



Perinatal Mental Health Toolkit for Ontario Public Health Units

Module 2.1: The Importance
of Perinatal Mental Health
Module 2.2: The Role of
Public Health

November 2018

Modules 2.1 (The Importance of Perinatal Mental Health) and 2.2 (The Role of Public Health) are part of the Perinatal Mental Health Toolkit for Ontario Public Health Units. To view the full document and additional resources please visit [Healthy Human Development Table Toolkit webpage](#).

Acknowledgements

The Healthy Human Development Table (HHDT) members would like to thank the Public Health Unit staff and partner organizations for providing the practice examples included in this toolkit. The HHDT would also like to thank Public Health Ontario for providing secretariat support for the development of this toolkit. The views expressed in this toolkit are those of the HHDT and do not necessarily reflect those of Public Health Ontario.

How to cite this document:

Healthy Human Development Table. Perinatal mental health toolkit for Ontario public health units. Toronto, ON: Queen's Printer for Ontario; 2018.

Disclaimer

The views expressed in this Toolkit are the views of the project team, and do not necessarily reflect those of Public Health Ontario. The Toolkit is not a product of the Ministry of Health and Long-Term Care (MOHLTC). The MOHLTC is not responsible for the Toolkit or its contents. The MOHLTC does not provide any representations, warranties or guarantees with respect to the Toolkit, its quality or its accuracy. MOHLTC has not critically assessed the content of the Toolkit, nor has it evaluated any potential alignment between the content of the Toolkit and any policies or directives issued by the Government of Ontario.

Contents

- 2.0 Perinatal Mental Health 1
 - Introduction 1
 - Module 2.1: The Importance of Perinatal Mental Health 2
 - Introduction 2
 - HHDT Key Messages 3
 - Perinatal Mental Health 3
 - Risk Factors for Perinatal Depression 7
 - Impacts of Perinatal Depression 9
 - Module 2.2: The Role of Public Health 20
 - Introduction 20
 - Public Health’s Role in Addressing Perinatal Mental Health 21
 - Public Health Workforce 25

Introduction

This section is part of the Healthy Human Development Table (HHDT) Perinatal Mental Health Toolkit.

The purpose of this Toolkit is to build capacity and advance practice across Ontario public health units (PHUs). Using these modules, PHUs can plan and deliver a comprehensive, evidence-based and best practice approach to perinatal mental health promotion – one that is customized to meet the unique needs of their communities. Users are strongly encouraged to review all the modules.

This section on Perinatal Mental Health includes two modules. Module 2.1, The Importance of Perinatal Mental Health, focuses on the concerns, risk factors, and potential impacts of perinatal mental health as a public health issue. Module 2.2 provides an overview of the role of public health in promoting perinatal mental health, and identifying and supporting parents at risk for, or experiencing, symptoms of perinatal depression. Additionally, the second module provides an overview of all the HHDT statements described in detail throughout the Toolkit.

Introduction

This module focuses on perinatal mental health – concerns, risk factors and potential impacts – as a public health issue. It serves as a background to the other Toolkit modules.

This module, in the context of public health in Ontario, can help PHUs to:

- build rationale for the importance of perinatal mental health as a public health issue (e.g., Board of Health reports)
- develop business cases for program development and funding
- share material with partners to strengthen community collaboration on this issue
- develop key messages for communication campaigns

The Healthy Growth and Development Standard of the *Ontario Public Health Standards*¹ has a stated goal: “To achieve optimal preconception, pregnancy, newborn, child, youth, parental, and family health.” This module establishes that perinatal mental health is an important public health issue that addresses the topics of growth and development, healthy pregnancies, mental health promotion, and positive parenting. This module will help PHUs to:

- increase community partner knowledge about the factors associated with the promotion of healthy growth and development
- increase individual and family knowledge related to healthy growth and development
- increase public knowledge about the importance of creating safe and supportive environments

Considering the impact of perinatal mood disorders on fetal development and child health and growth and development (see below), perinatal mental health and chronic disease prevention also align. Research in the areas of adverse child experiences and toxic stress, with a mother who is experiencing a perinatal mood disorder, has demonstrated impacts on cardiovascular, gastrointestinal, and/or respiratory functioning in later life.²⁻⁴

HHDT Key Messages

- Perinatal mental health is an important public health issue because of its multiple impacts on the entire family, especially the parent-child dyad, and has a significant societal cost.
- Perinatal mood and anxiety disorders range in severity and include postpartum blues, perinatal anxiety, perinatal depression, paternal depression, and postpartum psychosis.
- The risk factors for perinatal mood disorders are similar to those for depression in the general population, and differ according to various demographic and socio-cultural elements (e.g. gender, population, age, and socio-economic status). Some risk factors are unique to perinatal depression, including a past history of depression or anxiety.
- Depression has the highest disease burden for women internationally. It is particularly serious during the perinatal period, due to the vulnerability of the infant and the impact on the family during this critical time.
- Understanding of the extent of the impact of parental depression on child development is still growing; however, emerging evidence shows that persistent depression beyond the postnatal period has a significant impact on long-term child health and development.

Perinatal Mental Health

The WHO defines mental health as “a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community.”⁵

The Mental Health Commission of Canada reported approximately 6.8 million people (19.8% of the population) people living with a mental illness in Canada in 2011. That’s more than three times the numbers who live with type 2 diabetes and almost five times as high as people living with heart disease.⁶ These figures are most likely underreported; as many as 50% of women and men may not categorize their challenges as mental illness and overlook seeking help.

