Guideline

Maternal-Neonatal COVID-19 Pregnancy Care Guideline

Updated: July 22, 2021

Contents

Revision History

July 22, 2021 – Current
For this version of the guideline, revisions are highlighted in yellow throughout the document.
October 28, 2020 – Original Release

A Note on Terminology and Language

In Ontario, there is a diverse range of populations that require pregnancy care as well as a wide range regulated healthcare providers (HCPs) who provide pregnancy care. There are also a variety of settings in which pregnancy care can occur. To support the application of these guidelines to the full spectrum of providers, the wide range of populations and the plethora of settings, the terminology used is meant to be representative. Selected terminology that has been used throughout the guidelines includes:

- pregnant individual/people: woman, transgender individual, non-binary individual, surrogate, gestational carrier
- care environment: clinics, offices, community settings, ambulatory care, homes, obstetrical triage, emergency room and birthing centres
- healthcare provider: regulated healthcare providers in Ontario, including family physicians, registered midwives, Indigenous midwives, obstetricians, maternal-fetal medicine specialists, Registered Nurses and Registered Practical Nurses
- support person: spouse, partner, co-decision maker

Summary of Recommendations

A. Care of Pregnant Population

Involvement of Support People in Pregnancy Care

- Visitor and support policies should allow for one support person (at minimum) for significant events in the prenatal period, including pregnancy loss and communication of and consultation for significant complications of pregnancy. Where in-person support is not possible or permitted, the importance of the support people and partners should be acknowledged, and their involvement facilitated through virtual means.
- The presence of culturally relevant support people is essential to culturally safe care.

Early Pregnancy Loss and Stillbirth

Presence of Support People at Times of Pregnancy Loss

- Where possible, support person policies should allow pregnant persons who may be losing a pregnancy at any gestational age to have one support person (at minimum) with them.

Follow-Up of Pregnancy Loss

- Follow-up of early pregnancy loss can often be done virtually, allowing for in-person visits as needed.
- Safe and empathetic care of pregnant individuals at risk of early pregnancy loss must remain a priority during the pandemic.
- Pregnant people experiencing loss should know how to seek emergency care and be reassured that if they need to be seen in person, they will be safe and at low risk of contracting COVID-19
- Surgical management of early pregnancy loss is non-elective and should be maintained as an option for management throughout the pandemic alongside expectant and medication management.

Stillbirth

- Special care and consideration must be taken in supporting individuals and families experiencing stillbirth during the pandemic. As usual, support systems and grieving venues may be altered or unavailable at such times, the needs of the family must be balanced with public health measures and pandemic protocols.
- The usual stillbirth investigations should continue to take place as well as consideration of COVID-19 testing of the person experiencing stillbirth, the infant and the placenta.

Termination of Pregnancy

First Trimester Medication Termination

- There is good evidence to support first trimester medication termination (up to 70 days GA) with reduced or no ultrasound or visits to hospital, directed by virtual care and handouts with instructions for the termination itself and for post-termination care.
- Care should be taken to ensure safe access to urgent post-abortion care for the small percentage of medication failures; this may involve a pathway with access to places other than busy emergency wards at times of high community transmission.

Surgical Termination

- Surgical termination is considered an essential service and should remain accessible in the pandemic.
- Surgical termination in a COVID-19 positive person should not be postponed if delay affects the person's safety or access to termination.

Second and Third Trimester Termination of Pregnancy

- The protection of reproductive rights extends to options to terminate a pregnancy in the second or third trimester; services to persons opting for pregnancy termination, such as safe and supported induction of labour, should remain similar to what is offered in non-pandemic times.
- Mifepristone, administered >12h before the start of induction should be considered to significantly shorten the admission to hospital without increased risk of fetal expulsion prior to hospital admission or other complications.

Treatment of Tissues, Remains and Stillborn Infants

- Families requesting tissues and remains should be respected as per institutional protocols. Cultural beliefs around burial should be facilitated and Indigenous people should have access to their placenta and remains of fetal tissue at their request for ceremonial purposes.

Prenatal Screening and Genetic Counseling

Prenatal Screening Ontario (PSO) Adjustments to Screening

- Prenatal screening for Down syndrome and Trisomy 18 should be offered and eFTS continues to be the preferred test in low-risk pregnancies. Where access to NT screening is limited, the following advice from Prenatal Screening Ontario should be followed:
    - For singleton pregnancies: if an NT ultrasound cannot be done, order Maternal Serum Screening (MSS, also known as Second Trimester Quad screen)

    - For twin pregnancies: NT services should be prioritized. If NT is unavailable or if maternal age is 35 or older at expected date of delivery, publicly funded NIPT will be temporarily available.
    - For higher order multiples: NT ultrasound currently is the only screening option available.

Special Considerations

Preeclampsia Screening

- Pregnant people at risk for preeclampsia benefit from low-dose ASA initiated at or before 16 weeks gestational age. Assessment of risk factors, with or without added serum biomarkers or biophysical markers, can assist in the reduction of the burden of preeclampsia and IUGR on care environments during COVID-19.

Sexually Transmitted Infections Screening and Treatment During the Pandemic

- Routine screening for STIs in pregnancy, including HIV, syphilis, hepatitis B, chlamydia and gonorrhea, should continue. Resources for screening, testing, contact tracing, education and follow-up should be considered essential services and be preserved during the pandemic.

Screening for Diabetes in Pregnancy

- Early pregnancy screening for women at risk of pre-existing diabetes should continue unchanged. While it may result in decreased detection of mild disease, screening for gestational diabetes between 24 and 28 weeks may be modified by replacing the OGTT with a random glucose and HbA1c when local lab capacity and/or disease levels necessitate.

Provision of Ultrasound for Low-Risk Pregnancies

- Access should be preserved to at minimum the following ultrasound scans:
    - First trimester ultrasound(s) for dating and NT
    - Second trimester fetal anatomic assessment
    - Third trimester ultrasound when indicated
    - Post-dates ultrasound when indicated

COVID-19 Vaccination in Pregnancy

- All pregnant individuals should have access to COVID-19 vaccination at any stage in pregnancy.

Management of High-Risk Pregnancy

Frequency and Form of Visits for High-Risk Pregnancies

- The care of high-risk pregnancies will, in essence, remain unchanged but contacts can be reduced by use of virtual visits, clustering of care and avoidance of duplication of assessments.

Assessment of Fetal Well-being

Special Tests

- Assessment of fetal well-being should continue to be performed but steps can be taken to reduce the number of unnecessary assessments through deliberate use of testing and/or special tests.

Perinatal Mood Disorders and Substance Use

- Pregnant and postpartum people, as well as those with pre-existing mental health conditions, are amongst the most vulnerable during the COVID-19 pandemic. Healthcare providers should prioritize the care of this population during the pandemic.
- Providers should increase their awareness of and screening for mood disorders and substance use and adjust the frequency and format of visits to allow for both early detection and intervention.
- Provision of perinatal mental health services should be considered an essential service and while the format may need to be altered, these services should be continued and strengthened throughout the pandemic.
- Existing resources and techniques for supporting pregnant individuals with perinatal mood disorders and substance use can be modified to create formats that are accessible through virtual means or a reduced number of visits.
- Given the likelihood of increased substance use and worsening of pre-existing substance use disorders during the COVID-19 pandemic, all pregnant people should be actively screened for alcohol, cannabis, tobacco, and prescription and recreational drug use at multiple points during the pregnancy.
- Pre-existing pregnancy-specific guidelines on substance use in pregnancy should be supplemented by general COVID-19 substance use guidance.

Intimate Partner Violence

- Due to the increased rates of IPV during the pandemic, providers should remain vigilant through increased screening for domestic violence as well as maintain a heightened awareness of the signs and symptoms suggestive of IPV.
- Care providers should remain vigilant to the ways in which virtual/remote care may be difficult to safely access for survivors of IPV and in-person care should be used to provide safe alternatives when necessary.

Birth Planning and Counseling

- Prenatal education can be offered during the pandemic through virtual means. Discussion on specific COVID-19 education should be incorporated into prenatal education and prenatal care.
- All pregnant individuals should explicitly plan for birth keeping in mind the impacts of COVID-19 on their care and care environments.

- Indications and options for IOL, TOLAC and high-risk pregnancies are unchanged by the pandemic. However, it should be acknowledged that the impacts of the pandemic may influence both the care environment and the pregnant person's preferences; shared decision-making should continue with increased attention to these factors.
- Guidance suggests that pregnant people can continue to work during the pandemic taking into consideration work related risk, individual risk and local disease activity. HCPs should continue to recommend appropriate workplace accommodations when risk is considered high.
- Pregnant HCPs may continue to work in clinical roles with proper infection control procedures and consideration of assignment to lower-risk care environments.

Testing for COVID-19 in the Pregnant Population

- Pregnant people should be screened and tested as per guidelines for the general population and should be considered a priority population if access to testing is limited. Testing should be expedited for labouring pregnant individuals and when a prerequisite of transfer to another facility.
- Policies on pre-admission and pre-surgical testing as well as disease clearance should apply to pregnant people in the same way that they do to the general population.

Surveillance of COVID-19 Positive Pregnancies

- Data collection is urgently needed to provide credible information to facilitate and improve care and to help guide decision making at a provincial level. Hospitals and midwifery practice groups are encouraged to contribute to the data collection for pregnant people with suspected or confirmed COVID-19 through BORN Ontario. Where data is not able to be collected through BORN (e.g., Indigenous Midwifery Programs), interim data collection should be implemented without delay.

B. Care of the COVID-19 Suspected or Confirmed Pregnant Person

- Routine pregnancy care may be deferred until the pregnant person with COVID-19 is no longer infectious, provided it is safe to do so.
- If possible, provision of pregnancy care, including maternal and fetal assessments as well as ultrasound, can be provided at the same visit to minimize multiple exposures to people and care environments.
- There is evidence showing an increased risk of severe infection with COVID-19 during pregnancy; therefore, increased surveillance for both the pregnant person and the fetus are warranted for the remainder of the pregnancy.

Use of Droplet/Contact PPE

- Droplet/Contact precautions are recommended for all HCPs during the routine care of pregnant people with suspected or confirmed COVID-19.

Support People for Pregnant Persons with Suspected or Confirmed COVID-19 Presenting for Pregnancy Care

Care Environment

- Dedicated care environments for care of COVID-19 positive pregnant people are suggested to minimize exposure of individuals and clinical spaces.
- Symptoms of COVID-19 in a pregnant person may require in hospital assessment and possible in-patient admission.

Stress and Stigma with COVID-19

C. Care Environment Considerations During the Pandemic

Infection Control and PPE

Screening

Active Screening

Passive Screening

Access to COVID-19 Assessment Centre/Testing

Modifications to Usual Visit and Frequency

- For most pregnancies, a minimum of eight antenatal appointments, with a combination of virtual and in-person care, can be adopted during the pandemic.
- Investigations, including lab and ultrasound, should be clustered where possible to minimize contacts with the health care system.
- Virtual care may replace some in-person in a blended model of care following guidance from professional organizations to ensure safety.

Technology Access and Equity

- HCPs should assess the pregnant person's needs, means and ability to participate in virtual care and provide accommodations as needed. No pregnant person should be denied appropriate pregnancy care based on their inability to access technology.

Lack of Access to Care, Late to Care

- HCPs must understand systemic barriers to accessing care and the disproportionate health impacts of the pandemic on populations who already carry a higher burden of perinatal morbidity and mortality. Providers must make efforts to create safe spaces and modifications to care for those facing barriers.

Fear of Accessing Care

- HCPs should be aware of the impact of fear on accessing prenatal care, including COVID-19 testing, and provide reassurance, guidance and resources to minimize this impact.

Rural and Remote Considerations

- In rural and remote communities, access to essential prenatal testing and diagnostics must be preserved. Where feasible, point of care testing should be made available and test timing should take into account transit times to urban laboratories.
- Virtual care can potentially improve access to prenatal care for rural and remote pregnant individuals, but providers must be aware of issues around access and the quality of technology in rural communities.
- Where possible, care should be provided in a pregnant person's home community. Where travel for care is necessary, visits and testing should be bundled in a way that minimizes travel and post-travel periods of self-isolation/quarantine.
- When pregnant people are required to travel in and out of their home community for prenatal care and birth, isolation and quarantine policies should balance the needs of the community and the impact on the individual and their supports. Anxieties around risk of contracting the virus must be balanced against the necessity of the care being accessed in other communities and safeguards put in place.
- During pregnancy care, providers should enquire directly about access to resources for transmission prevention, including safe housing and clean water.

Evacuation for Birth

- Increased planning for and education around resources in the planned location of birth will be needed during times of lockdown and phased recovery. Providers should be aware of and explicitly address the emotional and financial costs of evacuation for birth.
- Policies and practices around evacuation for birth must recognize that disproportionate burden carried by Indigenous communities and must be created in a culturally safe manner.
- All rural care providers and environments should be supported in providing care to COVID-19 suspected or positive pregnant people with increased virtual support and education and transfer when appropriate.

Care in Home and Non-Clinical Settings

- Visits outside of the clinical care environment should be kept to a minimum while recognizing these visits may be necessary in certain situations. Adequate PPE for HCPs, pregnant individuals and their support people, and strict IPAC practices, must be used to make visits in non-clinical environments as safe as possible.

D. Provider Considerations

Communication During and About the Pandemic

- HCPs and care environments should communicate with pregnant people about changes to care as well as provide information about COVID-19 in pregnancy. They are encouraged to do this through a variety of means, including websites and social media.
- Clear and empathetic communication is a priority. Providers should be aware of the ways in which virtual care and PPE may impact communication.
- Contact information should be collected and confirmed. Pregnant people at all gestational ages should be provided with copies of results to minimize repeat investigations.

Staffing

- Care environments should prepare for staffing impacts of the pandemic, including by developing emergency staffing plans and by strengthening community partnerships.
- Care environments should communicate clearly with staff about the impacts of COVID-19 on the work environment, including the details of pandemic staffing plans.

COVID-19 Related Stigma and Violence Directed Against HCPs

- COVID-19-related stigma and violence directed against healthcare workers cannot be tolerated. Care environments and workplaces should actively work to reduce stigma and violence through a multi-faceted approach.

