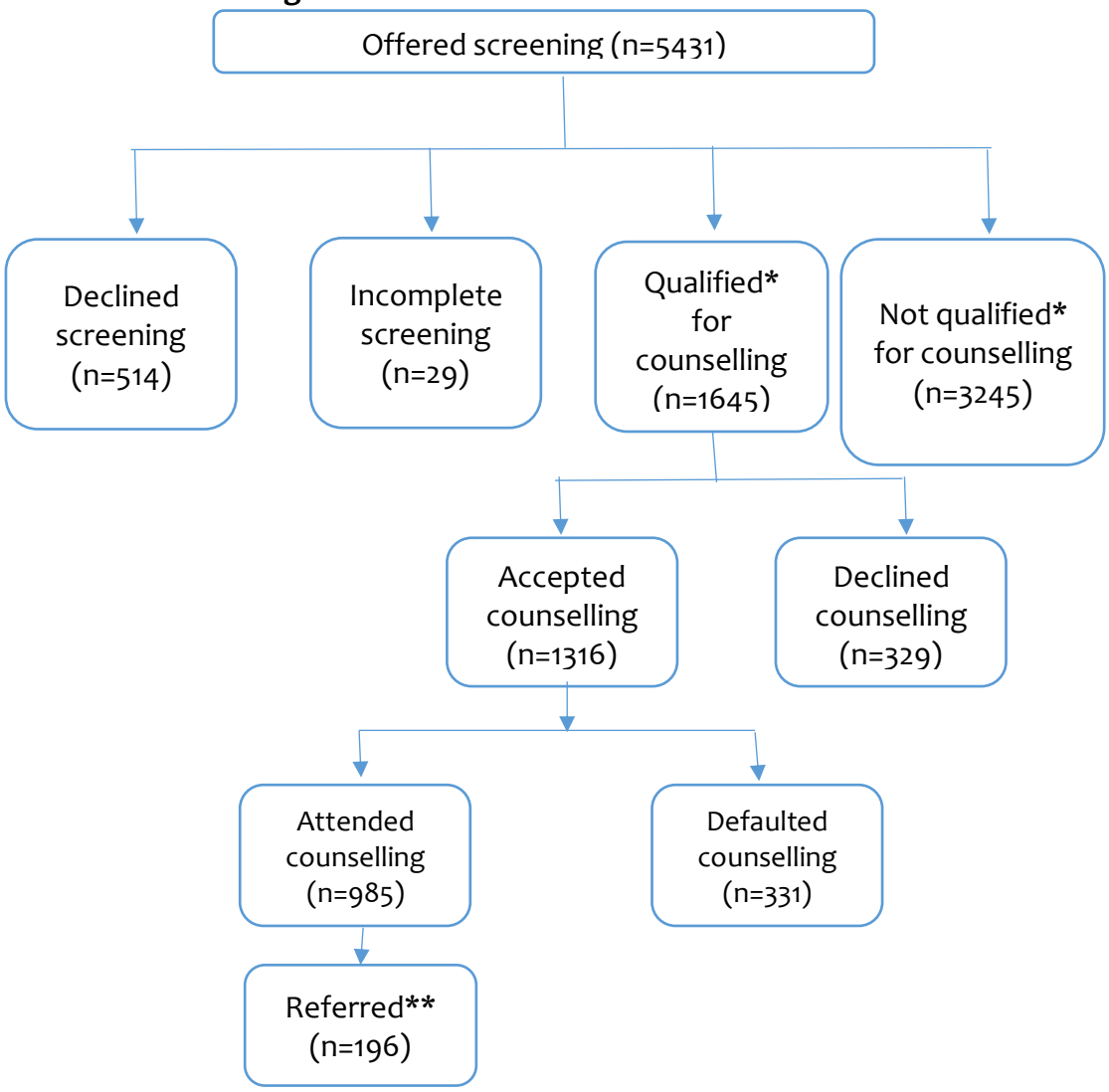
Screening instrument	Diagnosis	Cut point	AUC	Sensitivity	Specificity	Correctly Classified	LR+	LR -	PPV	NPV
Binarised GAD2 + Whooley 1&2	MDE and/or anxiety	≥ 2	0.82	75%	84%	81%	4.7	0.3*	55%	88%
Binarised GAD2 + Whooley 1&2 + binarised EPDS 10	MDE and/or anxiety and/or suicidal behavior	≥ 2	0.81	74%	80%	78%	3.8	0.3	66%	89%
Binarised GAD2 + Whooley 1&2 + binarised EPDS 10	MDE and/or anxiety and/or suicidal behaviour	≥ 3	0.81	54%	93%	79%	7.3	0.5	78%	82%

*This shows approaching significance as the positive likelihood ratio is close to 5 and the negative likelihood ratio is close to 0.2

Appendix 2: PMHP service uptake and referral patterns

During an 18-month period, from July 2015 to December 2016, service monitoring data from PMHP's three service sites showed the service usage depicted in the diagramme below.