According to the Ontario Better Outcomes Registry & Network (BORN) Information System in 2015, maternal mental health concerns affect 15.8% of mothers. Anxiety during pregnancy affects 9.1% and depression during pregnancy affects 7.7%.⁷ The rates are the highest for

mothers under 25, with 14.3% experiencing anxiety and 13.8% experiencing depression during pregnancy.⁷

Pregnancy and the first-year postpartum are particularly vulnerable times for mental health in a family. This is a period of time when parents likely have extreme fatigue, while experiencing the pressures and concerns of caring for a new infant and changes in their family relationships. Any one of these situations makes dealing with and diagnosing depression more challenging.⁸

Beyond the potentially difficult changes in sleep patterns, emotional responses, household responsibilities and appetite, some parents may also develop a perinatal mood disorder (PMD). These include mild-to-severe mental health conditions (see below) such as anxiety, depression and postpartum psychosis. They can occur at any time during pregnancy or within the first year postpartum.⁹⁻¹¹ Perinatal anxiety disorders are a common comorbidity to depression, yet have been studied less.⁸ These conditions create symptoms that can have significant impacts on themselves and other members of their household and family.¹² Although perinatal anxiety disorders are beginning to receive more research attention, the majority of this section focuses on perinatal depression and its associated risks, impacts and costs.

Postpartum Blues or “Baby Blues”

This is the most common perinatal mood disturbance, affecting an estimated 50%- 80% of women.¹¹ It is considered to be a part of normal postpartum adjustment. Baby blues is different from PMDs and unrelated to psychiatric history.^{9,13} The blues most commonly appear within the first few hours to days after birth. They may be characterized by tearfulness for no apparent reason, unstable moods, irritability, fatigue, anxiety, confusion and appetite disturbances.¹³⁻¹⁵ Symptoms usually do not last longer than two weeks or require intervention.

Perinatal Anxiety

It is important to be aware of anxiety as a co-morbidity or separate morbidity in the perinatal period. That’s because of its potential impact on the severity of symptoms of depression, challenges with appropriate treatment strategies, and increased risk for suicide.¹⁶

Perinatal anxiety refers to a range of anxiety disorders: obsessive compulsive disorder, panic disorder, post-traumatic stress disorder, generalized anxiety disorder, separation anxiety disorder and/or specific phobias occurring during the perinatal period.^{17,18} Prenatal anxiety can

also present with unique concerns. The predominant feature is recurring thoughts about the fetus, worry that something might be wrong with the pregnancy, and concern regarding their parental competency.^{21,22} Anxiety may increase the number of visits to the health care provider and increase the risk of obstetric complications such as more frequent than usual nausea and vomiting and increased fetal movements.^{19,21,22} Following the birth of the baby, the symptoms of anxiety (like depression) may increase due to the physical, psychological and social transitions of parenthood.²¹

Perinatal Depression

Health care providers use discrete diagnostic criteria to determine types and categories of depression. For public health purposes, it is most helpful to be aware that depression exists on a spectrum, mild-to-severe, with severe depression potentially leading to death (suicide or infanticide).¹¹

Signs and symptoms of perinatal depression are similar to those of depression occurring at other times in life. This may include: persistent sadness; despondency; fatigue; loss of interest or pleasure; loss of appetite; sleep disturbances; tearfulness; poor concentration and memory; difficulty making decisions; irritability; feelings of guilt or worthlessness; incessant worrying about the baby; feelings of inadequacy and inability to cope with the infant; and suicidal ideation.^{14,18,19}

The uniqueness of the perinatal period is related to the timing for awareness and intervention. Pregnancy and postpartum are potential “trigger times” for those at risk of depression, with implications as well for the family and children.

Prenatal (Antenatal) Depression

Depression during pregnancy may have multiple consequences, including prolonged sick leave, inadequate prenatal care, negative expectations of motherhood, difficulties transitioning to parenthood, substance abuse, and the risk of developing other forms of distress.^{8,19} Prenatal depression is a leading risk factor for postpartum depression, especially when left untreated. It can lead to chronic or recurring depression that can affect the woman throughout her life.^{8,19}

Studies have found that the prevalence of prenatal depression can range from 7.4 to 18% (depending on the population, time period included, and method of assessment), and that

54.2% of women with postpartum depression had depression previously (either during pregnancy or prior).^{22,23} The prenatal time period is an important opportunity for raising awareness and identifying risk.

Postpartum (Postnatal) Depression

Postpartum depression is the most common disorder postnatally.⁸ While symptoms can occur at any time over the first year postpartum, they usually start within the first four weeks after delivery, and most develop within 12 weeks.¹⁴ Depression is the most common disability in women of childbearing age, whether or not they are pregnant or have children.²³ The World Health Organization reports that “depression is the leading cause of disease burden for women in both high-income and low- and middle-income countries”.²⁴ The seriousness of parental depression and its impact on the family is directly related to its timing.

Postpartum (Puerperal) Psychosis

This is the most rare but severe form of PMD (0.1% – 0.5%), with a rapid clinical onset that requires immediate medical attention and hospitalization.^{11,14} Symptoms can appear within 72 hours to four weeks postpartum.¹¹

Postpartum psychosis is characterized by delusions, hallucinations, severe and rapid mood swings, confusion, memory loss, disorientation, insomnia, and obsessive preoccupation about the baby.^{11,18} If left untreated, psychosis can be a potential risk factor for self-harm, suicide, or harm to the infant or other children, including infanticide.¹¹ The symptoms of postpartum psychosis are urgent indications for referral to medical care.