E. Task Force Health Equity Content

- Providers and care environments should tailor these recommendations to the individuals under their care, consulting those who provide support to specific populations to ensure appropriateness.
- Indigenous populations should be asked directly what their needs are, and referrals made as required.

Understanding and Identifying Vulnerable Populations

Introduction

In the early months of the COVID-19 pandemic response, PCMCH's Maternal-Neonatal Committee established the first COVID-19 Task Force. This first task force was charged by the Ontario Ministry of Health (MOH) with addressing the immediate maternal-neonatal practice concerns relating to interpretations and application of guidelines for intrapartum care. Subsequent to the release of the *Maternal-Neonatal Guideline* in Spring 2020, the Committee identified the need for additional guidelines in the area of pregnancy care. The Maternal-Neonatal Committee Pregnancy Care Task Force was struck to continue to navigate the multiple practice guidelines from international, national, regional, and local authorities in an attempt to advise the health system and providers on safe practices related to prenatal care.

The task force reviewed English-language clinical guidelines and other guidance documents from government ministries and agencies, professional associations and colleges, international organizations, and other relevant organizations from Canada, the United Kingdom , United States of America , and Australia at the time of publication and with subsequent updates. As guidelines continue to be updated and new evidence emerges, sections of this guideline may no longer be current or applicable to clinical practice.

This Pregnancy Care Task Force was asked to provide the MOH with the recommendations that would standardize practice across the province in an attempt to reduce the variations among providers and across all antenatal care settings in the province of Ontario. The recommendations that follow reflect the current pandemic and integrate best scientific evidence, and are based on the following underlying values and principles.

This guidance provides basic information only. It is not intended to take the place of medical advice, diagnosis or treatment. Please check the PCMCH COVID-19 website and Ontario Ministry of Health (MOH) COVID-19 website regularly for the latest case definition, FAQs and other pertinent information.

Underlying Values & Principles

In preparation of this guideline, the task force was guided by the following underlying values:

Beneficence and duty of care	Providing safe and effective care within resource constraints and limitations of evidence
Access and Equity	Promoting just/fair distribution of benefit and burdens in time of pandemic
Utility	Balancing evidence and values in order to maximize the greatest possible good for the greatest number of individuals
Trust:	Foster and maintain the public's trust and health care providers' trust in each other, in leadership, and in their institutions
Solidarity	Building, preserving, and strengthening inter-professional and inter-institutional collaboration (a responsibility of Health Care Providers (HCPs), institutional leadership, and the MOH)
Advocacy	Identify emerging health issues in pandemic that require action; promoting public education and engagement; gathering feedback on impact at regional level

This guideline aims to:

- conserve quality, consistency and continuity of antenatal care for pregnant people and their supports even in face of changes and restrictions brought on by the pandemic
- promote public health aims of reducing COVID-19 transmission and preserving healthcare resources
- provide education and opportunity for engagement for HCPs and pregnant people
- align with Canadian guidelines, differing only where an Ontario-specific context was needed. The task force made recommendations that represent a general agreement from its members.
- support reconciliation through recommendations specific to Indigenous pregnant people and communities (see below)
- To bring to the guideline a focus on equity (see below)

Indigenous Health

It has been said that for Indigenous populations that they “are already walking in a pandemic” [1].

“Our communities are at the front lines of an inequitable system. The trauma experienced within a health care system that is systematically biased and racist is real for us and for our clients. It's a system that leaves us with limited supplies, inadequate or no clinical space and is painfully slow to respond to our needs. COVID-19 is a new and added layer to this” [2].

Although Indigenous people comprise approximately four per cent of the population of Ontario, the health inequities that Indigenous people face every day are enormous compared to the rest of the population [3].

The original people of the land were once healthy and thriving. The colonization of the land they inhabited resulted in the displacement of Indigenous people onto economically unfeasible reserve lands; the devastating and effects of residential schools; the forced sterilization of Indigenous women; the apprehensions of newborns from their families of origin; and the removal of pregnant people from their communities for prenatal and intrapartum care. Such imposed forces created these inequities since settlers landed on the shores of North America.

In recognition of these health inequities, it is contingent upon all HCPs to provide culturally safe trauma--informed care to all Indigenous families. The phrase “Nothing about us without us” reinforces the vision of a shared understanding of the relationship that Indigenous people are asking of their care providers. Another phrase, “ask, don’t tell”, also brings to light an approach to the provider/patient relationship that allows for the dialogue and respect required to achieve better health outcomes.

Indigenous communities have historically been disadvantaged by a lack of investment in perinatal care in rural, remote and Indigenous communities as well as the practice of evacuation for birth. In addition, historic harms have led to a distrust in the medical system and a reluctance to seek care. During the pandemic, these issues are magnified and negatively impact the ability to enact recommendations designed to maintain quality of care.

While this document focuses on pregnancy care during the COVID-19 pandemic, there is little information and data coming out of Indigenous communities to inform HCPs on current outcomes and changes in the way care is provided [4]. Throughout this document, we have added recommendations in areas where improvements can be made. In responding to the pandemic, as in all areas of healthcare planning, the approach should not deliberately consider the health needs of Indigenous populations but to ask – rather than tell – when making recommendations, incorporating a and process of Indigenous engagement that is led by Indigenous people.

COVID-19 and Health Equity

While forming the Pregnancy Care Task Force, it was recognized that the impacts of the COVID-19 pandemic and public health measures have had different implications to different populations. As the healthcare system continues to adapt and respond to the needs of Ontarians, the health needs of Indigenous peoples require healthcare providers and organizations to consider a culturally safe and customized response.

For many groups, the pandemic has created particular challenges that then impact and influence their experience of pregnancy within the healthcare system. The task force recognizes that recommendations presented may not be feasible or applicable to meet the needs of these individuals. As providers working and living in a vast and diverse space within Ontario, it must be recognized that many have an experience of being unable to meet the needs of those most vulnerable.

Pregnancy, childbirth and the postnatal period are critical life stages when individuals and their families have a high degree of interaction with multiple providers in the healthcare system. The need for equitable care during these life stages is time sensitive and cannot be delayed during the pandemic response. However, the changes brought about by the pandemic have highlighted and intensified the unintended consequences of current institutional practices and policies, resulting in marginalized and racialized groups being subjected to greater inequities. Efforts to reduce the number of interactions between care providers and pregnant/ postpartum individuals and their families can be adjusted during the pandemic; however, essential elements of care must be maintained.

A. Care of Pregnant Population

The COVID-19 pandemic has had far-reaching impacts on all care environments. Pregnancy care is an essential service that must continue regardless of disease activity and phase of the pandemic; therefore, providers have been called upon to alter form and frequency of care while still safeguarding the physical and emotional health of pregnant people and their fetuses [5, 6, 7]. Pregnancy is increasingly viewed as a risk factor for more severe outcomes from COVID-19 infection; this factor must also be considered in how pregnancy care is delivered during the pandemic [8]. The following discussion and recommendations will help guide the ways in which care can be modified to balance good outcomes with disease risk mitigation.

Involvement of Support People in Pregnancy Care

Traditionally, involvement of support people in prenatal care has been high. Pregnancy and the beginnings of a new family are times when pregnant people may desire or need an increased presence of support people, and when non-pregnant family members and supports feel a strong attachment to and involvement in the outcomes. Because of this, the presence of a designated support person during labour and birth continues is commended even during the pandemic [9].

To reduce transmission and conserve personal protective equipment (PPE) and staff time most healthcare environments have restricted or prohibited support people from attending many appointments, including routine prenatal appointments, scheduled investigations (e.g., ultrasound) and non-scheduled assessment (e.g., triage visits). While these restrictions may be seen as generally reasonable and often necessary for infection control reasons, it is important to consider the value of allowing support people in pregnancy care. This is especially true when pregnancy complications arise, when difficult decisions need to be made or when bad news needs to be communicated (e.g., abnormal test results, significant complications or pregnancy loss). As such, healthcare environments and providers should consider making exceptions to support/visitor restrictions in these circumstances.

At times, it may be appropriate and sufficient for the support person to be present via virtual means (e.g., phone or video), but the need for in-person support at highly emotional times cannot be disregarded. Equally, it must be acknowledged that pregnancy loss and fetal complications have a significant impact on support people over and above their role in supporting the pregnant person. When fetal outcomes are involved, support persons are often also shared-decision makers whose involvement is essential. Consideration should be given to providing consultations virtually where appropriate (e.g., genetic counseling) to facilitate the pregnant person and their supports being together and jointly involved in the consultation.

When support people attend in-person assessments, itis essential that everyone adheres to all infection control procedures, including screening and use of PPE.

The safety of the care team and care environment is paramount and, as such, there will be situations where in-person support cannot be permitted. Depending on the resources available in the care environment, the ability to facilitate in-person support people from one environment to another or during different phases of the pandemic may vary. Care environments should have a mechanism in place for pregnant people to request exceptions and policies should address the additional care needs of various populations (e.g., people living with disabilities, non-English speakers) as well as to encompass the diversity of families we care for (e.g., adoptive and surrogacy families, Indigenous families).

While prohibiting support people from attending routine prenatal care is reasonable to limit possible viral exposures involving them in prenatal care, not only in their supportive role but also to help prepare them for their role in birth and parenting, is important. Achieve this by:

- Encouraging support people to be present for virtual appointments
- Facilitating phone or video presence of support people at in-person appointments
- Permitting phone or video recordings for women to share (e.g., ultrasound images, fetal heart sounds)
- Providing written materials to support conversations on common topics

Pregnant people living in Indigenous and fly-in communities must often travel for prenatal care (see Rural and Remote Considerations) and their support people frequently travel with them. Due to public health measures and COVID-19 pandemic restrictions, supports may not be permitted to attend these visits in-person, which adds to the emotional, financial and cultural burden that Indigenous pregnant people must bear. Participation of some community members who represent significant cultural value may be crucial to the provision of care for the pregnant individual. Support person policies should reflect the needs of this population and alternatives to in-person support must be developed in a way that is accessible to them.

Visitor and support policies should allow for one support person (at minimum) for significant events in the prenatal period, including pregnancy loss and communication of and consultation for significant complications of pregnancy. Where in-person support is not possible or permitted, the importance of the support people and partners should be acknowledged, and their involvement facilitated through virtual means.

The presence of culturally relevant support people is essential to culturally safe care.

Early Pregnancy Loss and Stillbirth

At the time of this guideline, there is no clear evidence that exposure or infection with COVID-19 is a risk factor for early pregnancy loss. There is some emerging population-level data to suggest that the incidence of stillbirth has been increasing during the COVID-19 pandemic [8]. It is unclear at this time if this is due to the virus itself, to delayed or different patterns of care, or to socio-economic or other factors. Of note, this section refers to spontaneous pregnancy loss rather than induced terminations and abortions, which are covered in the following section: Termination of Pregnancy .

Losing a pregnancy, whether in the early weeks or the final days, is a highly stressful event that may be worsened in the context of the pandemic. The pregnant person may already be isolated socially, dealing with upheaval in work and childcare with decreased support from family, and is now facing pregnancy loss. They may have had heightened anxiety of being pregnant during the COVID-19 pandemic and may need additional supports and counseling.

It is also very important to recognize that Indigenous people have experienced high levels of intergenerational loss and trauma, including removal of infants from their care in more than one pregnancy. Care providers need to be culturally safe when discussing loss with Indigenous clients [10].

At-risk marginalized populations, or populations with unique cultural identities, may have customs or different needs when approaching pregnancy loss or stillbirth. Safe environments and spaces must be created that allows their experiences to be respected and valued.

Presence of Support People at Times of Pregnancy Loss

Due to restrictions on visitors and support people, there is an increased likelihood that a person who has lost their pregnancy will learn of the loss alone in an office, an ultrasound suite or the emergency room. Where possible, a pregnant person experiencing bleeding or lack of fetal movement should be allowed and encouraged to have a support person with them. This is a highly emotional and traumatic experience; it is well-documented that optimal family-centred care has a lasting impact on their mental health and future pregnancy experiences [11, 10].

Where possible, support person policies should allow pregnant persons who may be losing a pregnancy at any gestational age to have one support person (at minimum) with them.

With COVID-19 restrictions in place (both medical and in the community), the pregnant person experiencing loss may be feeling very isolated and alone.

HCPs must be highly awareness of this. Their family and friends may be unable to visit or help support them. It is important that care providers recognize this gap in support and, where needed, allocate additional time to ensure effective and safe communication. HCPs should consider making exceptions to visitor restrictions under certain circumstances; for example, respecting cultural practices, accommodating disabilities, mental health support and trauma-informed care, which may necessitate more than one support person's presence.

Follow-Up of Pregnancy Loss

Follow-up for early pregnancy loss and stillbirth can be done virtually as minimal physical exam is required. However, keep in mind that some pregnant individuals may require more frequent contact than others and an in-person visit may be appropriate. Referral to mental health services remains appropriate as needed and can be done virtually.

Follow up of early pregnancy loss can often be done virtually, allowing for in-person visits as needed.

When a pregnant individual presents with bleeding during COVID-19, all the usual assessments and care planning must take place. First trimester ultrasound is used to establish the pregnancy location (i.e., intrauterine versus ectopic) as well as to rule out gestational trophoblastic disease (molar pregnancy). Rhesus status should be established, and Rh Immunoglobulin administered if the pregnancy is at or above 49 days at the time of loss.

For early pregnancy loss occurring before 12 weeks with light bleeding, it may be possible for the pregnant person to remain at home, provided they have access to good pain control as well as anti-nausea medication. This can be provided at the time of their assessment to avoid additional travel. For early pregnancy loss occurring after 12 weeks and associated with bleeding, an in-person assessment must be done for assessment, vital signs and standard care in the usual care environments.

All pregnant people must be counselled on how to access telephone advice (based on local protocols) and when to seek emergency attention. Individuals should be counselled that their local in-person emergency and obstetrical care areas are safe places and will not increase their risk of exposure to COVID-19. When attending in-person (including ultrasound exams), if possible, pregnant individuals should have access to a private bathroom to avoid the need for repeated cleaning.