PMHP Service use flow diagramme:



*Assessed using the EPDS, PMHP's Risk Factor Assessment, Whooley or at the counsellors' discretion
**To an outside organisation for additional assistance or for psychiatric assessment

Uptake of counselling referrals: 18% of those offered screening – this is when screening and counselling provided at same site by PMHP counsellors, i.e. optimizing access (counselling bookings made for same date as ANC visits where possible)
****Referrals FROM the PMHP service:** of 196 women referred by PMHP counsellors, 79 were referred for psychiatric assessment (including sessional psychiatrist at one site or the Community Mental Health Team at another site or the medical officers at third site; or the Psychiatry outpatients at tertiary hospital). Approximately 40% of these 'psychiatric referrals' were taken up.
The remaining 117 referrals were made to specialised nongovernmental organisations or shelters.

Appendix 3: International depression screening guidelines

International Depression Screening Guidelines	
Australia[96,96] 2017	The Australian Clinical Practice Guideline for Mental Health Care in the Perinatal Period recommends universal assessment of psychosocial risk (using the Antenatal Risk Questionnaire -ANRQ)[97] and screening for symptoms of depressive and anxiety disorders (using the EPDS) in the perinatal period. This should be done once in pregnancy and again in the first few weeks postpartum. The EPDS should be repeated at least once in pregnancy and in the first postnatal year; and at other times as needed. This approach is critical to providing women with access to early intervention if needed. While referral and care pathways vary with setting (e.g. general practice, maternity services) and location (e.g. metropolitan, rural and remote), it is important that women are provided with access to timely, appropriate services post-assessment, ongoing psychosocial support and appropriate treatments. Primary care clinicians involved in the screening program should have adequate training and ongoing support from mental health clinicians and timely access to further mental health assessment needs to be made available.
United Kingdom[93] 2017	At a woman's first contact with primary care or her booking visit, and during the early postnatal period, consider asking the following depression identification questions as part of a general discussion about a woman's mental health and wellbeing: • During the past month, have you often been bothered by feeling down, depressed or hopeless? • During the past month, have you often been bothered by having little interest or pleasure in doing things? Also consider asking about anxiety using the 2-item Generalized Anxiety Disorder scale (GAD-2): • Over the last 2 weeks, how often have you been bothered by feeling nervous, anxious or on edge? Over the last 2 weeks, how often have you been bothered by not being able to stop or control worrying?
United States[48,98] 2016	The U.S. Preventive Services Task Force recommends universal screening for depression in the general adult population, including pregnant and postpartum women. Screening should be implemented with adequate systems in place to ensure additional assessment, effective treatment, and appropriate follow-up. Direct and indirect evidence suggested that screening pregnant and postpartum women for depression may reduce depressive symptoms in women with depression and reduce the prevalence of depression in a given population. Evidence for pregnant women was sparser but was consistent with the evidence for postpartum women regarding the benefits of screening, the benefits of treatment, and screening instrument accuracy.

Appendix 4: Risk assessment screening items

The risk items below were shown by the PMHP Hanover Park study to be most predictive of diagnosed depression and or anxiety. This is not a comprehensive list of risk factors and additional risks may be added according to the population of women served.

1. I have had problems with depression, anxiety or other mental health problems in the past	Yes	No
2. I have had some very difficult things happen to me in the last year (e.g. A serious injury/illness/assault to a close relative; major financial crisis; something valuable lost/stolen; serious problem with a close friend/neighbour/relative; problems with police/court appearance)	Yes	No
3. My husband/boyfriend or someone else in the household is sometimes violent towards me	Yes	No
4. I have experienced some kind (physical, emotional, sexual) of abuse in the past (including childhood)	Yes	No
5. I lack support from my partner or family or friends	Yes	No

Note
Poverty indicators (employment status, household income, food insecurity), HIV, refugee and adolescent status may be worth considering as risks to be included. Many of these factors may already be readily available from existing maternity notes or stationery and would therefore not require to be asked again.