Paternal Perinatal Depression

Evidence and understanding of paternal depression is expanding. Recent studies have begun to elucidate risk factors for perinatal depression in men, which appear to have similarities to women but may differ in terms of onset and severity.²⁵

Paternal perinatal depression focuses on men’s experiences with depression and anxiety from their partner’s first trimester of pregnancy to age 1 of the baby.²⁶ An international meta-analysis found rates of paternal perinatal depression to be 10% overall, with occurrences highest from 3-

6 months postpartum. This rate is higher than the rate of depression among men in the general population (5%-6%) in a similar demographic.²⁷

Depression among men has been found to be underdiagnosed and under-reported. It also presents differently.²⁶ Similarly to women, men can present with moodiness and lethargy; however, men are more likely to have lower impulse control, increased irritability and hyperactive behaviour, and displays of anger.²⁶

Depression and anxiety among men can be difficult to diagnose, as screening tools are tailored to female expressions of depression. In addition, depression in men can be masked by interpersonal conflict, difficulties sleeping, and avoidance behaviours (e.g., drug and alcohol use, and preoccupation with work).²⁶ Fathers who experience depression and anxiety are less likely to have effective interpersonal support systems, or to adopt positive coping strategies. They're also more likely to be socially isolated, which can be harmful for themselves and their families.^{26,28} Men are at greater risk for depression and anxiety if they have a history of depression, are experiencing unemployment, and/or have difficult partner or family relationships.²⁵

Risk Factors for Perinatal Depression

Regardless of the time of their presentation, specific risk factors contribute to the increased possibility and/or severity of depression. The causes of PMDs are complex. The following table lists common risk factors,¹⁰ which should be seen as such rather than as determinants of illness.

Table 2.1.1: Strong, Moderate, and Weak Risk Factors for Perinatal Depression¹⁰

Strong Risk Factors	Moderate Risk Factors	Weak Risk Factors
<ul style="list-style-type: none"> • A history of psychiatric illness, including depression or anxiety at any time, including, but not limited to, during the perinatal period • Prenatal symptoms of anxiety • The onset of depression during pregnancy or postpartum 	<ul style="list-style-type: none"> • Stressful life events (e.g., relationship breakdown or divorce, losing a job, incarceration, housing insecurity) • Refugee or immigrant status • Low social support or perception of low support • Unfavourable obstetric outcome(s) • Low self-esteem • A history of physical or sexual abuse during childhood or adulthood • Intimate partner violence • A history of reproductive trauma (e.g., infertility) • Grief related to miscarriage, stillbirth, or infant loss • Substance use, including the use of tobacco 	<ul style="list-style-type: none"> • Low socio-economic status • Lack of significant other or partner; single parent • Pregnancy, as defined by the person, as unplanned or unwanted • Breastfeeding challenges, including a lack of social support or support by a health-care provider

Source: Registered Nurses' Association of Ontario. Assessment and interventions for perinatal depression. 2nd ed. Toronto, ON: Registered Nurses' Association of Ontario; 2018. Used with permission

Socio-cultural Issues

Research demonstrates that perinatal depression exists across cultures, can affect women and men of all ages, ethnicities, and levels of education, and can also affect parents through adoption.²⁹ Perinatal depression is a universal experience, although it may be described and labelled differently in each context. It is important to recognize that many circumstances and contexts shape a person's response to pregnancy and parenthood, as well as the type of care they require if they have a PMD. For example, transgender men (biological women who have transitioned to the male gender)³⁰ and lesbian, gay or bisexual parents may experience perinatal depression at higher rates than the heterosexual population.³¹ Indigenous women, adolescent

women, women with histories of addiction, immigrants, refugees, and individuals with disabilities also have a higher risk of PMDS.¹⁰

The interplay of the social determinants of health, including cultural, social, and systemic factors, can compound depression. One Canadian study found that immigrant women from minority groups had higher rates of postpartum depression (25%) than Canadian-born women (11.2%) and immigrants from majority groups (8.3%).³² Other compounding factors include stressors such as migration stress, domestic violence, language barriers, unemployment or underemployment, legal status concerns, and family separation.³² There is a dearth of reliable, current data relating to most of these demographic categories.

Cultural factors can have a strong influence on perinatal mental health outcomes, and are correlated with the amount of support received from family and friends.³³ For example, immigrants who are removed from traditional family and cultural support tend to experience higher levels of perinatal depression.^{32,33} Some cultural practices mitigate depression, through family support and a prescribed period of rest and caregiver for the mother.

When expectations of support and care are unmet, or relationships with the mother's caregivers are stressful or negative, there is a detrimental effect on perinatal mental health.³³ This risk highlights the need for culturally relevant and sensitive education and interventions.^{32,33}

Each community and health unit has a different demographic composition. It's important to understand the profile of an individual's community, and the resources available for each population. A situational assessment can help to determine that, inform a comprehensive population health promotion approach (see module 3.1), and tailor community and public health care pathways (see modules 5.1 and 5.2).

Impacts of Perinatal Depression

Women's Functioning

PMD can have a profound impact on women's overall health, through a negative effect on their abilities to perform self-care, interact socially with other adults, and care for their homes.⁷ The new responsibilities and extreme fatigue associated with caring for a new baby, which can strain any parental or family relationship, is compounded in cases of PMD.¹² Longer term,

perinatal depression can have a negative impact on return to previous occupational activities. That, in turn, can affect an individual life, income, and access to insurance, pension and health benefits.^{8,12}

Suicide, while a serious perinatal risk, is a lower risk for women with depression during pregnancy and in the first year postpartum compared to nonpuerperal time periods.¹⁴

Fetal Development

Left untreated, people with prenatal depression or anxiety may eat poorly, miss prenatal appointments, or use coping mechanisms such as tobacco or alcohol. That, in turn, may lead to increased risk of preeclampsia, premature delivery, low birth weight, spontaneous abortion, and fetal death.^{8,34}

Emergent research is improving the understanding of how the environmentally-dependent developing brain “architecture” (total brain connections, also known as connectome) is influenced, even down to the level of single gene expression.³⁵ Epigenetics is the branch of science that studies the mechanisms by which gene expression is changed without modifying the underlying genetic sequence of the DNA. It studies the influences that change gene expression, such as environment or heredity.