Ideally, at the time of an in-person assessment, any investigations, including ultrasound, quantitative beta HCG, CBC and Rh testing, are all done during the same visit to avoid return visits. Physical examination should be performed by the first provider (e.g., emergency physician) and should not be delayed due to PPE restrictions especially if

an individual is in pain or unstable. Pain and nausea must be well controlled with medication and outpatient prescriptions should be provided.
Follow-up and necessary consultations should be arranged and frequently can be provided through virtual means. HCPs should be aware of the role unconscious or hidden biases play in the provision of pain relief for racialized people. Unintended consequences may include inadequate provision of pain relief and lack of acknowledgement for racialized people.

Safe and empathetic care of pregnant individuals at risk of early pregnancy loss must remain a priority during the pandemic.

Pregnant people experiencing loss should be aware of how to seek emergency care and be reassured that if they need to be seen in person, they will be safe and at low risk of contracting COVID-19.

All management options for early pregnancy loss should be available. Expectant management or medication management are preferable to avoid surgical intervention. However, it is also essential for clinicians and hospitals to recognize that a dilatation and curettage procedure is an essential surgery and should continue to be available during the pandemic. The pregnant person should receive counseling regarding different methods for managing early pregnancy loss, and their choice should be included as part of the management planning.

Surgical management of early pregnancy loss is non-elective and should be maintained as an option for management throughout the pandemic alongside expectant and medication management.

Stillbirth

Stillbirth presents special challenges given the bereavement experienced by the pregnant individuals and their families. All efforts must be made to select a location where the person experiencing stillbirth can receive care in a sensitive manner, ideally separate from labouring individuals and newborns, following safety and COVID-19 infection control protocols.

In the case of a confirmed stillbirth, a wider circle of supports, including extended family and spiritual support, may be needed. Inclusion of additional support persons and longer hospitalization to facilitate grieving should be considered in the context of local guidelines. Opportunities for others to meet the infant in person may be restricted and families may need to balance the need for culturally appropriate rituals, funeral services and gatherings with the pandemic requirements of isolation and social distancing.

Medication management of stillbirth during the pandemic should follow intrapartum protocols as covered in the PCMCH Maternal-Neonatal COVID-19 General Guideline. The cause of most stillbirths in Ontario remain unexplained and investigations should continue to follow current guidelines, including sending the placenta for pathology. Although a causal link with COVID-19 infection has not been firmly established, there is evidence suggesting an increase in stillbirth rates during the pandemic [8]. Consideration should be given to testing people who have experienced stillbirth (with NP swab and/or antibody testing) as well as infant and placenta. This will both add to the overall body of knowledge and may give reassurance to the bereaved parent and their supports. Placental pathology may yield important information for future pregnancy planning.

Special care and consideration must be taken in supporting individuals and families experiencing stillbirth during the pandemic. As the usual support systems and grieving venues may be altered or unavailable at such times, the needs of the family must be balanced with public health measures and pandemic protocols.

The usual stillbirth investigations should continue to take place as well as consideration of COVID-19 testing of the person experiencing stillbirth, the infant and the placenta.

Termination of Pregnancy

Reproductive rights are considered essential and care should be taken to protect the provision of termination services despite of and especially during the pandemic response. [12] While this provision should never be delayed, policies that minimize the number of required visits should be applied, and procedures should be performed in outpatient settings wherever possible [13] [14].

First Trimester Medication Termination

The intake assessment for both medication and surgical termination services can be conducted virtually, and as most women present for termination have already made up their minds, counselling can be reserved for those who are ambivalent or emotionally distressed. In the absence of readily accessible ultrasound, gestational age (GA) can be estimated using last menstrual period (LMP), clinical history and physical examination in women who are certain of the date of their LMP [15]. Ultrasound is needed when uncertainty remains, and access to timely dating ultrasound should be ensured for these pregnancies [16]. In absence of ultrasound, beta-hCG levels can be used to estimate gestational age. For example, the cut-off value of 23,745mIU/mL can be used to detect pregnancies with a gestational age <7 weeks. The risk of ectopic pregnancy potentially missed with a non-ultrasound-based approach of medication terminations is 0.7 per

cent and is lower than the 1-2 per cent risk in the general population for whom a delay in first ultrasound assessment to 11-14 weeks gestation is advised [17] [18].

Up to 70 days (ten weeks) GA, medication termination is preferred over the surgical approach, as long as reasonable access to healthcare is provided for seven to 14 days after administration to manage incomplete abortions and treatment failures [19]. Evidence suggests that many women can safely conduct most of the medication termination processes themselves and in-person contacts and healthcare resources utilization can be reduced. Furthermore, the process can be supervised by a range of care providers, with in person assessment or hospital visits only necessary when complications occur.

Virtual post-termination care is suggested during the COVID-19 pandemic unless the situation allows for a visit to be combined with the administration of longer-term contraception or insertion of an intrauterine device [20]. A variety of options for contacting the individual (e.g., phone, email, contacting a friend) should be offered and emergency contact information should be obtained when possible. The provider should have an accessible system in place in case of emergencies.

Complete abortion is likely when both pregnant person and their clinician believe successful expulsion has taken place, based on history alone. In cases where there is ambiguity, serial beta-hCG measurements can provide definitive evidence of pregnancy termination [20]. A fall of beta-hCG levels of 80 per cent or more from pre-treatment to first follow-up at seven to 14 days is indicative of a completed medication termination. Ultrasound follow-up is equally effective but should be reserved for cases in which incomplete abortion is suspected [21]. A second dose of misoprostol can be considered for completion of a medication termination when there is a retained gestational sac or an ongoing pregnancy. Special risks include need for urgent surgical intervention for heavy bleeding or retained products, and access to surgical resources should be protected. Overall, three to five per cent of women require a subsequent aspiration after failed medication termination.

There is good evidence to support first trimester medication termination (up to 70 days GA) with reduced or no ultrasound or visits to hospital, directed by virtual care and handouts with instructions for the termination itself and for post termination care.

Care should be taken to ensure safe access to urgent post abortion care for the small percentage of medication failures; this may involve a pathway with access to places other than busy emergency wards at times of high community transmission.

Surgical Termination

Access to surgical termination through Dilation and Curettage or Evaluation (D&C, D&E) remains essential for the management of the individual who declines medication termination, for medication management failures and incomplete abortions, and the management of the pregnancies that have extended beyond the gestational age for safe out-of-hospital medication management. It should be emphasized that this should not be considered an elective procedure and access to surgical care should be maintained at all times.

Being COVID-19 positive is not an indication for, nor contraindication to, pregnancy termination. Therefore, the time-sensitive procedure should not be delayed if the safety of the pregnant individual is at risk or if delay of the procedure affects the individual's access to termination. Pathways for surgical termination options therefore need to include preparations and precautions for the person who is COVID-19 suspected or positive.

Surgical termination is considered an essential service and should remain accessible in the pandemic.

Surgical termination in a COVID-19 positive person should not be postponed if delay affects the person's safety or access to termination.

Second and Third Trimester Termination of Pregnancy

Similar to access to early pregnancy options, access to second and third trimester termination of pregnancy is an essential right and should be protected. Prenatal diagnosis, counselling, support and access to diagnostic procedures such as autopsy and genetic diagnosis should be offered following the same rules and procedures as outside the pandemic.

Although the ability to travel may be impaired, access to third trimester surgical options in the U.S. have remained available to pregnant persons for whom termination in Canada is not considered an option. In circumstances where the person would have considered this option but is inhibited by COVID-19-related travel restrictions, individual providers should do their best to provide alternative options to the pregnant person.

If induction of labour is chosen at early gestational ages or is the only option available, such as in the more advanced pregnancies, the termination of pregnancy is best conducted in hospital. Despite low complication rates, the access to emergency care may be inhibited or associated with delays in treatment for those who present with significant pain or hemorrhage. Counselling, support, options for pain relief and the presence of support people should be made available and should not differ from what is offered to a person experiencing a pregnancy loss.

The addition of mifepristone prior to the start of induction with misoprostol is associated with a significantly shorter time from the start of misoprostol induction to birth for both live and stillborn fetuses [22], with >70 per cent of births occurring within 12h after admission to hospital. Mifepristone, taken at least 12h prior to the start of induction, does not increase complication rates or risk of initiation of labour prior to hospital admission [23] and should be considered to reduce the length of stay [24] in hospital during the COVID-19 pandemic.

The protection of reproductive rights extends to options to terminate a pregnancy in the second or third trimester and services to persons opting for pregnancy termination such as safe and supported induction of labour should remain similar to what is offered in non-pandemic times.

Mifepristone, administered >12h before the start of induction should be considered to significantly shorten the admission to hospital without increased risk of fetal expulsion prior to hospital admission or other complications.

Treatment of Tissues, Remains and Stillborn Infants

As of the writing of this guideline, evidence indicates that vertical transmission from a COVID-19 positive person to the fetus is uncommon. Following pregnancy loss or termination, fetal and placental tissues should be managed according to usual institutional protocol, including when the pregnant person is COVID-19 suspected or positive. This can include removal of fetal tissue from hospital at parent request if this is allowed by institutional protocol. Indigenous clients, in particular, may wish to have access to the fetal and the placenta tissues for ceremonial purposes. Cultural practices around timing and nature of burial should be respected and facilitated whenever possible.

Additionally, it is likely that a stillborn infant will be COVID-19 negative (even for COVID-19 positive people) and the risk of transmission from the infant would be low. Memento items including hair locks, hand and footprints, and keepsakes, blankets and outfits can be released to the family in most cases. Care environments are encouraged to allow parents and supports to be able to hold and photograph the infant without wearing PPE. Thorough hand hygiene should nonetheless be recommended.

Families requesting tissues and remains should be respected as per institutional protocols. Cultural beliefs around burial should be facilitated and Indigenous people should have access to their placenta and remains of fetal tissue at their request for ceremonial purposes.

Prenatal Screening and Genetic Counseling

Prenatal screening practices during the pandemic are aimed at maintaining an excellent level of prenatal screening, genetic counseling and fetal diagnosis while minimizing exposure of pregnant individuals and providers by limiting the number of screening tests/visits. It should be noted that vulnerable communities and racialized groups that traditionally experience poor access to prenatal care may have more difficulties accessing prenatal screening.

During the COVID-19 pandemic, non-essential in–person healthcare services have been restricted by most care environments. However, as some prenatal screening tests, counseling and fetal diagnosis procedures are time sensitive, alternative care delivery methods for screening and counseling such as virtual care must be considered.

According to national guidelines, all pregnant individuals should be offered enhanced first trimester screening (eFTS), or non-invasive prenatal testing (NIPT),where available and funded as the first choice for prenatal genetic screening. For suspected or confirmed COVID-19 positive pregnant individuals, most fetal screening tests can be delayed for a 14-day isolation period or until infection is resolved to minimize exposure to HCPs. A useful decision making algorithm can be found in the proposed strategy in the Prenatal Screening Update during the COVID-19 Pandemic by the Society of Obstetricians and Gynaecologists of Canada (SOGC).

Prenatal Screening Ontario (PSO) Adjustments to Screening

Ontario currently uses a two-step prenatal screening system, with eFTS being the first step for most pregnancies, with the exception of those at high risk where NIPT is a first line test. Access to prenatal screening during the COVID-19 pandemic may be impacted by the following [25]:

- Some diagnostic imaging centres are restricted in offering dating and NT ultrasounds.
- Community blood collection services may be consolidated to a smaller number of laboratories.
- Pregnant individuals in self-isolation may miss the NT ultrasound window (11 to 14 weeks).

The value of NT ultrasounds extends beyond screening for Down syndrome and trisomy 18 and availability should be preserved where possible. In cases where NT ultrasound is not available, PSO recommends Maternal Serum Screening (MSS, also known as Second Trimester Quad screen). MSS is the only validated serum screen in Ontario that can be used without ultrasound information and can be done from 14 weeks to 20 weeks and six days gestation. A concurrent change in the screen-positive cut off for MSS from 1:200 to 1:350 has been implemented bringing the screening performance to a similar level as eFTS. First Trimester Serum-Only Screening was not endorsed because provincial data collected by BORN Ontario has insufficient numbers to allow for quality assurance.

NT ultrasounds are of increased importance for twin pregnancies as serum screening (i.e. MSS) alone is not possible for twin pregnancies. NIPT is available for twin pregnancies and as a result, the MOH will temporarily fund NIPT for twin pregnancies if NT ultrasound is not available. For higher order multiples, NT ultrasound is the only screening option and should therefore be made available to this population throughout the pandemic.

Prenatal screening for Down syndrome and Trisomy 18 should be offered and eFTS continues to be the preferred test in low-risk pregnancies. Where access to NT screening is limited, the following advice from Prenatal Screening Ontario should be followed:

a. **For singleton pregnancies: if an NT ultrasound cannot be done, order MSS.**
b. **For twin pregnancies: NT services should be prioritized. If NT is unavailable or if maternal age is 35 or older at expected date of delivery, publicly funded NIPT will be temporarily available.**
c. **For higher order multiples: NT ultrasound continues to be the only available screening option.**

Special Considerations

Counseling regarding screening options, communication of positive screening results and initiation of follow-up investigations can be conducted virtually. It is ideal if prenatal screening options are discussed at the very first visit to allow the scheduling of the time-sensitive dating/NT ultrasound(s).

To reduce visits, a single ultrasound done after 11 weeks can serve as both dating and NT ultrasound where dates are certain. To reduce visits, improve screening, and avoid missing the optimal screening window, accredited diagnostic imaging centers can consider providing a NT measurement when a dating ultrasound is performed within the eFTS gestational age window and directing the patient back to the primary provider for counseling regarding options.

If a diagnostic procedure is indicated in response to genetic screening in a COVID-19 positive person, amniocentesis is preferred over chorionic villus sampling reducing the theoretical risk for vertical transmission from moderate to low.