Practical matters
Prior to risk screening, health managers would need to undertake a resource/asset mapping exercise to establish which referral locations are suitable and able to accept referrals. Clear procedures and care pathways for referrals of each risk factor need to be described and communicated with those conducting screening. The resource mapping will require regular updating. A good referral source may be able to address several of the risk factors simultaneously.

PMHP may be contacted at info@pmhp.za.org for a guide to resource mapping.

Appendix 5: Suggested alcohol use screening protocol

Alcohol and other drug use is not only associated with negative health outcomes for mother and child, it is part of a complex environment of factors contributing to comorbidities of multiple mental health problems, including CPMDs.[19] The 10-item Alcohol Use Disorders Identification Test (AUDIT) can be administered in perinatal settings to ascertain maternal use of alcohol and other drugs and to inform screening of and referral for CPMDs.

In South African settings, if Community Health Workers (CHWs) are sufficiently trained in screening and brief intervention, they can offer the full AUDIT as part of brief intervention, per recommendation of the World Health Organization. However, if this is not feasible, a medical officer/mental health nurse can also offer the 10-item AUDIT for those that disclose using alcohol and a brief intervention can then be provided by these cadres (see algorithm over page).

The AUDIT can inform a fuller assessment of maternal health and impact referral and care decisions for those who screen positive for CPMDs.

A team of alcohol and substance use researchers in Cape Town recently were requested to advise the Western Cape DoH on screening pregnant and postnatal women. After looking at South African data on the psychometric properties of all the scales developed by the WHO (AUDIT and ASSIST), the group came to a recommendation.

Cautions:

- the South African sample sizes were too small to conduct a "formal" psychometric validation of these scales
- due to documented low levels of disclosure, an empathic screener is critical to ensure accurate responses. Furthermore, mothers may be alienated from engaging in an open and therapeutic relationship if they fear being judged, or punished in some way.

Given that the WC DoH was interested predominantly in alcohol the following was recommended:

Step 1: an initial question is asked to screen out women who use and those who do not. If a woman discloses any use, a brief intervention (psychoeducation at a minimum) should be provided, given that no alcohol use is recommended during pregnancy.

Example Question: In the past two weeks, how many days have you had any alcohol?

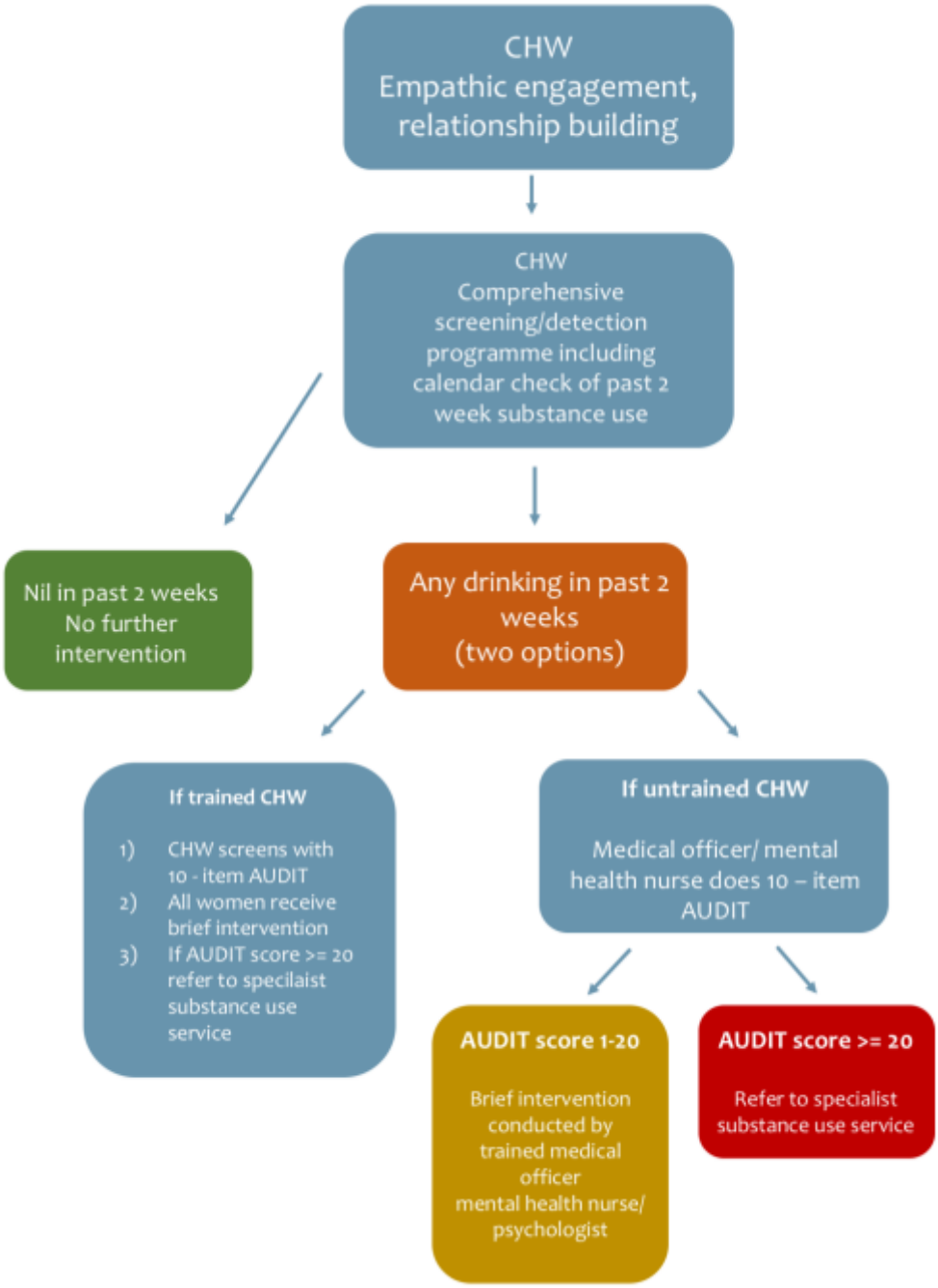
(Show person the 2 week 'calendar'.) We are here (show the day of the week). (For example, today is Thursday.)
Think about the previous 2 weeks.

Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Mon	Tues	Wed	Thurs	Fri	Sat	Sun
Mon	Tues	Wed	Thurs	Fri	Sat	Sun
					TOTAL	

Step 2: if any alcohol use was disclosed, the AUDIT could be performed. Although all women who disclose using alcohol should be provided with an intervention, a score of 20 or above on the AUDIT warrants specialized substance use care. This high risk group should be referred accordingly.

The version offered here of the AUDIT has been used be the MRC and UCT previously for process evaluations (see below).

Pregnancy alcohol screening algorithm



AUDIT

The next questions are about drinking any kind of alcohol in the past 3 months (e.g. beer, wine, spirits, ciders). Please remember that your answers are completely confidential. Use standard drink pictures.

1.	How often do you have a drink containing alcohol? *(circle one)* **If the patient responds "never," stop here!**	Never Monthly or Less 2 to 4 times a month 2 to 3 times a week 4 or more times a week	0 1 2 3 4
2.	How many drinks containing alcohol do you have on a typical day when you are drinking? (One drink is equivalent to one can or bottle of beer, cider or cooler, one glass of wine, or one tot of spirits).	1 or 2 3 or 4 5 or 6 7 to 9 10 or more	0 1 2 3 4

Below is a list of questions about your drinking behaviour. Please choose the option that best reflects your behaviour.

		Never	Less than monthly	Monthly	Weekly	Daily or almost daily
3.	How often do you have four or more drinks on one occasion?	0	1	2	3	4
4.	How often during the last 3 months have you found that you were not able to stop drinking once you have started?	0	1	2	3	4
5.	How often during the last 3 months have you failed to do what was normally expected from you because of drinking?	0	1	2	3	4
6.	How often during the last 3 months have you needed a first drink in the morning to get yourself going after a heavy drinking session?	0	1	2	3	4
7.	How often during the last 3 months have you had a feeling of guilt or remorse after drinking?	0	1	2	3	4
8.	How often during the last 3 months have you been unable to remember what happened the night before because you had been drinking?	0	1	2	3	4

		No	Yes, but not in the last 3 months	Yes, during the last 3 months
9.	Have you or someone else been injured as a result of your drinking?	0	2	4
10.	Has a relative, friend, or a doctor or another health worker been concerned about your drinking or suggested you cut down?	0	2	4

SCORE **Q1 + Q2 + Q3 + Q4 + Q5 + Q6 + Q7 + Q8 + Q9 + Q10 = _____**

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