Emerging evidence in the field of behavioural or social epigenetics describes how epigenetic changes can occur as the result of life experiences.³⁶ For instance, it explains the chemical mechanism of how nurture impacts or alters (dims or amplifies) nature.

Genetic variability has a role. However, maternal stress during pregnancy can influence future reactivity to stress, by potentially altering the developing neural circuits that control neuro-endocrine responses and affect epigenetic modifications of DNA.^{2,3} In other words, as a fetus grows, the ways its brain reacts to stress may change depending on the level of stress experienced by the mother.⁴

Physiologic responses to stress include increased levels of hormones such as cortisol and adrenaline. In small amounts these stress hormones are essential to survival. However, high levels or prolonged exposure can lead to over-activation of the stress-mediating system, which can permanently reprogram the functioning of the hypothalamic-pituitary-adrenal (HPA)

axis.^{2,3} In short, prenatal depression and anxiety and increased levels of cortisol, is linked to altered neonatal neuro-behaviours and lower levels of serotonin in newborns.³⁷ These conditions point to associations with infant temperament and child behavior problems such as Attention Deficit Hyperactivity Disorder (ADHD), but we don't know enough about biological mechanisms and their lifelong effects to speak confidently about exact impacts.^{2,38} Still, early identification and connection with women who are depressed, and/or at risk for depression, during or before pregnancy can reduce this potential harm to the developing child.

Quality of Mother-child Interactions

In terms of the mother-child dyad, mothers with postpartum depression are less likely to:

- initiate or continue breastfeeding, or feed exclusively^{39,40}
- perform self-care, which can translate into less than ideal care for the baby
- attend well-child visits
- complete immunizations
- use home safety devices
- have their infant use back sleep positions
- consistently use a car seat
- engage in enriching activities like reading, singing or outdoor activities^{9,41}

From the earliest newborn period, infants are very sensitive to the emotional states of their mothers and other significant caregivers. They need external regulation and caregivers to respond to their needs. Infants convey their needs through variations in how they cry, arouse, react or other behaviours.⁴²

Healthy attachment is formed when parents learn to effectively respond to the cues of their baby; that's necessary for health brain development of the child.^{4,34} There is a "serve and return" of attachment, which refers to the signals the baby "serves" (cooing, arousing, crying), and the process of parents learning to respond increasingly effectively to those cues (the "return"). When this is disrupted, dysregulation can increase and impact the baby's ability to learn self-soothing or be regulated.³⁶ This can present a challenge for any parent, much more so for one struggling with a mood disorder.

An inability to read cues, which maternal depression can cause, may also contribute to toxic stress in infants and children.^{4,36} Toxic stress is considered to be exposure to chronic and unrelenting stress caused by various experiences, including repeated abuse, extreme poverty, parental substance abuse, or severe maternal depression, without the protection from a supportive adult relationship.^{4,36}

Toxic stress activates the body's stress response system experienced in utero and early childhood, damages developing brain architecture, and becomes embedded in multiple organ systems.³ These effects increase the risk for poor physical and mental health, including poorer cardiovascular functioning, and higher rates of gastrointestinal and respiratory infections.^{2,4} There is still much to discover on this topic, including prevalence rates and the burden of disease.

Infant and Child Development

The literature reveals a well-established connection between untreated perinatal depression and negative child development.¹⁴ Infants exposed to PMD experience sleep problems, temperamental difficulties, excessive crying or colic, poor cognitive functioning, and emotional maladjustment.¹⁴ Maternal distress has been associated with detrimental effects of infant cognitive, psychomotor, and behavioural development.^{42,43}

Having a parent with mental health problems is considered an adverse childhood experience.⁴ Such experiences have impacts on behaviour, physical and mental health, educational achievement, and social and health realities for life.^{4,44} Children whose mothers have PMD have been shown to have an increase in multiple health issues, including behavioural and emotional difficulties, such as violence and conduct disorders.^{14,28,44} Studies have shown that children with parents with PMD have a higher prevalence of anxiety disorders, and psychiatric and medical disorders in adolescence.^{14,17}

There is also a growing body of evidence showing that paternal depression, like maternal depression, is associated with an increased risk of cognitive, behavioural and mood issues in children and adolescents.⁴⁵ Hyperactivity in boys and social and emotional development in girls has been shown to be particularly sensitive to depression and anxiety in their fathers.^{26,34}

Increasing evidence points to the persistence of depression, beyond the postnatal period, as the most important mediator of child developmental challenges.^{23,42} This is particularly true in relation to child cognitive development.³⁴ Not surprisingly, the risk of poor child outcomes is compounded when both parents experience depression.^{45,46}

Partners and Other Family Members

Partners can also be seriously impacted by perinatal depression. They are often the first to experience the effects of the symptoms, and may be required to take on additional roles in the home to support the family. Maternal depression is associated with higher levels of marital/partner conflict and affectionless control, reduced family cohesion, warmth, and expressiveness, and increased disorganization in family activities and roles.⁴⁷ Similarly, paternal perinatal depression is associated with increased disharmony in partner relationships, particularly with higher levels of criticism present.⁴⁸

Studies continue to show at least moderate correlation between maternal depression and paternal depression.⁴⁶ This finding does not imply causality, but is important when considering the family as a whole and the impacts on the child.²⁷