Preeclampsia Screening

First trimester screening serum biomarkers (pregnancy-associated plasma protein-A (PAPP-A) and placental growth factor (PLGF) have been used together with maternal characteristics and biophysical markers to identify pregnancies at risk for preeclampsia, stillbirth and placental abruption [26]. Multiple algorithms exist combining these serum markers with maternal history and factors such as body mass index (BMI), diabetes and

biophysical markers such as mean arterial pressure and uterine artery Dopplers [27]. The goal is to identify pregnant individuals who can benefit from the administration of low-dose aspirin (ASA 150mg daily) starting at 16 weeks or earlier [28, 29]. For instance, the FMF-UK algorithm has been shown to predict approximately 75 to 90 per cent of those who will develop preeclampsia prior to 37 and 34 weeks respectively, at a false positive rate of 10 per cent [30]. The prescription of low-dose aspirin can significantly reduce the incidence of early onset preeclampsia and placental abruption in pregnancies determined to be at increased risk, reducing the burden on healthcare resources in the pandemic [31].

Although the COVID-19 pandemic restrictions may lead to decreased availability of some aspects of this preeclampsia screening, ASA guidelines such as provided by National Institute for Health and Care Excellence (NICE) and American College of Obstetricians and Gynecologists (ACOG) provide a useful template for preeclampsia prevention in persons at high risk (previous preeclampsia, multiple gestation, chronic hypertension, diabetes or renal disease) or medium risk (nulliparity, family history, age >35y, socioeconomic factors, previous low birthweight infant) [29]. These risk factors can be combined with serum biomarkers if available.

Pregnant people at risk for preeclampsia benefit from low-dose ASA initiated at or before 16 weeks gestational age. Assessment of risk factors, with or without added serum biomarkers or biophysical markers can assist in the reduction of the burden of preeclampsia and IUGR on care environments during COVID-19.

Sexually Transmitted Infections Screening and Treatment During the Pandemic

Screening for asymptomatic sexually transmitted infections (STIs) that may impact the pregnancy or fetus is routinely performed during pregnancy. Continuing to screen for and treat these illnesses remains vital and should be considered an essential service even at times when the system is under strain [32]. It must be acknowledged that many sexual health clinics, testing, and contact tracing programs are run by public health authorities whose resources have been strained by and/or diverted to COVID-19 related activities. This increases the importance that other maternity care providers ensure that screening is performed, and positive results appropriately acted upon. Where possible, STI screening tests should be bundled with other routine testing and care to minimize contact points with the healthcare system. Timing of testing should bear in mind that increased turnaround times for results may occur.

Routine screening for STIs in pregnancy including HIV, syphilis, hepatitis B, chlamydia and gonorrhea should continue. Resources for screening, testing, contact tracing, education, and follow-up should continue to be considered essential services and be preserved during the pandemic.

Screening for Diabetes in Pregnancy

Routine care in pregnancy includes both screening in the first trimester for pre-existing diabetes in pregnant individual at risk as well as screening for gestational diabetes at 24 to28 weeks with an oral glucose tolerance test. To reduce SARS-coV2 transmission risk during testing, alternative testing strategies have been proposed [33].

Early pregnancy screening for overt/pre-existing diabetes is recommended for women at increased risk and is achieved through hemoglobin A1C (HbA1c) or fasting glucose test [34]. When included with routine first trimester blood work, this testing increases neither the number of healthcare contacts nor time of contact and therefore should continue as routine.

The use of an oral glucose tolerance test between 24 and 28 weeks has traditionally required the pregnant person to remain in the laboratory environment for one or two hours, which may increase risk of transmission. Additionally, lab capacity and access may be decreased during the pandemic. An alternate strategy of a random glucose measurement, along with an HbA1c, has been proposed [33]. While reducing demand on lab resources and potential exposures for pregnant people, this strategy has a decreased sensitivity and will therefore miss many milder cases of gestational diabetes. Numerous alternatives to the 50g glucose drink provided in laboratory have been investigated but none sufficiently validated to clearly replace the OGTT [35]. Nonetheless, home administration of glucose load 1h prior to the scheduled laboratory appointment for a random glucose could be considered. Decisions of which screening strategy to adopt should be made based on maternal risk factors for diabetes, local lab capacity and local SARS-coV2 activity.

Early pregnancy screening for women at risk of pre-existing diabetes should continue unchanged. While it may result in decreased detection of mild disease, screening for gestational diabetes between 24-28 may be modified by replacing the OGTT with a random glucose and HbA1c when local lab capacity and/or disease levels necessitate.

Provision of Ultrasound for Low-Risk Pregnancies

During pandemic restrictions, access to pregnancy ultrasound may be limited due to reduced capacity in ultrasound clinics and/or the availability of ultrasonographers; however, ultrasound assessment during pregnancy remains important to pregnancy care and management for:

- accurate dating of the pregnancy
- assessment of fetal NT between 11 and14 weeks gestation
- to diagnose fetal demise and trophoblastic disease
- to assess for routine fetal anatomy and detect fetal anomalies between 18 and22 weeks gestation
- to facilitate counseling and management of pregnancy termination

- assessment of fetal well-being including fetal growth and assessment of amniotic fluid

Access should be preserved to at minimum the following ultrasound scans:

a. **First trimester ultrasound(s) for dating and NT**
b. **Second trimester fetal anatomic assessment**
c. **Third trimester ultrasound when indicated**
d. **Post-dates ultrasound when indicated**

Additional factors to consider:

- New conditions may arise in low-risk pregnancies that may require additional ultrasound scans and assessment.
- If NT is not available, alternative prenatal screening may be offered: Prenatal Screening and Genetic Counseling.
- For a person with confirmed or suspected COVID-19, it may be possible to delay ultrasound timing until the person is no longer infectious (i.e., until quarantine period is complete or ten days from onset of symptoms and/or confirmed COVID-19 testing if asymptomatic). For example, the second trimester anatomy could be deferred to 22 weeks if the person is diagnosed with COVID-19 at 19 to20 weeks gestation.
- If a pregnancy ultrasound scan must be performed for a person with confirmed or suspected COVID-19, specific clinical protocols must be followed to protect those in contact with the person as well as appropriate cleaning of ultrasound equipment and the clinical environment.
- As support people's access to healthcare facilities is limited during the pandemic, ultrasound providers should consider allowing participation during a portion of the ultrasound visit by phone or through a virtual platform, or by providing a photograph or video of the scan for the pregnant person to take home.
- Pregnant people should receive education on fetal movement monitoring to reduce the likelihood of third trimester ultrasound scan.
- It is recognized that due to reduced access to pregnancy care and missed ultrasound appointments earlier in pregnancy, that access to third trimester ultrasound may become more important for the estimation of fetal weight and assessment of fetal well-being.
- For persons with mobility impairments or lack transportation to centres providing pregnancy ultrasound at key moments in early pregnancy, education on fetal movements and provision of additional ultrasound in the third trimester may be appropriate.
- It is suggested that standard cleaning protocols be used for all ultrasound equipment according to American Institute of Ultrasound in Medicine (AIUM).

COVID-19 Vaccination in Pregnancy

Widespread vaccination campaigns are underway and are viewed as a key component to controlling the COVID-19 pandemic.

While initial safety studies universally excluded pregnant and lactating individuals, there is increasing real world evidence of both efficacy and safety in these populations [36]. The Better Outcomes Registry & Network (BORN) Ontario is evaluating COVID-19 vaccination in pregnant individuals in Ontario. BORN released an initial report, with data collected from December 14, 2020 to May 31, 2021, with preliminary results that do not suggest any pattern of increased risk for pregnancy (e.g. post-partum hemorrhage) and birth outcomes (e.g. stillbirth, preterm birth, 5-minute Apgar score <7, small for gestational age) among vaccinated pregnant individuals [37]. This, coupled with the increasing evidence of risk for those who contract COVID-19 during pregnancy, has led to recommendations that all pregnant individuals should have access to the vaccine [36, 38]. An informed decision making discussion should include information on risks and benefits of the vaccine, an assessment of whether the vaccine's benefits would outweigh the potential risks to the person and/or fetus and a disclosure that there is limited evidence of the vaccine's effects in pregnant and lactating individuals. A thorough discussion with one's provider can ensure that each person is in a good position to make an informed choice on whether to be vaccinated. Shared decision-making tools have been developed to help pregnant individuals and their healthcare providers with this discussion. For example, PCMCH has developed a Patient Information Sheet tool titled, "I am pregnant or breastfeeding. Should I get the COVID-19 Vaccine?" that is available in English and French languages.

All pregnant individuals should have access to COVID-19 vaccination at any stage in pregnancy.

The National Advisory Committee on Immunization (NACI) preferentially recommends that a complete vaccine series with an mRNA (Moderna, Pfizer-BioNTech) COVID-19 vaccine should be offered to individuals who are pregnant [36].

Management of High-Risk Pregnancy

The definition of a high-risk pregnancy varies considerably. Generally, it is a pregnancy in which the risk of an adverse outcome to the pregnant person, fetus or neonate is increased. The features rendering this pregnancy "high risk" may exist prior to pregnancy, may be related to physiologic characteristics (e.g., age, BMI), may directly link to the pregnancy itself (e.g., multiple gestations) or to factors that develop during the pregnancy (e.g., gestational diabetes, IUGR). There is also the possibility that a pregnancy is considered high risk as a result of the outcome of a previous birth (e.g., preterm birth, preeclampsia, birth by Caesarean birth). As many socio-economic and racial factors increase risk in pregnancy and exacerbate adverse pregnancy outcomes, providers and care environments must make an effort to address racial healthcare disparities and the under-recognition of health risks for racialized groups.

In general, each high-risk condition has a specific management protocol that has been developed, usually in conjunction with professional bodies such as the SOGC, the Association of Ontario Midwives and other professional organizations. While many of

these guidelines and recommendations are based on evidence that is of low certainty (GRADE classification), they are used across the province to establish local and regional protocols for the management of these pregnancies.

While it is beyond the scope of this document to provide specific guidance on all conditions that confer risk in pregnancy, several guiding principles should inform the care of high-risk pregnancies during the COVID-19 pandemic.

Frequency and Form of Visits for High-Risk Pregnancies

High-risk pregnancies require greater levels of assessment and surveillance; therefore, it is inappropriate to restrict the frequency of visits in most cases. It is nonetheless recommended that care environments and providers should critically review their protocols and make adjustments based on clinical need as well as current COVID-19-specific guidance. For example, where guidelines recommend a range of intervals between visits (e.g., SOGC guidelines on management of twin pregnancies suggest a visit interval of two to four weeks), and where no other risks are identified, the number of visits can be reduced by adhering to the longer end of the time interval.

It may be possible to decrease the number of in-person assessments while still maintaining the same standard of care. Virtual care may be used in situations where direct examination of the pregnant individual is not necessary. As there is generally an increased number of investigations in high-risk pregnancies, clustering of investigations and assessments can reduce the number of contacts. If ultrasound measurements and blood testing can be done locally, virtual interpretation, care and counseling may assist in the care of pregnancies at risk while reducing both in-person contacts and the need for the pregnant person to travel for care.

In many settings, multidisciplinary input is required in the management of high-risk pregnancies. In care environments that specifically serve high-risk pregnancies, pregnant individuals are frequently seen by a variety of care providers at a single visit. While these clinics are efficient by allowing the pregnant individual to have multidisciplinary input in a single visit, they are often high-volume clinics with long wait times, which may create challenges for physical distancing and exposure reduction. A blended model of in-person assessment by one or a few members of the multidisciplinary team and virtual care by others can be effectively used in many settings as the physical examination is generally not necessary by each member of the team.

The care of high-risk pregnancies will, in essence, remain unchanged but contacts can be reduced by use of virtual visits, clustering of care and avoidance of duplication of assessments.

Assessment of Fetal Well-being

The mainstay of assessing fetal well-being for high-risk pregnancies includes ultrasound estimate of fetal growth, the biophysical profile, doppler flow measurements and the non-stress test. Assessment of fetal well-being should continue to be performed but steps can be taken to reduce the number of unnecessary assessments. Consistent use of standardized fetal growth charts is recommended to reduce investigations and referrals for suspected growth restriction.

The biophysical profile (BPP) classically includes an ultrasound assessment of fetal well-being and a non-stress test. Performing both components increases the duration of the pregnant person's visit but both elements are not always necessary. When the BPP is normal, the NST is often unnecessary. Conversely an isolated determination of amniotic fluid volume (e.g., single deepest pocket) combined with a non-stress test has also been shown to reduce the amount of time taken for a fetal assessment without significantly reducing the ability to measure fetal wellbeing.

Special Tests

There exist a number of specific laboratory tests that can improve the accuracy of clinical assessment for pregnancy risks and complications. Access to these tests in both low- and high-risk care environments can reduce the number of consultations, transfers and hospital admissions at all times, which is particularly important during the pandemic. Conditions with specific tests that should be available to reduce unnecessary exposure during the pandemic include:

- Preterm rupture of membranes: Diagnostic tests exist with a very high specificity for the presence of amniotic fluid. These more specific tests should be made available for use in place of less reliable tests.
- Preterm labour: The fetal fibronectin assay is a test with a very high specificity that can exclude the diagnosis of preterm labour when uterine contractions are suspected or present between 24 and34 weeks gestation [9].
- Preeclampsia: Randomized controlled data has shown that the ratio of soluble FMS-like tyrosine kinase 1 (sFlt-1) and placental growth factor (PlGF) (sFlt-1:PIGF) is a sensitive and specific marker for risk of preeclampsia [39]. Wider availability of commercially available tests for measurement of the SFlt-1:PIGF ratio would assist in more appropriate care and reduced referrals.

Assessment of fetal well-being should continue to be performed but steps can be taken to reduce the number of unnecessary assessments through deliberate use of testing and/or special tests

Perinatal Mood Disorders and Substance Use

Perinatal mood disorders are common and often under-recognized in pregnancy. The uncertainties created by the pandemic, along with the impacts of social isolation, job loss and societal change, will impact pregnant people significantly [40]. People with pre-existing mental health and substance use issues will simultaneously experience possible worsening in their conditions along with decreased access to services and support. For Indigenous communities, rates of prenatal and postpartum mood disorders are higher than the general population [41].

Pregnant and postpartum people, as well as those with pre-existing mental health conditions, are amongst the most vulnerable during the COVID-19 pandemic. Healthcare providers should prioritize the care of this population during the pandemic.

Providers should increase their awareness of and screening for mood disorders and substance use and adjust the frequency and format of visits to allow for both early detection and intervention.