Other family members may feel helpless and not know how to support the depressed parent. These feelings may compound when the partner is also depressed, and the family requires increased support from the extended family. Grandparents may be needed to take on the role of caregiving for the infant and/or other children.¹² Having someone in the family who can provide support for that nurturing bonding relationship is important. Conversely, research has shown that positive social support networks lead to better mental health (i.e., through improved ability to cope with stressful life events, additional financial support, and access to resources for appropriate parenting methods).⁴⁹

Societal Costs

There is no specific data on the societal costs of perinatal depression in Canadian women. However, the Mental Health Commission of Canada has estimated that the economic cost to Canada of all mental health problems and illnesses to be at least \$50 billion annually.⁶ That includes health care, social services, income support, as well as a cost to business of \$6 billion lost productivity.⁶

Perinatal mood disorders contribute to these costs and there are estimates from other jurisdictions. In 2012, Deloitte Access Economics estimated that in Australia the societal cost specifically related to perinatal depression was \$433.42 million (\$4,509 per person with PMD).⁵⁰ Their estimate includes direct financial costs of health services (i.e., primary care, specialist, medications, hospitals), indirect financial costs (i.e., lost earnings, the cost of informal care provided by family members/others), and the costs to the wider community (i.e., increased taxes to cover health care delivery).⁵⁰ As well as financial costs, the report equates PMD to a loss of 20.7 DALYs (disability-adjusted life years), a significant disease burden.⁵⁰

In 2014, the Maternal Mental Health Alliance of the UK commissioned a report on the costs of perinatal mental health problems.⁵¹ They concluded that the combined costs of perinatal depression, anxiety, and psychosis amounted to £8.1 billion per one-year cohort of births, or just under £10,000 for every birth; 72% of this cost related to adverse impacts on the child.⁵¹ The report suggested that providing perinatal mental health care (including preventative and early treatment measures) at the level and standard recommended by national guidance would cost £400 per average birth. The report argues, “because the costs of perinatal mental health problems indicate the potential benefits of intervention, even a relatively modest improvement in outcomes would be sufficient to justify the additional spending on value for money grounds.”⁵¹ It’s reasonable to assume that the same premise would hold true in Canada.

References for Module 2.1

1. Ontario. Ministry of Health and Long-Term Care. Ontario public health standards: requirements for programs, services, and accountability, 2018. Toronto, ON: Queen's Printer for Ontario; 2018. Available from: http://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/
2. Shonkoff JP, Garner AS, Siegel BS, Dobbins MI, Earls MF, Garner AS, et al. The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*. 2012;129(1):e232–46.
3. Palma-Gudiel H, Córdova-Palomera A, Eixarch E, Deuschle M, Fañanás L. Maternal psychosocial stress during pregnancy alters the epigenetic signature of the glucocorticoid receptor gene promoter in their offspring: a meta-analysis. *Epigenetics*. 2015;10(10):893–902.
4. National Scientific Council on the Developing Child. Early experiences can alter gene expression and affect long-term development: working paper no. 10. 2010. Cambridge: Harvard University; 2010. Available from: <https://developingchild.harvard.edu/resources/early-experiences-can-alter-gene-expression-and-affect-long-term-development/>
5. World Health Organization (WHO). Mental health: strengthening our response [Internet]. Geneva: World Health Organization; 2016 [cited 2018 May 14]. Available from: <http://www.who.int/mediacentre/factsheets/fs220/en/>
6. Mental Health Commission of Canada. Making the case for investing in mental health in Canada [Internet]. Ottawa, ON: Mental Health Commission of Canada; 2016 [cited 2018 May 14]. Available from: https://www.mentalhealthcommission.ca/sites/default/files/2016-06/Investing_in_Mental_Health_FINAL_Version_ENG.pdf
7. Ontario Agency for Health Protection and Promotion (Public Health Ontario). Snapshots: Data file for maternal health snapshot (2013 to 2015) [Internet]. Toronto, ON: Queen's Printer for Ontario; 2017 [cited 2018 May 14]. Available from: <http://www.publichealthontario.ca/en/DataAndAnalytics/Snapshots/Pages/Maternal-health.aspx>
8. Goodman JH, Tyer-Viola L. Detection, treatment, and referral of perinatal depression and anxiety by obstetrical providers. *J Womens Health*. 2010;19(3):477–90.
9. O'Hara MW, McCabe JE. Postpartum depression: current status and future directions. *Annu Rev Clin Psychol*. 2013;9:379–407.
10. Registered Nurses' Association of Ontario. Assessment and interventions for perinatal depression. 2nd ed. Toronto, ON: Registered Nurses' Association of Ontario; 2018.

11. Bobo WV, Yawn BP. Concise review for physicians and other clinicians: postpartum depression. *Mayo Clin Proc.* 2014;89(6):835-44.
12. Austin M-P, Highet N; Guidelines Expert Advisory Committee. Clinical practice guidelines: depression and related disorders – anxiety, bipolar disorder and puerperal psychosis – in the perinatal period. Melbourne AU: beyondblue; 2011.
13. BC Reproductive Mental Health Program. Best practice guidelines for mental health disorders in the perinatal period. Victoria, BC: BC Reproductive Mental Health Program; 2014. Available from: <http://www.perinatalservicesbc.ca/Documents/Guidelines-Standards/Maternal/MentalHealthDisordersGuideline.pdf>
14. Pearlstein T, Howard M, Salisbury A, Zlotnick C. Postpartum depression. *Am J Obstet Gynecol.* 2009;200(4):357–64. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3918890/>
15. Reck C, Stehle E, Reinig K, Mundt C. Maternity blues as a predictor of DSM-IV depression and anxiety disorders in the first three months postpartum. *J Affect Disord.* 2009;113:77–87.
16. Dennis CL, Falah-Hassani K, Shiri R. Prevalence of antenatal and postnatal anxiety: systematic review and meta-analysis. *Br J Psychiatry.* 2017;210:315–23.
17. Freed RD, Tompson MC, Otto MW, Nierenberg AA, Hirshfeld-Becker D, Wang CH, et al. Early risk factors for psychopathology in offspring of parents with bipolar disorder: the role of obstetric complications and maternal comorbid anxiety. *Depress Anxiety.* 2014;31(7):583–90.
18. Paschetta E, Berrisford G, Coccia F, Whitmore J, Wood AG, Pretlove S, et al. Perinatal psychiatric disorders: an overview. *Am J Obstet Gynecol.* 2014;210(6):501–9.
19. Banti S, Borri C, Camilleri V, Cortopassi C, Montagnani M, Ramacciotti D, et al. Perinatal mood and anxiety disorders - clinical assessment and management - a review of current literature. *Ital J Psychopathol.* 2009;15(4):351–66.
20. Austin MP, Tully L, Parker G. Examining the relationship between antenatal anxiety and postnatal depression. *J Affect Disord.* 2007;101:169–74.
21. Goodman JH, Chenausky KL, Freeman MP. Anxiety disorders during pregnancy: a systematic review. *J Clin Psychiatry.* 2014;75(10):e1153-84.
22. Grigoriadis S, VonderPorten EH, Mamisashvili L, Tomlinson G, Dennis C-L, Koren G, et al. The impact of maternal depression during pregnancy on perinatal outcomes: a systematic review and meta-analysis. *J Clin Psychiatry.* 2013;74(4):e321–41.

23. Gentile S. Untreated depression during pregnancy: short- and long-term effects in offspring. A systematic review. *Neuroscience*. 2017;342:154–66.
24. World Health Organization (WHO). Women’s health [Internet]. Geneva: World Health Organization; 2013 [cited 2017 Sep 8]. Available from: <http://www.who.int/mediacentre/factsheets/fs334/en/>
25. Underwood L, Waldie KE, Peterson E, Verbiest M, McDaid F, Morton S. Paternal depression symptoms during pregnancy and after childbirth among participants in the Growing Up in New Zealand study. *JAMA Psychiatry*. 2017;74(4):360–9. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5470399/>
26. O’Brien A, McNeil K, Fletcher R, Conrad A, Wilson A, Jones D, et al. New fathers’ perinatal depression and anxiety - treatment options - an integrative review. *Am J Mens Health*. 2017;11(4):863-76. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5675308/>
27. Paulson JF, Bazemore SD. Prenatal and postpartum depression in fathers and Its association with maternal depression: a meta-analysis. *JAMA*. 2010;303(19):1961–9
28. Singley DB, Edwards LM. Men’s perinatal mental health in the transition to fatherhood. *Prof Psychol Res Pr*. 2015;46(5):309–16.
29. Mott SL, Schiller CE, Richards JG, O’Hara MW, Stuart S. Depression and anxiety among postpartum and adoptive mothers. *Arch Womens Ment Health*. 2011;14(4):335–43. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3433270/>
30. Adams ED. If transmen can have babies, how will perinatal nursing adapt? *MCN Am J Matern Nurs*. 2010;35(1):26–32.
31. Steele LS, Ross LE, Epstein R, Strike C, Goldfinger C. Correlates of mental health service use among lesbian, gay, and bisexual mothers and prospective mothers. *Women Health*. 2008;47(3):95–112.
32. Fung K, Dennis C-L. Postpartum depression among immigrant women. *Curr Opin Psychiatry*. 2010;23(4):342–8.
33. Bina R. The impact of cultural factors upon postpartum depression: a literature review. *Health Care Women Int*. 2008;29(6):568–92.
34. Stein A, Pearson RM, Goodman SH, Rapa E, Rahman A, McCallum M, et al. Effects of perinatal mental disorders on the fetus and child. *Lancet*. 2014;384(9956):1800–19.

35. Sokolowski MB, Boyce WT. Encyclopedia on early childhood development: epigenetics [Internet]. Montreal, PQ; Canadian Institute for Advanced Research (CIFAR); 2017 [cited 2018 May 14]. Available from: <http://www.child-encyclopedia.com/epigenetics>
36. Center on the Developing Child at Harvard University. InBrief: the science of early childhood development. Cambridge: Harvard University; 2007. Available from: <http://developingchild.harvard.edu/resources/inbrief-the-impact-of-early-adversity-on-childrens-development>
37. Oberlander TF, Weinberg J, Papsdorf M, Grunau R, Misri S, Devlin AM. Prenatal exposure to maternal depression, neonatal methylation of human glucocorticoid receptor gene (NR3C1) and infant cortisol stress responses. *Epigenetics*. 2008;38(2):97–106.
38. Talge NM, Neal C, Glover V. Antenatal maternal stress and long-term effects on child neurodevelopment: How and why? *J Child Psychol Psychiatry*. 2007;48(3-4):245–61.
39. Dennis CL, McQueen K. The relationship between infant-feeding outcomes and postpartum depression: a qualitative systematic review. *Pediatrics*. 2009;123(4):e736–51.
40. Pope CJ, Mazmanian D. Breastfeeding and postpartum depression: an overview and methodological recommendations for future research. *Depress Res Treat*. 2016;2016:1–9. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4842365/>
41. Balbierz A, Bodnar-Deren S, Wang JJ, Howell EA. Maternal depressive symptoms and parenting practices 3-months postpartum. *Matern Child Health J*. 2015;19(6):1212–9. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4422772/>
42. Van Der Waerden J, Galéra C, Larroque B, Saurel-Cubizolles M-J, Sutter-Dallay A-L, Melchior M. Maternal depression trajectories and children’s behavior at age five years. *J Pediatr*. 2015;166(6):1440–8. Available from: <http://hal.upmc.fr/hal-01148714>
43. Kingston D, Tough S, Whitfield H. Prenatal and postpartum maternal psychological distress and infant development: a systematic review. *Child Psychiatry Hum Dev*. 2012;43(5):683–714.
44. Miklush L, Connelly CD. Maternal depression and infant development: theory and current evidence. *MCN Am J Matern Nurs*. 2013;38(6):369–74.
45. Rasing SPA, Creemers DHM, Janssens JMAM, Scholte RHJ. The association between perceived maternal and paternal psychopathology and depression and anxiety symptoms in adolescent girls. *Front Psychol*. 2015;6(963):1–7. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4508489/>