HCPs should increase their screening and monitoring of pregnant people for perinatal mood disorders and substance use during the pandemic [42]. While it is routine to enquire about mental health and substance use in pregnancy, the impact of the pandemic should prompt providers to be more vigilant than ever. Formal screening using tools such as the EPDS, PHQ-9 or GAD-7 should occur at intake and again in later pregnancy and providers should enquire regularly about coping, mood and substance use (e.g., at every visit). Those experiencing perinatal mood disorders or substance use may require additional prenatal visits. While mental healthcare can lend itself to virtual care, special considerations and additional in-person visits may be warranted for those with psychosocial vulnerabilities. Providers should be conscious of historic harms to Indigenous populations as a result of mental health disorders (e.g., child apprehension) and apply principles of cultural safety when enquiring about, and responding to, perinatal mood disorders and substance use.

When mood disorders and substance use are detected, pregnant people should have prompt access to resources and interventions. Changes in care delivery along with redeployment to pandemic related activities of staff typically working in perinatal mental health (e.g., public health nurses seconded to testing and tracing programs) has meant that many pregnant people have experienced decreased instead of increased access during the early portions of the pandemic. As in other areas of care, innovation and creativity is needed to ensure quality programming can be offered in altered formats such as virtual counselling and education as well as virtual group therapy.

Provision of perinatal mental health services should be considered an essential service and while format may need to be altered, these services should be continued and strengthened throughout the pandemic.

Where possible, mental health services should be delivered through virtual care, particularly where the condition is mild. Individual consideration should be given to face-to-face care when needed for those with more severe illness or where access to virtual care is limited. Care should be multifaceted and include education about COVID-19 as well as coping, self-care strategies, self-help and the development of social support networks. Existing tools and programs may be updated with COVID-19-specific information and access should be facilitated. Education in the prenatal period should include advice about managing and reducing the impact of maternal mental health disorders both in the immediate postpartum period and for the first year of the child's life. When medications are prescribed, access should be facilitated through such practices as longer prescription periods involving either expanded take-home practices (e.g., for methadone or buprenorphine treatment, sustained release anti-seizure medicines, or neuroleptic depot with informed consent) or periodic delivery of medicines to the home [43].

Existing resources and techniques for supporting pregnant individuals with perinatal mood disorders and substance use can be modified to create formats that are accessible through virtual means or a reduced number of visits.

Substance use is of particular concern, as evidence to date demonstrates that the stressors brought on by the pandemic has increased substance use in both those with pre-existing use disorders and those without previous problematic use of substances, including tobacco, alcohol, cannabis and illicit drugs [43, 44]. While guidance specific to both pregnancy and the COVID-19 pandemic does not yet exist, existing documents such as the SOGC Clinical Practice Guideline on Substance Use in Pregnancy can be supplemented by COVID-19 specific guidance targeted at the general population such as the COVID-19 Opioid Agonist Treatment Guidance for management of opioid agonist therapy with methadone and buprenorphine and the COVID-19 Alcohol Withdrawal Management Protocol [45, 46].

Given the likelihood of increased substance use and worsening of pre-existing substance use disorders during the COVID-19 pandemic, all pregnant people should be actively screened for alcohol, cannabis, tobacco, prescription and recreational drug use at multiple points during the pregnancy.

Pre-existing pregnancy specific guidelines on substance use in pregnancy should be supplemented by general COVID-19 substance use guidance.

Intimate Partner Violence

The UN has noted that ”data shows that since the outbreak of COVID-19, reports of violence against women, and particularly domestic violence, have increased in several countries as security, health, and money worries create tensions and strains accentuated by the cramped and confined living conditions of lockdown.” [47]. A Government of Canada survey in Spring 2020 revealed that “8% of Canadians reported that they were very or extremely concerned about the possibility of violence in the home. This percentage was higher for women (10%) than men (6%).” [7]. During periods of social distancing, lock-down and quarantine due to COVID-19, more victims are isolated with their abusers, removing times and opportunities to leave and seek help, exacerbating the patterns, frequency and degree of abuse [48]. Providing support for survivors of intimate partner violence (IPV), including shelters, have been deemed essential services in Ontario and these services have been maintained regardless of whether the province is in lockdown or phased recovery.

Due to the increased rates of IPV during the pandemic, providers should remain vigilant through increased screening for domestic violence as well as maintain a heightened awareness of the signs and symptoms suggestive of IPV.

During prenatal visits, HCPs should follow their usual protocol, best practices or guidelines for the identification of IPV, while being mindful of the increased prevalence of IPV during the COVID-19 pandemic. HCPs should take the opportunity during prenatal visits to ask questions about lived experience at home and be alert to potential indicators (signs and symptoms, behavioural signs and risk factors) of IPV and should ask questions about IPV when present. While COVID-19 specific guidance does not exist, the VEGA Projects Family Violence Handbook: Intimate Partner Violence Section represents an up-to-date resource that can guide response to disclosures of IPV [49]. Existing hospital based Sexual Assault and Domestic Violence Treatment Centres remain available and are essential services. Indigenous people should have access to culturally relevant support for IPV [6].

It is important to recognize that virtual care may both diminish pregnant individuals’ ability to disclose that they are subject to domestic violence. Virtual care may also increase the violence they suffer as it uses means (e.g., cell phones) that can be tracked, traced and controlled by their abusers, and they may have decreased access to safe conversations as the perpetrator may be simultaneously present in the home. In-person visits (especially when infection control dictates pregnant individuals attend without their partner) may represent better opportunities to screen for IPV and provide services to those who cannot access services safely, or at all, through virtual/remote means.

Care providers should remain vigilant to the ways in which virtual/remote care may be difficult to safely access for survivors of IPV and in-person care should be used to provide safe alternatives when necessary.

Birth Planning and Counseling

Prenatal Education

Prenatal education has been shown to improve health outcomes and remains an important aspect of pregnancy care even though access to in-person prenatal education has been limited by pandemic restrictions. Most public health units in Ontario offer online courses that can be accessed through the Ontario Prenatal Education Programs Directory. The Directory serves as a resource for prenatal education providers with evidenced-based key messages that can be provided to pregnant people and their supports. Providers should also direct pregnant people towards evidence-based prenatal education resources such as OMama, Pregnancy Info and Best Start . Prenatal education programs will need to address the specific impacts of COVID-19 on pregnancy care and birth. Indigenous people can access information regarding Indigenous prenatal online classes at the Native Youth Sexual Health Network. Pregnant individuals may be seeking culturally specific prenatal care and education or education specific to the needs of a racialized or disabled person.

It is important to recognize that prenatal education includes planning for the postpartum and newborn period as well as preparation for parenting. In-person supports during the postpartum and newborn period have also been limited by the pandemic. As a result, formal prenatal education as well as information provided by care providers should include information about important postpartum and newborn topics like breastfeeding and contraception.

Prenatal education can be offered during the pandemic through virtual means. Discussion on specific COVID-19 education should be incorporated into prenatal education and prenatal care.

Planning for Birth

The changes brought about by the pandemic make explicit planning for many aspects of the birth essential. To address health disparities and work towards health equity in pregnancy care, providers should, where possible, connect the pregnant individual with a provider or group that can meet their culturally specific needs.

The location of the birth, including home and birth centre, depends on the preferred choice of the pregnant person and the medical needs for the pregnant person and the infant. Considerations for planning an out-of-hospital birth include appropriate risk screening with the midwife, access to adequate PPE and other infection prevention and control supplies, and timely local access to emergency transport when indicated [50].

Pregnant people with symptomatic confirmed or suspected COVID-19 are recommended to labour and give birth in hospital [50]. This recommendation is in light of the challenges associated with ensuring appropriate PPE in the home setting as well as literature reporting increased rates of intrapartum abnormal fetal health surveillance [14].

HCPs should advise the pregnant individual on how to self-isolate to reduce symptomatic infections at the time of birth, recognizing that this may not be possible for all individuals [51]. For individuals with a scheduled birth (e.g., Caesarean birth, scheduled induction of labour) self-isolation should be considered 14 days prior to the anticipated date of birth. All pregnant people and support people may consider self-isolating at term, although this may be difficult to apply given the unpredictability of birth. Pregnant people may consider having a second support person who is self-isolating and ready to attend the birth in the event that their primary support person becomes ill.

All pregnant individuals should explicitly plan for birth keeping in mind the impacts of COVID-19 on their care and care environments.

Induction of Labour

Timing and indications for induction of labour (IOL) can be achieved through shared decision-making with the pregnant person and their provider. IOL may be an important element of the birth plan and COVID-19 hospital protocols may influence its scheduling. More information on this topic can be found in the Maternal-Neonatal COVID-19 General Guideline published by the Provincial Council for Maternal and Child Health (PCMCH).

Birth After Caesarean Section

There is no evidence to guide clinicians on how to counsel pregnant individuals seeking Trial of Labour After Caesarean Section (TOLAC) during COVID-19. It is recognized that special attention should be taken into consideration by the interprofessional team and the pregnant individual, including the indication for the initial Caesarean section and the history of previous vaginal births [52]. The key concern in management of the TOLAC candidate is avoiding an emergency Caesarean birth requiring a general anesthetic. The factors should be acknowledged and discussed as part of routine shared decision-making. The risks and benefits to both the pregnant individual and the fetus should be discussed. The impact of COVID-19 on our healthcare system may influence the individual's decision about mode and timing of birth.

Birth Planning for High-Risk Pregnancies

Birth planning for high-risk pregnancies should not change during the COVID-19 pandemic. Each institution should review their policies, protocols and procedures and decide where flexibility could be applied [14]. Planning for high-risk pregnancy and birth may require a transfer of care. Planning for transfer to a different care environment or

provider should be done in a culturally sensitive manner, taking into account geographical distances.

Indications and options for IOL, TOLAC and high-risk pregnancies are unchanged by the pandemic. However, it should be acknowledged that the impacts of the pandemic may influence both the care environment and the pregnant person's preferences; shared decision-making should continue with increased attention to these factors.

Workplace Issues

HCPs are routinely called upon to advise on the safety of work during pregnancy and must be able to address questions and anxieties about working during the pandemic. While most pregnant people have mild COVID-19, emerging data from Canada and international jurisdictions shows an increased risk of severe illness requiring hospital care and admission to the intensive care unit from COVID-19 in a subset of pregnant people compared to non-pregnant reproductive-aged people or women. There is no evidence that the immune modulations of pregnancy affect the rate or severity of COVID-19 infection. Normal pregnancy alone is not a risk factor for poor prognosis; therefore, SOGC states that pregnant workers can continue to work during the pandemic, taking into consideration work-related risk, individual risk (comorbidities) and local disease activity. Pregnancy-related comorbidities, such as gestational diabetes and gestational hypertension, should be considered risk factors for more severe disease [53]. Within their role as healthcare advisors, an HCP can recommend accommodations or absence from work for pregnant workers in situations where work-related exposure is substantive or individual risk for COVID-19-related morbidity is high. While implementing disease-reducing activities such as screening, physical distancing, hand hygiene and adequate PPE are the responsibility of the workplace, accommodation recommendations may reflect the importance of these measures for all pregnant workers but especially those at increased risk. When making recommendations about workplace absences or accommodations due to COVID-19 risk, HCPs must be cognizant that the financial impacts may extend beyond the absence in pregnancy as it may negatively impact access to parental leave financial support. This may lead pregnant people to choose to remain in a workplace where they do not feel safe.

Guidance suggests that pregnant people can continue to work during the pandemic taking into consideration work related risk, individual risk, and local disease activity. HCPs should continue to recommend appropriate workplace accommodations when risk is considered high.

Pregnant HCPs represent a group that may be at higher risk of occupational exposure. While, the SOGC guidance provides the same advice for all workers, guidance for pregnant HCPs varies across the world.

The Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) and the Royal College of Obstetricians & Gynaecologists (RCOG) have suggested that pregnant HCPs be allocated to duties that have a reduced exposure to individuals with or suspected COVID-19. While exclusion from the workplace is not necessary for pregnant HCPs, recommendations may include reassignment to duties with lower exposure risk. All pregnant HCPs who may require an N95 mask should be fit tested in the pregnancy, particularly if weight gain has been significant.

Testing for COVID-19 in the Pregnant Population

Just like the general population, most pregnant people with COVID-19 infection will have mild symptoms; however, emerging evidence demonstrates an increased risk of severe illness requiring hospital care and admission to the intensive care unit.

Pregnant HCPs may continue to work in clinical roles with proper infection control procedures and consideration of assignment to lower risk care environments.

The general approach to COVID-19 symptom screening, exposure screening and testing of pregnant individuals is similar to that for others seen in similar healthcare settings, whether it be in the community or the hospital.

Testing of Symptomatic Individuals
When entering healthcare settings, all pregnant individuals should be screened for symptoms compatible with COVID-19 prior to every appointment or on arrival to the healthcare setting. Symptomatic pregnant people should be tested for COVID-19, as is recommended for all persons with compatible symptoms.

Whenever pregnant persons are reviewed by non-obstetric HCPs, (e.g., emergency department, assessment centre or community office staff) and determined to have symptoms compatible with COVID-19, it is imperative that appropriate notification is made to the obstetric care team so appropriate follow-up can be arranged. The obstetric care team should also be involved as soon as possible if admission is required due to a COVID-19 compatible illness or if there are any obstetric concerns at the time of the review.

Pregnant people should be screened and tested as per guidelines for the general population and should be considered a priority population if access to testing is limited. Testing should be expedited for labouring pregnant individuals and when a prerequisite of transfer to another facility.