46. Kim P, Swain JE. Sad dads: paternal postpartum depression. *Psychiatry*. 2007;4(2):36–47. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2922346/>
47. Foster CE, Webster MC, Weissman MM, Pilowsky DJ, Wickramaratne PJ, Rush AJ, et al. Course and severity of maternal depression: associations with family functioning and child adjustment. *J Youth Adolesc*. 2008;37(8):906–16. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4086840/>
48. Ramchandani PG, Psychogiou L, Vlachos H, Iles J, Sethna V, Netsi E, et al. Paternal depression: an examination of its links with father, child and family functioning in the postnatal period. *Depress Anxiety*. 2011;28(6):471–7. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3128925/>
49. Balaji AB, Claussen AH, Smith DC, Visser SN, Morales MJ, Perou R. Social support networks and maternal mental health and well-being. *J Women's Heal*. 2007;16(10):1386–96.
50. Deloitte Access Economics. The cost of perinatal depression in Australia [Internet]. Sydney, AU: Deloitte Access Economics; 2012 [cited 2018 May 14]. Available from: <https://www2.deloitte.com/au/en/pages/economics/articles/perinatal-depression-australia-cost.html>
51. Bauer A, Parsonage M, Knapp M, Iemmi V, Adelaja B. The costs of perinatal mental health problems. London: Centre for Mental Health; 2014.

Introduction

This module provides an overview of the role of Ontario PHUs in promoting perinatal mental health, and identifying and supporting parents at risk for, or experiencing, symptoms of perinatal depression.

This module, in the context of public health in Ontario, can help PHUs to:

- support program development
- provide background for the development of a program business case
- communicate with frontline staff regarding the role of public health in relation to this issue
- share material with community partners to increase their understanding of the role of public health in this issue

The Healthy Growth and Development Standard of the *Ontario Public Health Standards*¹ has a stated goal: “To achieve optimal preconception, pregnancy, newborn, child, youth, parental, and family health.” As described in module 2.1, perinatal mental health is an important public health issue that addresses the topics of growth and development, healthy pregnancies, mental health promotion, and positive parenting.

This Toolkit may also be informative to the planning and delivery of the Healthy Babies Healthy Children (HBHC) program. The comprehensive population health promotion approach described in this Toolkit has greater breadth than the individual service delivery model of the HBHC program. Still, there may be opportunities to integrate components of these modules (particularly module 5.2 *Developing a Public Health Care Pathway*) into the screening and home visiting provided to HBHC clients.

Finally, following this approach can:

- provide information on the extent and geographic distribution of perinatal mental health issues; and

- support PHUs to collaborate with other providers in the community, by describing the current assets and gaps in identifying, diagnosing and treating parents with perinatal mental health issues.

Table 2.2.1: HHDT Statement #1

HHDT Statement	Description	Rating
HHDT Statement #1	HHDT consensus supports public health units to address perinatal mental health within their healthy growth and development programming and engage in population health promotion strategies to address it.	Rated*: HHDT-C

*See Module 1.1 for evidence grade definition

Public Health’s Role in Addressing Perinatal Mental Health

Module 2.1 establishes the importance of perinatal mental health as a women’s health issue and one with a significant impact on the healthy growth and development of infants and children, family functioning, and society as a whole. This is a broad health system issue; public health can play a unique role as part of a system-wide response.

The work of public health is grounded in the population health approach, focused on upstream efforts to:

- promote health and prevent diseases
- improve the health of populations
- reduce the differences in health between groups by addressing equity issues and the social determinants of health (SDOH)¹

The factors contributing to these health issues are complex. As such, public health applies comprehensive approaches that typically combine population health assessment and surveillance, education and awareness, policy and advocacy, collaboration and partnerships, and direct service delivery. This Toolkit describes public health’s role in three areas: planning, population health strategies, and service to individual clients/families.

Planning

Modules 3.1 and 3.2 of this Toolkit detail how PHUs can conduct a situational assessment, and population health assessment and surveillance, around perinatal mental health/perinatal

depression in their communities. In these modules, the HHDT makes three statements for PHU action regarding their planning role.

Table 2.2.3: HHDT Statements #2-4

HHDT Statement	Description	Rating
HHDT Statement #2	HHDT consensus supports public health units to complete a situational assessment as the first step in a comprehensive population health promotion approach to perinatal mental health.	Rated*: HHDT-C
HHDT Statement #3	HHDT consensus supports public health units to conduct a population health assessment related to perinatal mental health, in collaboration with their LHIN(s), primary care providers, and community partners, as appropriate.	Rated*: HHDT-C
HHDT Statement #4	HHDT consensus supports public health units to identify, collect, and regularly monitor appropriate indicators and sources of data related to risk factors and/or symptoms of perinatal mental health.	Rated*: HHDT-C

*See Module 1.1 for evidence grade definition

Population Health

Modules 4.1 and 4.2 of this Toolkit provide information about the role of public health in building community collaboration and capacity, and promoting public education and awareness of perinatal mental health. This is where public health nurses, with their extensive knowledge of their communities and partners, can play a key role. The HHDT has three statements for Ontario PHU action regarding their role in these areas.