Pregnant individuals who are in labour with symptoms associated with COVID-19 should have laboratory testing expedited to facilitate care with the most information possible available to the healthcare team. To facilitate expedited testing for patients in

labour, the laboratory should be contacted in advance of the specimen being submitted so appropriate prioritization can be organized. The laboratory requisition should also clearly state that the individual is pregnant and in labour. Testing of pregnant or postpartum people requiring inter-facility transfer should be similarly prioritized, particularly where negative testing is a prerequisite of transfer. Pregnant people transferred between facilities should be tested in accordance with provincial recommendations for transfer testing [54]. However, individuals who have previously tested positive for COVID-19. and have since recovered, do not need to be tested prior to or after transfer between facilities unless there has been a new high-risk exposure and/or symptoms [54]. Due to the potential implications for maternal care and the well-being of the fetus and newborn, pregnant persons should be a priority group for access to COVID-19 laboratory testing should resources be limited**.**

Pre-admission Testing and Testing of Asymptomatic Individuals
Currently routine preadmission testing is not recommended for pregnant individuals as a select group. In accordance with current MOH guidelines, the approach to screening prior to operative procedures should be dictated by the local prevalence of COVID-19 in the community where the hospital is situated. Testing prior to a surgical procedure is not required in areas where community transmission is low. When testing is indicated prior to a surgical procedure during pregnancy, it should be conducted between 24 and 48 hours prior to the procedure date.

If a pregnant person is confirmed to have COVID-19, they can be cleared from isolation using a time-based approach once ten days have passed from symptom onset or from the time of the positive test (if asymptomatic), as outlined in the Ministry of Health document: Management of Cases and Contacts of COVID-19 in Ontario. They do not usually require repeat laboratory testing for clearance. It is also recommended to avoid routinely re-test a previously positive person for a 90-day period due to the possibility of prolonged RNA shedding which is not of clinical relevance. However, clinical discretion should be used to consider re-testing if new onset of symptoms occur within 90 days after clearance.

Policies on pre-admission and pre-surgical testing as well as disease clearance should apply to pregnant people in the same way that they do to the general population

Surveillance of COVID-19 Positive Pregnancies

The Better Outcomes Registry & Network (BORN) is Ontario's prescribed registry for maternal-newborn health and collects and uses data to facilitate and improve care. Existing evidence on impacts and management of COVID-19 in pregnancy and the early newborn period is evolving [55]. BORN is collecting data to support care providers, hospitals, midwifery practice groups, families and policy makers in learning about the impact of COVID-19 in pregnancy.

BORN Ontario has completed the first perinatal surveillance report on COVID-19 and pregnancy in Ontario. To date, many, but not all, of the birthing hospitals in Ontario have agreed to participate in this important data-collection strategy. Ongoing BORN reporting will link with the BORN Information System, which will allow us to learn more about risk factors and outcomes for pregnant people and neonates. Providers, hospitals, and groups are encouraged to participate in ongoing data collection through BORN.

Data collection is urgently needed to provide credible information to facilitate and improve care and to help guide decision -making at a provincial level. Hospitals and midwifery practice groups are encouraged to contribute to the data collection for pregnant people with suspected or confirmed COVID-19 through BORN Ontario. Where data is not able to be collected through BORN (e.g. Indigenous Midwifery Programs), interim data collection should be implemented without delay.

B. Care of the COVID-19 Suspected or Confirmed Pregnant Person

Pregnant people with suspected or confirmed COVID-19 will continue to require antenatal care, physical assessment and investigations. When symptoms remain mild, it is preferable to defer routine pregnancy care until the person is deemed cleared through resolution of symptoms and a period of self-isolation and/or negative testing. If in-person assessment of COVID-19 positive or suspected people is required, ideally the provider assessment and any necessary investigations can be performed at the same visit to avoid multiple exposures. Emerging data on pregnancy course, complications and outcomes for pregnant people with COVID-19 suggest a probable need for regular maternal and fetal assessment, thus increased surveillance and encounters may be necessary [56, 57]. This may include additional virtual or in-patient visits for pregnant people and increased fetal ultrasound to assess fetal growth and well-being.

Routine pregnancy care may be deferred until the pregnant person with COVID-19 is no longer infectious, provided it is safe to do so.

If possible, provision of pregnancy care including maternal and fetal assessments, as well as ultrasound, can be provided at the same visit to minimize multiple exposures to people and care environments.

There is evidence showing an increased risk of severe infection with COVID-19 during pregnancy, therefore, increased surveillance for both the pregnant person and the fetus is warranted for the remainder of the pregnancy.

Use of Droplet/Contact PPE

The predominant mode of transmission of COVID-19 is through respiratory droplets and aerosols [58] during close, unprotected contact [59]. Droplet/Contact Precautions are recommended for the routine care of individuals with suspected or confirmed COVID-19. Additional personal protective equipment should be chosen based on point-of-care risk assessment, considering the planned tasks (including surgical procedures and any associated AGMP) and is outlined in the PHO technical brief. Regardless of the vaccination status of the HCP, Droplet/Contact precautions should remain the minimum requirement necessary when providing care to any patient suspected or confirmed to have COVID-19 [58, 60].

Droplet/ Contact precautions are recommended for all HCPs during the routine care of pregnant people with suspected or confirmed COVID-19.

It is recognized that differing policies may apply to those with suspected or confirmed COVID-19 than to asymptomatic persons. Nonetheless, pregnancy care is essential care and COVID-19 suspected and positive people must not be denied access to necessary care based on their COVID-19 status. All care providers and care environments must have access to the necessary PPE to provide this care.

Support People for Pregnant Persons with Suspected or Confirmed COVID-19 Presenting for Pregnancy Care

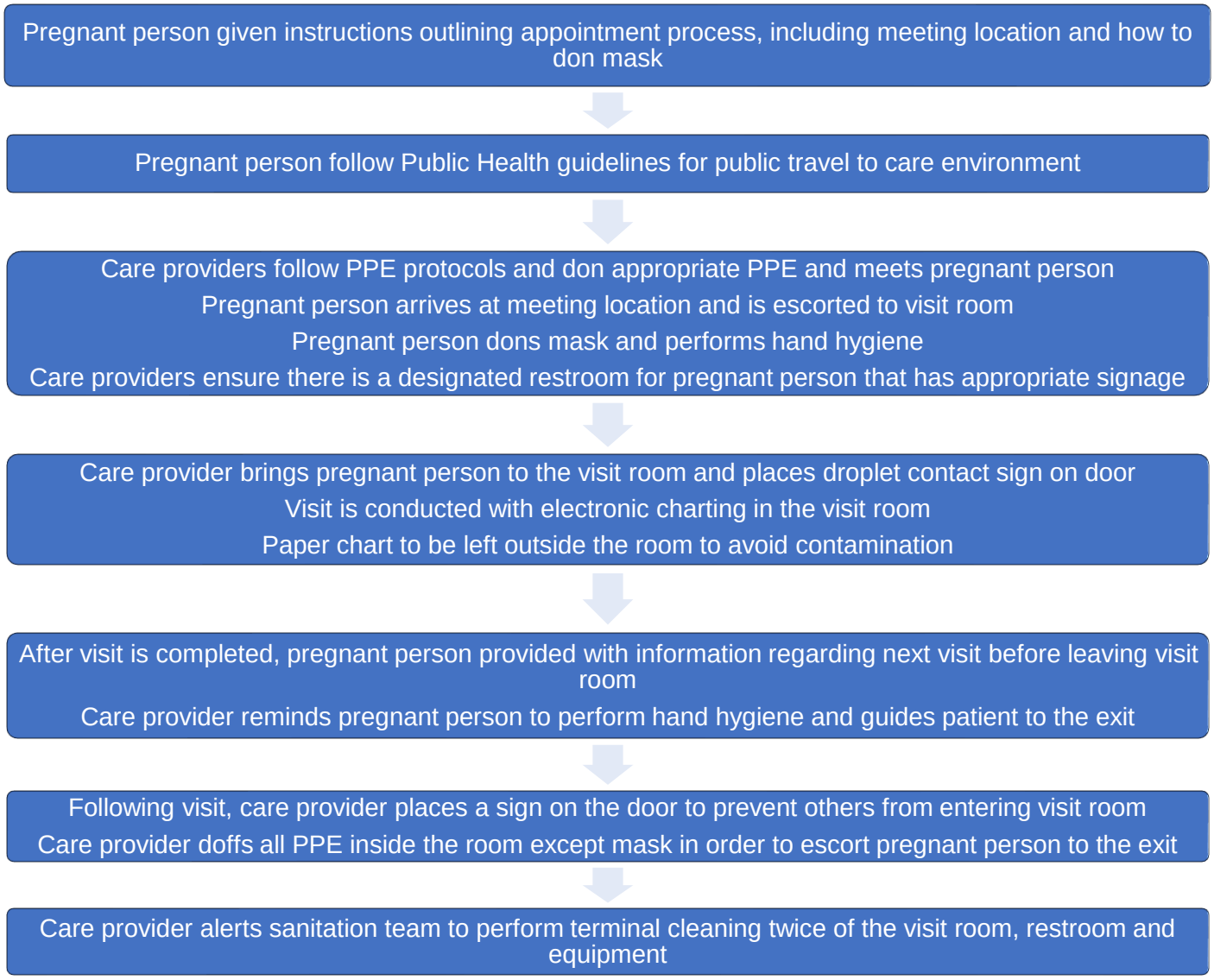
Guidance on the presence of support people during prenatal care (see Care of Pregnant Population section) is aimed primarily at asymptomatic people. The increased precautions and PPE required for suspected and COVD-19 pregnant people aim to reduce the number of people in care environments, waiting areas and clinical spaces. It is generally recommended that only the pregnant person is present for the visit; decisions on the presence of support people should be based on the needs of the pregnant person, and the risk to HCP and the support person accompanying that individual. These decisions should align with current PH guidance and institutional policies. A support person may join by phone or virtually when appropriate. Under certain circumstances, a support person may be permitted to join a visit in person with advance planning and appropriate precautions taken to protect all involved.

Care Environment

In populations where there are very few pregnant persons with suspected or confirmed COVID-19, essential pregnancy care may be incorporated into existing care environments with appropriate planning and modification.

Settings where there are many pregnant individuals with suspected or confirmed COVID-19, it may be necessary to create a dedicated clinic environment and team to provide care. The dedicated clinic environment may be a separate area of the clinic space that accessed through a dedicated entrance and/or elevator, a clinical area that is repurposed for the care of COVID-19 positive individuals or a dedicated area within the health care environment. Ideally, the clinical space will have all the needed equipment for pregnancy care and, if required, investigations such as ultrasound could be performed in the same space. Booking and timing of visits is important to minimize contact and waiting times. If volume of visits is high, it may be necessary for the care team to have additional support such as a patient navigator to ensure safety procedures are followed consistently.

Figure 1: Provision of Algorithm for Confirmed COVID-19 Pregnant Individual



Dedicated care environments for care of COVID-19 positive pregnant people are suggested to minimize exposure of individuals and clinical spaces.

When assessing COVID-19 suspected or positive pregnant people, providers should not only provide pregnancy-specific care but also assess the severity of illness. Emergent assessment and possible hospital admission should be considered in the following situations:

- Shortness of breath (unable to walk across room, speak full sentence)
- Cough with blood
- Chest pain
- Dehydration
- Decreased level of consciousness
- Oxygen saturation < 94%
- Chest x-ray consistent with pneumonia (e.g., ground glass opacities)

As more information emerges regarding unusual presentations of COVID-19, HCPs should be aware that thromboembolic events may be a presentation of the disease and keep in mind that pregnancy is itself considered a hyper-coagulable state. COVID-19 may influence clinical decision-making on prophylaxis for thromboembolic disease in pregnancy [61].

Symptoms of COVID-19 in a pregnant person may require in hospital assessment and possible in-patient admission.

Stress and Stigma with COVID-19

Pregnant people affected by COVID-19 may have many challenges at home, including the need for general social distancing, self-isolation and caring for family members who are also COVID-19 positive. There is also stress associated with the potential impact of the COVID-19 viral infection on the developing fetus and pregnancy course. Due to prolonged home isolation, some pregnant individuals may have faced intimate partner violence (see section Intimate Partner Violence), food insecurity, wage insecurity and difficulty with access to medical services because of ability, lack of transport or other concerns. People with COVID-19 may experience feelings of shame and face discrimination in their community as a result of the infection. Providers should use prenatal encounters to screen for and identify mental health concerns, anxiety and depression, as well exacerbation of pre-existing maternal mental health conditions (see Section Perinatal Mood Disorders and Substance Abuse).

C. Care Environment Considerations During the Pandemic

Infection Control and PPE

Outpatient settings that will be providing care to individuals who may have suspect or confirmed COVID-19 should be equipped with the personal protective equipment required to manage Droplet/Contact Precautions. This includes gowns, gloves, surgical/procedure masks and eye protection (either goggles or face shield). N95 respirators are also required if there are plans to perform aerosol-generating medical procedures. Prior to every interaction, HCPs must conduct a point-of-care risk assessment to determine the level of precautions required. In addition, information on personal protective equipment can be found on the Public Health Ontario (PHO) website under IPAC Recommendations for Use of Personal Protective Equipment for Care of Individuals with Suspect or Confirmed COVID-19.

A summary of required HCP precautions for various outpatient clinic interactions are included in the Occupational Health and Safety section of the MOH Guidance for Primary Care Providers in a Community Setting.

Screening

According to COVID-19 Patient Screening Guidance Document, active and passive screening strategies should be used in the outpatient setting.

Active Screening

Pre-screening prior to arrival in outpatient settings is a preferred strategy to identify symptomatic pregnant people or those with recent exposure. Individuals with symptoms compatible with COVID-19 should be referred to an assessment center, clinic or hospital as appropriate for testing. If possible, those with recent exposure or symptoms of COVID-19 should have their outpatient appointment deferred or completed virtually until outside of the incubation period, or symptoms resolve and a test is negative, respectively. For pregnant people who require in-person assessment, the outpatient setting should only complete the assessment if they are able to follow Droplet/Contact precautions. Arrangements should be made so that the individual can be identified, masked and transferred to a single-occupancy room as quickly as possible on arrival.

Pre-screening should not replace on-site screening. All pregnant people (and accompanying individuals, if applicable) should be screened for signs and symptoms compatible with COVID-19 and any exposures to COVID-19 on arrival at the healthcare setting. The staff conducting the screening should be protected by either a physical barrier (e.g., plexiglass), physical distancing (at least a two-metre distance) or PPE (a surgical/procedure mask and eye protection). Individuals identified as having symptoms

of COVID-19 or exposure in the preceding 14 days should be provided a medical mask (i.e., surgical/procedure mask), if tolerated, and immediately transferred to a single-occupancy room.

Screening should be done in accordance with the MOH COVID-19 Reference Document for Symptoms.

Passive Screening

Signage should be posted at the entry points to the office/clinic and at the reception desk. This signage should direct individuals with symptoms to perform hand hygiene, put on a surgical/procedure mask and identify themselves to reception.

Access to COVID-19 Assessment Centre/Testing

Testing should be performed when screening reveals a pregnant person with symptoms compatible with COVID-19. Outpatient settings should be aware of the local testing locations and protocols to provide instruction to those who require testing. Testing locations may include assessment centers, clinics and hospitals. Instructions should be provided to ensure safe arrangements are in place for travel to the testing facility and safe procedures are followed on arrival. This includes wearing a surgical/procedure mask, not taking public transit during travel, and performing hand hygiene, wearing a surgical/mask and self-identifying upon arrival at the testing facility.

Modifications to Usual Visit and Frequency

Routine Pregnancy Assessment Schedule
Throughout the pandemic, changes to the form and frequency of visits have been made in all areas of care to reduce exposing care providers and healthy pregnant individuals to the COVID-19 virus. Based on the WHO recommendation of a minimum of eight prenatal visits per pregnancy, alternate visit schedules have been proposed [62]. Some visits can be done virtually to limit the time of in-person exposure, particularly early in the pregnancy, although in-person assessments cannot be completely avoided. Covering all necessary information, as well as adding COVID-19 specific information into a modified schedule, may require additional time, particularly during virtual appointments. There is no evidence on the optimal length of an in-person visit to minimize risk of exposure while providing appropriate client care, but efforts should be made to limit the length of the visit.

The following is proposed as a minimum number of visits during pregnancy. It should be noted that due to the amount of education required, when the number of visits is reduced, they may need to be longer to ensure all essential care is provided. When local disease activity is low and good infection control practices are in place, routine frequency of care remains appropriate, especially when virtual care is included. High-risk pregnancies should include an individualized plan of care to determine the schedule of visits.

Recommended Minimum Visit Schedule
In-person and virtual visits can be alternated between first visit (before 12 weeks) up until 34 to 36 week visits. Visits at 38 weeks and onwards should be in person.

For most pregnancies, a minimum of eight antenatal appointments, with a combination of virtual and in-person care, can be adopted during the pandemic.

Clustering of Testing/Visits to Minimize Exposure
When possible, testing should be clustered to limit the number of exposures. For instance, a single ultrasound done after 11 weeks can serve as a dating and NT ultrasound. Additionally, trimester specific, laboratory testing can be grouped at the same time (e.g., prenatal blood work with eFTS, gestational diabetes screening with type and screen in preparation for Rh immune globulin). When facilities such as clinic, lab and ultrasound, are co-located, scheduling investigations and assessments at the same time will reduce the number of visits and possibly overall exposure.

Investigations, including lab and ultrasound, should be clustered where possible to minimize contacts with the health care system.

Alternatives to In-person Visits
Virtual care in the form of phone or video visits allow providers to conduct assessments and education without exposure risk. Provincial and national professional organizations have created excellent resources, such as the Virtual Care Playbook [63] and the Virtual visit guide for midwives [64], for their members on the issues unique to providing virtual care. Providers must consider issues such as security of the platforms they are using, obtaining consent to provider virtual care and appropriate documentation requirements. As well, ensure that pregnant people are in an appropriate, safe and confidential space for the assessment.

Virtual care may replace some in-person in a blended model of care following guidance from professional organizations to ensure safety.

Technology Access and Equity

While the COVID-19 pandemic has necessitated the rapid adoption of virtual care, not all pregnant individuals have the means to participate equally in virtual care platforms. While the majority of Ontarians have smartphones, not all may have access to sufficient data plans, high-quality Wi-Fi for a video call or enough voice minutes on their phone plan for telephone visits. For some, cultural barriers may exist to accessing virtual care. HCPs may need to adapt the schedule of virtual and in-person visits depending on the pregnant individual's ability to participate in virtual care. Lack of access to virtual care

must not inadvertently intensify health disparities based on social determinants of health such as poverty, homelessness or cultural identity. In some rural and remote locations, inadequate access to broadband internet may impede virtual video visits and necessitate more reliance on telephone-based virtual care. Efforts must be made to minimize inequity in the quality of virtual care based on lack of access to internet services [65]. Efforts must be made to ensure adequate length and quality of calls for those reliant on telephone-based care [66].

Other groups, such as Deaf/hard of hearing individuals and those who require language interpretation, may be disadvantaged by virtual care unless accommodations are made for their needs. This may require the use of text-based platforms for the Deaf/hard of hearing and the use of platforms that allow for three-way audio or video calls for those who require language interpretation, including ASL.

HCPs should assess the pregnant person's needs, means and ability to participate in virtual care and provide accommodations as needed. No pregnant person should be denied appropriate pregnancy care based on their inability to access technology.

Lack of Access to Care, Late to Care

Pre-existing barriers to accessing prenatal care have been exacerbated by the COVID-19 pandemic. Marginalized groups – including, but not limited to, Black, Indigenous, racialized, newcomer, differently abled, refugee, 2SLGBTQ, homeless, incarcerated, sex workers, people with addictions and people with low socio-economic status – not only are at higher risk of poorer perinatal outcomes generally, but are more vulnerable to the impacts of the pandemic such as precarious employment and social isolation. They are also at higher risk of contracting COVID-19.

Ontario made universal health care accessible to people without OHIP and removed the three-month waiting period for OHIP as an emergency measure during the pandemic. These were important steps to ensure that those without health insurance have access to care, including prenatal care. Still, many social determinants of health create barriers to timely access to prenatal care.
During the pandemic, existing inequities can be amplified [4], meaning HCPs must be keenly aware of the disproportionate health impacts of the pandemic on populations who already carry a higher burden of perinatal morbidity and mortality. Awareness of these issues (and increased availability and adoption of cultural-safety and anti-racism/implicit-bias training) must be a priority for healthcare providers to understand these underlying forces in health inequity. Modifications of the care schedule, method of care (virtual or in-person), length of visits and outreach (follow-up for missed appointments) to pregnant individuals must be made when taking these barriers to care into consideration. Efforts to make the care environment a safe space for those who have experienced healthcare-related trauma will improve access to prenatal care. Indigenous people often come late into care due to fear because of prior experiences of

racism in the healthcare system. They may be fearful of punitive measures being undertaken because of this, such as healthcare providers calling child protection, often resulting in infant apprehensions. Understanding and having compassion for the underlying layers of trauma is something all healthcare providers need to encompass in their care.

HCPs must understand systemic barriers to accessing care and the disproportionate health impacts of the pandemic on populations who already carry a higher burden of perinatal morbidity and mortality. Providers must make efforts to create safe spaces and modifications to care for those facing barriers.

Fear of Accessing Care

Some pregnant individuals may be reluctant to access in-person scheduled and acute care based on fear of exposure to COVID-19. HCPs, while being sensitive to these fears and providing access to resources for stress and anxiety, should provide reassurance about the safety measures in place in the care environment and the importance of in-person assessments to ensure the well-being of the pregnant individual and the fetus [67]. Assessments such as monitoring blood pressure, ensuring normal fetal growth, and receiving recommended vaccines are essential to the provision of prenatal care that leads to improved perinatal and neonatal outcomes [68]. Additionally, pregnant individuals who are symptomatic for COVID-19 should be reassured about the safety of testing centres and encouraged to access testing when indicated. Fear should not be a deterrent to presenting at a testing centre. Indigenous people often fear accessing care due to prior experiences of racism in the healthcare system. COVID-19 adds an additional layer to that fear.

HCPs should be aware of the impact of fear on accessing prenatal care, including COVID-19 testing, and provide reassurance, guidance and resources to minimize this impact.

Rural and Remote Considerations

The realities of pregnancy and birth in rural and remote communities mean that rural pregnant people have reduced access to care and experience the cultural, financial and emotional burdens of travel for care. These stressors are amplified by the realities of the COVID-19 pandemic and all efforts must be made to ensure that pregnant individuals and their supports living in rural and remote communities have equitable access to quality prenatal care in face of changes in our patterns of care [69].

As a result of COVID-19-related restrictions, pregnant people in rural and remote communities have had decreased access to routine testing. This is particularly true in fly-in northern communities. Flights and other forms of travel have diminished, resulting

in tests cancelled due to delays from collection to arrival at laboratories. As well, some testing (e.g., ultrasound) was provided by visiting providers who are no longer able to visit remote communities due to travel restrictions and isolation practices. In some instances, point-of-care (POC) testing may replace formal laboratory samples. For example, a POC glucose measurement can be done at the same time as the lab draw for gestational diabetes screening.

In rural and remote communities, decreased access to testing and increased turnaround times will result in a longer time between testing and clearance. As a result, pregnant individuals may experience longer periods of isolation even when able to remain in their home community. Increased virtual care and/or provider access to PPE may be required as a result. Rapid and POC testing, as they become more widely available, have the potential to reduce this impact.

In rural and remote communities, access to essential prenatal testing and diagnostics must be preserved. Where feasible, point -of -care testing should be made available and test timing should take into account transit times to urban laboratories.

Providing prenatal care through virtual means may benefit rural individuals by reducing their need to travel for in-person visits. As well, where pregnant people must leave their home community for birth, the expansion of virtual care may allow them to meet and form a relationship with their care team in the distant community earlier in the pregnancy rather than only at term. Providers must we aware, however, that virtual care is difficult to apply in many rural communities due to poor access to reliable, high-speed internet services and limited access to technology. Healthcare systems should be innovative and flexible in their support of virtual care (e.g., access to nursing station technology for virtual visits with urban providers).

While virtual care can decrease the need for pregnant people to leave their home communities, in-person care will still be required. The limitations on travel and resulting reduction in visiting care providers has highlighted the need to strengthen the prenatal care skill set of local providers. Efforts should be made to support healthcare providers located in rural and remote communities by providing the training, resources and regulatory ability to fill the gaps in care left in human health resources by pandemic restrictions.

Virtual care has the potential to improve access to prenatal care for rural and remote pregnant individuals, but providers must be aware of issues of access to and quality of technology in rural communities.

To date, many rural communities in Ontario have experienced low rates of COVID-19 infections. As a result, those who are required to travel for prenatal care, investigations and birth will experience anxiety about contracting the virus during the course of that care. Protections should be in place, and education and reassurance, provided such that essential care is not avoided. Pregnant people traveling from one community to another may experience periods of mandated isolation either when transferred out or upon returning to their home community (or both) as part of efforts to control spread of the virus. This may have significant impacts on not only the person in isolation but also their family and their entire community. Given the frequency of visits and testing during the course of routine prenatal care, a period of 14-day isolation following each visit or test could result in a pregnant person being in isolation for the majority of the pregnancy. This will inevitably lead to the choice to forgo care and/or defy isolation requirements.

Where possible, care should be provided in a pregnant person's home community. Where travel for care is necessary, visits and testing should be bundled in such a way as to minimize travel and post-travel periods of self-isolation/quarantine.

Pregnant individuals in remote communities, especially those living in First Nation communities, may not have the options of applying recommendations on reducing disease transmission. For instance, they may not have reliable access to clean water for hand washing or may live in housing that is too crowded to allow for physical distancing. This will be especially true for COVID-19-positive or suspect people required to strictly self-isolate. When providing care to pregnant people in remote communities, providers should enquire directly about access to clean water and physical spaces that allow for isolation. Where they do not have necessary access, HCPs should work with local supports (e.g., hospitals, band councils, municipalities) to secure access to hand sanitizers, masks and other needed resources.

When pregnant people are required to travel in and out of their home community for prenatal care and birth, isolation and quarantine policies should balance the needs of the community and the impact on the individual and their supports. Anxieties around risk of contracting the virus must be balanced against the necessity of the care being accessed in other communities and safeguards put in place.

During pregnancy care, providers should enquire directly about access to resources for transmission prevention, including safe housing and clean water.

Evacuation for Birth

Pregnant people who must leave their home community to give birth already carry a significant burden of isolation and displacement around the time of birth. During the pandemic this burden has increased due to restrictions on support people as well as mandated periods of self-isolation. The stress and anxiety caused by this uncertainty should be addressed through increased screening/direct questioning, education and improved access to support, both formal and informal. The financial burden of travel for care has been amplified as a result of pandemic restrictions. While some financial support may be available, it is generally not sufficient to cover costs and not all rural and northern pregnant individuals have access to these financial supports. When prolonged periods of self-isolation are added to the travel time, costs mount considerably. As well, northerners often rely on informal supports such as staying with friends and family in urban communities. When these options become unavailable due to lockdown and phased recovery, options for food and housing such as hotels and restaurants also become less available.

The majority of pregnant people who face evacuation for birth (i.e., who must leave their home community at term and remain in a distant community until birth) are Indigenous people, leading to greater burdens and inequities to this already disadvantaged population. Policies and practices around evacuation for birth must be created in a culturally safe manner supported by existing educational programs around culturally safe care [70].

Increased planning for and education around resources in the planned location of birth will be needed during times of lockdown and phased recovery. Providers should be aware of and explicitly address the emotional and financial costs of evacuation for birth.

Policies and practices around evacuation for birth must recognize that disproportionate burden carried by Indigenous communities and must be created in a culturally safe manner.

Rural hospitals and care providers may feel less equipped to deal with pregnant people who are COVID-19 suspect or positive due to restrictions provided by the physical environment or due to real or perceived lack of knowledge. To reduce spread of COVID-19 and minimize the impact on pregnant individuals, inter-facility transfers should be avoided, where possible. While COVID-19 alone should not be an indication for transfer [9], rural providers requesting transfer for COVID-19-positive or suspected pregnant individuals should be respected. Where transfer is not deemed necessary, virtual

All rural care providers and environments should be supported in providing care to COVID-19 suspected or positive pregnant people with increased virtual support and education and transfer when appropriate.

support and education for the rural providers should be provided by expert teams in referral centres. Existing referral systems do not empower midwives and other non-physician providers to facilitate necessary transfer. Midwives should be made part of the referral system so that seamless care can be provided for the pregnant person without adding additional burden to the provider.