Table 2.2.4: HHDT Statements #5-7

HHDT Statement	Description	Rating
HHDT Statement #5	HHDT consensus supports public health units to engage with their LHIN(s), primary care providers, community service partners, and clients to address perinatal mental health promotion service planning and delivery in their communities.	Rated*: HHDT-C
HHDT Statement #6	HHDT consensus supports public health units to provide ongoing professional development on perinatal mental health to, at a minimum, all public health professionals who work with pre- and postpartum individuals and families.	Rated*: HHDT-C
HHDT Statement #7	HHDT consensus supports public health units to explore opportunities to raise public awareness about perinatal	Rated*:HHDT-C

HHDT Statement	Description	Rating
	mental health.	

*See Module 1.1 for evidence grade definition

Service to Individual Clients/Families

Public health can play a key role in promoting perinatal mental health in the population. Still, primary care providers generally have the main responsibility for detecting and managing women with perinatal mental health issues. Nevertheless, public health can promote perinatal mental health by working closely with a range of health partners (i.e., physicians, nurse practitioners, midwives, CCACs, and organizations addressing the SDOH) to develop community systems of care. This will ensure that parents at risk of or experiencing perinatal mental health problems can access appropriate supports and services.

Each PHU has unique community needs and priorities, resources, capacities, partnerships, and services. The reach of HBHC, and the extent to which PHUs can offer individual service delivery beyond HBHC, varies. However, all PHUs have opportunities to engage individuals during the perinatal period.

For example, preconception health initiatives, as well as prenatal supports through a wide variety of programs/services such as the Canadian Prenatal Nutrition Program (CPNP) and HBHC are programs targeted at higher risk populations. Health information lines and PHU websites are available universally for both prenatal and postpartum populations.

As part of the HBHC program, universal screening identifies families to offer an in-depth assessment that may lead to home visiting services. In addition, postpartum and breastfeeding support services, and early parenting programs, may offer opportunities to screen during the perinatal period. Again, public health nurses are key service providers in these program areas.

Module 5.1 of this Toolkit describes the role of public health in facilitating the development of a community system of care for parents at risk for, or experiencing, symptoms of perinatal depression. Module 5.2 provides the information and evidence necessary for PHUs to make decisions about screening and the development of health unit care pathways. In these modules, the HHDT makes nine statements for Ontario PHU action.

Table 2.2.5: HHDT Statement #8-16

HHDT Statement	Description	Rating
HHDT Statement #8	Best or promising practices support public health units to engage with LHIN(s), primary care providers, and community services to identify and articulate a community system of care for individuals who are at risk of, or are experiencing, symptoms of perinatal depression.	Rated*: BP
HHDT Statement #9	Best or promising practices support public health units to implement screening activities as part of an established perinatal mental health community and public health system of care that supports assessment, diagnosis, treatment and follow-up.	Rated*: BP
HHDT Statement #10	Existing evidence supports public health units to screen pre- and postnatal women as a means of identifying women who are at risk for, or are experiencing, perinatal depression.	Rated*: EB
HHDT Statement #11	Best or promising practices support public health units to screen during the prenatal period and, where possible, at 6-12 weeks postpartum; taking into consideration that there is no conclusive evidence regarding the specific timing during these periods (particularly during the immediate postpartum period).	Rated*: BP
HHDT Statement #12	Existing evidence supports public health units to use the Edinburgh Postnatal Depression Scale (EPDS) as an evidenced-based screening tool, effective in identifying women at risk for, or experiencing, symptoms of perinatal depression.	Rated*: EB
HHDT Statement #13	Existing evidence supports public health units to establish a score of 13 or more on the EPDS to trigger a referral to primary care and/or community services for assessment and intervention.	Rated*: EB
HHDT Statement #14	Best or promising practices support public health units to build the capacity of their Public Health Nurses (including HBHC) to administer and interpret screening results using clinical judgement, within the context of a psychosocial assessment of the woman and an assessment of the mother-infant dyad.	Rated*: BP
HHDT Statement #15	Existing evidence supports public health units to include evidence-based and promising practice interventions in self-care, family and peer support, and psychoeducation as part of their care pathways and in coordination with the community system of care.	Rated*: EB

HHDT Statement	Description	Rating
HHDT Statement #16	Best or promising practices support public health units to participate in efforts such as research and program evaluation, as feasible, that will build evidence and contribute to identifying promising practices regarding public health approaches to perinatal mental health promotion and interventions.	Rated*: BP

*See Module 1.1 for evidence grade definition

Public Health Workforce

A comprehensive approach to perinatal mental health, as described in the modules of this Toolkit, requires a knowledgeable, multi-disciplinary team of public health professionals. Public health nurses who deliver direct service programs (including HBHC) will likely play a key role in identifying parents who are at risk for, or are experiencing, perinatal depression.

The public health roles described in the other modules (i.e., conducting situational assessments, and population health assessment and surveillance, facilitating community collaboration, building care provider and system capacity, and promoting public awareness) may require additional skill sets. This need may include health promoters, epidemiologists, physician engagement staff, health equity advisors, and others.

References for Module 2.2

1. Ontario. Ministry of Health and Long-Term Care. Ontario public health standards: requirements for programs, services, and accountability, 2018. Toronto, ON: Queen's Printer for Ontario; 2018. Available from:
http://www.health.gov.on.ca/en/pro/programs/publichealth/oph_standards/docs/protocols_guidelines/Ontario_Public_Health_Standards_2018_en.pdf