Care in Home and Non-Clinical Settings

Efforts should be made to minimize non-essential visits, which may include the reduction or elimination of planned antenatal visits in the pregnant person's home or in other non-clinical environments (e.g., shelters, hotels, public spaces). In some cases, these visits may be deemed necessary to provide prenatal care. This may be particularly important for those who would not otherwise access care. In these cases, efforts must be made for all members of the household or other non-clinical environment to be screened in advance of the visit for symptoms of COVID-19 and to limit the number of people present during the visit [50]. All members of the household or non-clinical environment who can wear masks are expected to do so and should be informed of this expectation prior to the visit. The provider must ensure access to adequate PPE and hand hygiene for themselves and appropriate cleaning supplies for surfaces and equipment for the visit. Providers must have sufficient PPE to properly doff and don between environments when traveling between care environments.

Visits outside of the clinical care environment should be kept to a minimum while recognizing these visits may be necessary in certain situations. Adequate PPE for HCPs, pregnant individuals and their support people, and strict IPAC practices, must be used to make visits in non-clinical environments as safe as possible.

D. Provider Considerations

Communication During and About the Pandemic

The COVID-19 pandemic has brought about a significant and constantly evolving change in all pregnancy care environments. For many pregnant people, the uncertainty about what to expect during pregnancy visits and at the time of birth results in increased anxiety. It is important that information about any changes be clearly communicated to pregnant people and they be made aware of sources of up-to- date information. Providers and care environments are encouraged to use a variety of means to share this information such as in-person communication, conversations during virtual visits, signage, written materials, clinic and hospital websites and social media. Communication with pregnant people should include discussion of ways in which the form and frequency of visits may have changed. It is also important to educate pregnant individuals about issues of security and confidentiality when using virtual platforms. Provincial and national organizations have created resources that can guide these

communications as well as provide sample language: Virtual Care Tools by OntarioMD and the Ontario Medical Association.

Pregnant people will have many questions about the potential impact of COVID-19 on their health, the health of their baby, their birth experience, and the safety of things such as workplaces and childcare for other children. HCPs should use a variety of means to provide information on these topics, including sharing websites and resources created for this purpose [71].

Changes to the care environment may have unintended impacts on communication between providers and pregnant people. Clear and empathetic communication is a priority even when care is provided through virtual means or while wearing PPE. Information should be available in community languages other than English and in visual or easy-to-understand formats as far as possible. Providers should remain cognizant of the ways in which PPE impacts non-verbal communication as well its impact on communities such as the deaf/Deaf/hard of hearing.

HCPs and care environments should communicate with pregnant people about changes to care as well as provide information about COVID-19 in pregnancy. They are encouraged to do this through a variety of means, including websites and social media.

Clear and empathetic communication is a priority. Providers should be aware of the ways in which virtual care and PPE may impact communication.

Sharing information with pregnant people and their care providers is essential to reduce unnecessary visits and duplication of investigations. All contact numbers should be double-checked to ensure they are correct before the pregnant person leaves care environments such as emergency departments, ultrasound facilities and labs as subsequent health care providers must be able to contact the person directly. It is recommended that pregnant people be given copies of their Ontario Perinatal Record, bloodwork, ultrasounds, etc. (paper or electronic) to carry with them so investigations do not get repeated unnecessarily. Indigenous people may or may not have access to regular means of communication, such as cell phones, in the same way as the rest of the population. Safe and sensitive follow-up should take into consideration how readily the person will be able to participate in the follow-up and no assumptions should be made.

Contact information should be collected and confirmed. Pregnant people at all gestational ages should be provided with copies of results to minimize repeat investigations.

Staffing

Each care environment will be unique in how it provides space and personnel for care during the pandemic. Consideration should be given to a variety of factors when determining how staffing may change, including impact of virtual care, changes in flow of patients, screening requirements and cleaning of clinical spaces. Increased staffing may be necessary and staff may be required to perform duties outside of their typical roles. Illness and isolation requirements may have a significant impact on staff availability. Care environments should prepare emergency staffing plans to respond to possible increased absenteeism and create emergency contact lists. Care environments should establish and strengthen relationships with community partners including public health and municipal governments to coordinate pandemic response, provide consistent communication and share supplies. Healthcare employers should recognize that staff may experience anxiety about the impact of the pandemic on the workplace. Care environments should communicate clearly with their staff about what is known about COVID-19, the impact on the workplace, efforts being made to reduce disease transmission and emergency staffing plans.

Care environments should prepare for staffing impacts of the pandemic including by developing emergency staffing plans and by strengthening community partnerships.

Care environments should communicate clearly with staff about the impacts of COVID-19 on the work environment, including the details of pandemic staffing plans.

COVID-19 Related Stigma and Violence Directed Against HCPs

HCPs are subject to significant physical and psychological violence, particularly in the face of “work pressure and stress, social instability and the deterioration of personal interrelationships” [72]. Within pregnancy care environments, much of this violence has stemmed from frustration with support person policies and increased IPAC procedures and is exacerbated by the uncertainty and loss of control that pregnant people and their supports are experiencing. Additionally, HCPs have experienced stigma due to perceived increased risk of transmitting the disease, which has resulted in greater social isolation, negative impacts on their relationships with family, and decreased access to community resources and infrastructure. It is unsurprising that there have been increased reports of racialized violence against healthcare workers, particularly those from Asian communities that have been attributed to the impacts of the pandemic [73] [74].

Workplace violence and stigma have been shown to have significant negative impact on staffing, working environments and organizational efficiency, which makes it imperative that violence and stigma, as well as factors that contribute to them, be addressed [75]. Pre-pandemic guidance such as the WHO Framework Guidelines for Addressing Workplace Violence in the Health Care Sector can be supplemented by specific guidance on reducing violence and stigma due to the pandemic. Care environments should address violence and stigma against healthcare workers through a multifaceted approach including:

- Creating a climate and policies that reject violence against health care workers
- Creating a climate and policies that engage and empower HCWs to address violence and stigma
- Reducing uncertainty and fear for pregnant people through clear communication within the care environment and with the community at large about changes in care practices
- Participating in initiatives that increase community knowledge and address COVID-19 myths
- Supporting initiatives that positively portray healthcare workers' contributions (e.g., Health Care Hero campaigns)
- Ensuring workers have access to both formal and informal supports that recognize the increased stresses brought on by working during the pandemic

COVID-19 related stigma and violence directed against healthcare workers cannot be tolerated. Care environments and workplaces should actively work to reduce stigma and violence through a multi-faceted approach.

E. Task Force Health Equity Context

Ontario is home to diverse pregnant and postpartum populations; inclusive of age, gender identity, race, ethnicity or culture, ability and other factors such as geographical location. These factors can greatly influence a person's unique needs and expectations around care management during pregnancy.

When appropriate, HCPs should consult with specialized organizations that support specific populations for assistance in appropriately tailoring these recommendations to the individuals under their care.

Indigenous populations have unique and diverse needs that arise out of being the original people of this land and being colonized and displaced from their home territories. Indigenous people suggest you ask them directly what their needs may be and make appropriate referrals when required.

Providers and care environments should tailor these recommendations to the individuals under their care, consulting those who provide support to specific populations to ensure appropriateness.

Indigenous populations should be asked directly what their needs are and referrals made as required.

In writing this guideline, attempts were made to align with emerging policy work on Indigenous cultural safety, vulnerable communities, and principles of diversity equity and inclusion by provincial and national associations, including the SOGC, the Association of Ontario Midwives and the Canadian Association of Perinatal and Women's Health Nurses [76, 77, 78, 79]. The imperative for equity in this pregnancy care guideline comes from national and provincial legislation, regulation, policy and interpretation by PCMCH. The task force took the opportunity to consider vulnerable community pandemic experiences and how we could make representation, research and outcomes improvement processes and priorities more population-based. The task force acknowledges that individual, family and provider experience is essential to understanding population needs and impacts during the pandemic. This guidance reflects expert advice, stakeholder feedback, media scans and anecdotal experience. More sector work is needed to understand the diverse needs and outcomes of expectant and growing families in Ontario. PHO has stated social determinants of health play an important role in the risk of COVID-19 infection, especially when they impact the ability to perform physical distancing [80]. These determinants include:

- gender
- socioeconomic position
- race/ethnicity
- occupation
- Indigeneity
- homelessness and incarceration

Understanding and Identifying Vulnerable Populations

Canada's geography and diversity of populations can create challenges in delivering healthcare during a pandemic. [6] Community size and accompanying healthcare resources vary greatly across the country. COVID-19-specific advice for vulnerable populations can be found at: Planning advice for vulnerable populations, which was developed for pandemic influenza but may also be useful for COVID-19 [81].

According to the Government of Canada website, vulnerable communities include those with:

- Difficulty reading, speaking, understanding or communicating (including French language resources)
- Difficulty accessing medical care or health advice

- Difficulty doing preventive activities, like frequent hand washing and covering coughs and sneezes
- Ongoing specialized medical care or needs specific medical supplies
- Ongoing supervision needs or support for maintaining independence
- Difficulty accessing transportation
- Economic barriers
- Unstable employment or inflexible working conditions
- Social or geographic isolation, like in remote and isolated communities, or
- Insecure, inadequate or nonexistent housing conditions [82].

Ontario's Action Plan for Vulnerable People adds additional guidance on those living in high-risk settings, including:

- Homes serving those with developmental disabilities
- Shelters for survivors of gender-based violence and human trafficking, and
- Children's residential settings, which would include Indigenous residential settings on and off reserve [83].

Based on client/patient and provider-reported feedback, the Task Force found COVID-19 is having direct and compounding mental and physical impacts on maternal and child health outcomes. The combination of family social isolation, structural barriers to early and regular prenatal care and disproportionate burden of illness in vulnerable populations may have a negative impact on birth outcomes for 2020 and 2021. At a systems level, the maternal and infant population may require the "vulnerable population" designation to ensure adequate planning and resource allocation in pandemic circumstances. Such allocation will need to include culturally safe health data collection, interpretation and public reporting of subpopulation maternal-newborn outcome indicators.

Our Task Force recognized the challenges and limitations of its structure and composition as well as knowledge base. We propose two items for future consideration: 1. Prioritization of staff and committee member health equity and diversity training, including Indigenous Cultural Safety Training for future similar projects; 2. A health equity template, an example of which is provided in the appendix, may help facilitate a more comprehensive embedding of health equity principles during the preparation of healthcare guidelines.

In addition to embedding equity throughout this guideline and recommendations, the task force is using the lessons learned to direct specific system-based recommendations to the MOH as well as to encourage PCMCH to continue to work towards explicitly embedding equity into all of their work.

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Disclaimer: the views, thoughts and opinions expressed in the text are solely those of the authors, and do not necessarily reflect those of the authors' employer, organization, committee, or other group or individual.

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A subcommittee was established to guide and inform the development of this document with a focus on ensuring that the perspectives and lived experiences of Indigenous, Black and people of colour are reflected in these recommendations. We thank these members for their additional time and thoughtful contributions to promote a decolonized, equitable and inclusive process.

The equity subcommittee included: Cynthia Maxwell, Elizabeth Brandeis, Ellen Blais, Katherine (Kate) Miller and Wendy Katherine.

Through the development of this guideline, the Task Force identified a number of additional concerns respecting the delivery of safe and equitable prenatal care for both patients and providers. The PCMCH *Recommendations to Address Gaps in Prenatal Care System* report, led by the equity subcommittee members, was released in January 2021. This report includes a series of recommendations that signal an opportunity to strengthen the healthcare system for all pregnant people and their families.

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Appendix A: Equity Table

This template was adapted from the Health Equity Impact Assessment (HEIA) workbook, available at www.ontario.ca/healthequity. For the purposes of this task force guidance, the populations listed below correspond to reproductive age Ontarians and children.

Step 1. SCOPING	Step 2. POTENTIAL IMPACTS		Step 3. MITIGATION
Populations* **Using evidence, identify which populations may experience significant unintended health impacts (positive or negative) as a result of the planned policy, program or initiative.**	**Unintended Positive Impacts**	**Unintended Negative Impacts**	**Identify more information needed and ways to reduce potential negative impacts and amplify the positive impacts.**
Age-related groups (youth, expectant and new parents, aged approx. 15-45)	Reduced preterm birth*		Longitudinal data appears to be showing significant decrease in extreme preterm birth, with likely clinical impact for pregnant individuals, cost avoidance and resource re-allocation
Disability (e.g., physical, D/deaf, deafened or hard of hearing, visual, intellectual/developmental, learning, mental illness, addictions/substance use, etc.)		Increased risk – people needing to communicate via lipreading may absorb less communication due to masking.	Complex presentation planning guide Prenatal care mental health screening Subpopulation data needed
Ethno-racial communities (e.g., racial/racialized or cultural minorities, immigrants and refugees, etc.)		Increased risk* - Reduced access to pandemic guidelines. Uninsured newcomers face additional barriers	Pandemic resources needed in languages understood by newcomer Canadian residents – 10 international languages Subpopulation data needed
Francophone (including new immigrant francophones, deaf communities using LSQ/LSF, etc.)		Increased risk* - Reduced knowledge of pandemic guidelines	Guidelines in French. Bilingual communications plan targeted to Francophone families Subpopulation data needed
Homeless (including marginally or under-housed, etc.)		Increased risk* due re: lack of social isolation, hygiene,	Social prescribing, stakeholder collaboration maternal child networks and agencies serving.

		public bathrooms, stigma	Subpopulation data needed.
Linguistic communities (e.g., uncomfortable using English or French, literacy affects communication, etc.).		Increased risk* - Reduced access to pandemic guidelines and stigma	Subpopulation data needed.
Low income (e.g., unemployed, underemployed, etc.)		Increased risk* due re: lack of social isolation, hygiene, public bathrooms, stigma	Socio-economic data should be linked with birth outcomes
Sub-regional - rural/remote or inner-urban populations (e.g., geographic or social isolation, under-serviced areas, etc.)		Lack of telehealth, and virtual care options	Subpopulation data needed Telehealth script for maternal child needs
Sex/gender (e.g., male, female, women, men, trans, transsexual, transgendered, two-spirited, etc.)		Stigma, lack of culturally safe care	
Sexual orientation, (e.g., lesbian, gay, bisexual)		Stigma, lack of culturally safe care	

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