



CHAPTER 3
CARE DURING PREGNANCY



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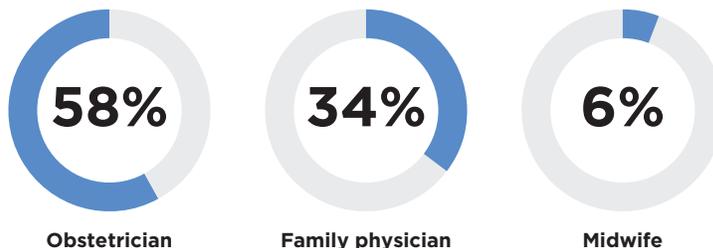
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CHAPTER 3

CARE DURING PREGNANCY

PREGNANCY IN CANADA

Women receive the majority of their prenatal care from:



<p>PRENATAL EDUCATION</p> <p>66% of all primiparous women attend prenatal education classes</p>	<p>INVOLVEMENT IN DECISION MAKING</p> <p>73% of Canadian mothers are very satisfied with their level of personal involvement in decision making about their care during pregnancy, labour and birth and postpartum</p>	<p>CHRONIC CONDITIONS</p> <p>27% of pregnancies are affected by a chronic condition</p>
<p>MENTAL HEALTH</p> <p>16% of women are diagnosed with depression or treated with anti-depressants before they become pregnant</p>	<p>MEDICATION USE</p> <p>59-66% of women use prescription medication during pregnancy</p> <p>67% of women use over-the-counter medications during pregnancy</p>	<p>INTIMATE PARTNER VIOLENCE</p> <p>6-8% of pregnant women experience violence</p>
<p>NAUSEA AND VOMITING</p> <p>85% of pregnant women experience nausea and vomiting</p>	<p>THYROID DISORDERS</p> <p>3% of pregnant women have hypothyroidism</p> <p><1% of pregnant women have hyperthyroidism</p>	<p>GESTATIONAL DIABETES MELLITUS</p> <p>5% of women are diagnosed with gestational diabetes mellitus</p>
<p>SUBSTANCE USE</p> <p>11% of women smoke cigarettes daily or occasionally during the last 3 months of pregnancy</p> <p>11% of women drink alcohol during pregnancy</p> <p>1% of women use illegal drugs during pregnancy</p>		

For references consult **Chapter 1: Family-Centred Maternity and Newborn Care in Canada: Underlying Philosophy and Principles**, **Chapter 2: Preconception Care**, **Chapter 3: Care during Pregnancy** and **Chapter 4: Care during Labour and Birth** in: Public Health Agency of Canada. Family-Centred Maternity and Newborn Care: National Guidelines. Ottawa (ON): PHAC; 2017/2018/2019.



FAMILY-CENTRED PREGNANCY EXPERIENCE

Women who receive early and regular prenatal care generally have better outcomes.

Not everyone in Canada has equal access to prenatal care. Women—including many Indigenous women and their families, as well as those women and their families living in rural or remote areas of the country—may not always have access to health care providers (HCPs) who are trained in the provision of prenatal care.

HCPs recognize that pregnancy is a state of health and a normal physiological event—as well as a profound event in the life of a woman and her family. All care should be based on the unique needs of each woman and her family.

Key family-centred care recommendations:

- Welcome the woman's support persons and acknowledge them at all points of care.
- Communicate using language based on respect, inclusion, and acceptance.
- Shared decision-making is based on the principle that the woman's self-determination is an essential component of her care and is a process that requires collaboration between families and HCPs. Take the time to determine the unique personal, psychosocial, educational, physical, spiritual, and cultural needs of the woman and her family.
- Be aware of the influence of culture on the unique needs, hopes, and expectations that women have during pregnancy. Each family is unique; they adapt their cultural traditions and practices to their own experience and needs and they interpret the culture of health care within this context. HCPs will want to be aware of this and assess each situation individually.
- Every effort should be made to provide women with continuity of care from the same HCP or team. By asking women about their questions, concerns and current needs at each prenatal visit, and documenting this information, HCP's can help ensure continuity of care when other HCPs are involved prenatally or during labour and birth.
- The location and organization of prenatal care can be a critical factor in determining whether women choose (or are able) to access services. Services need to be located and organized in such a way to minimize barriers to care.

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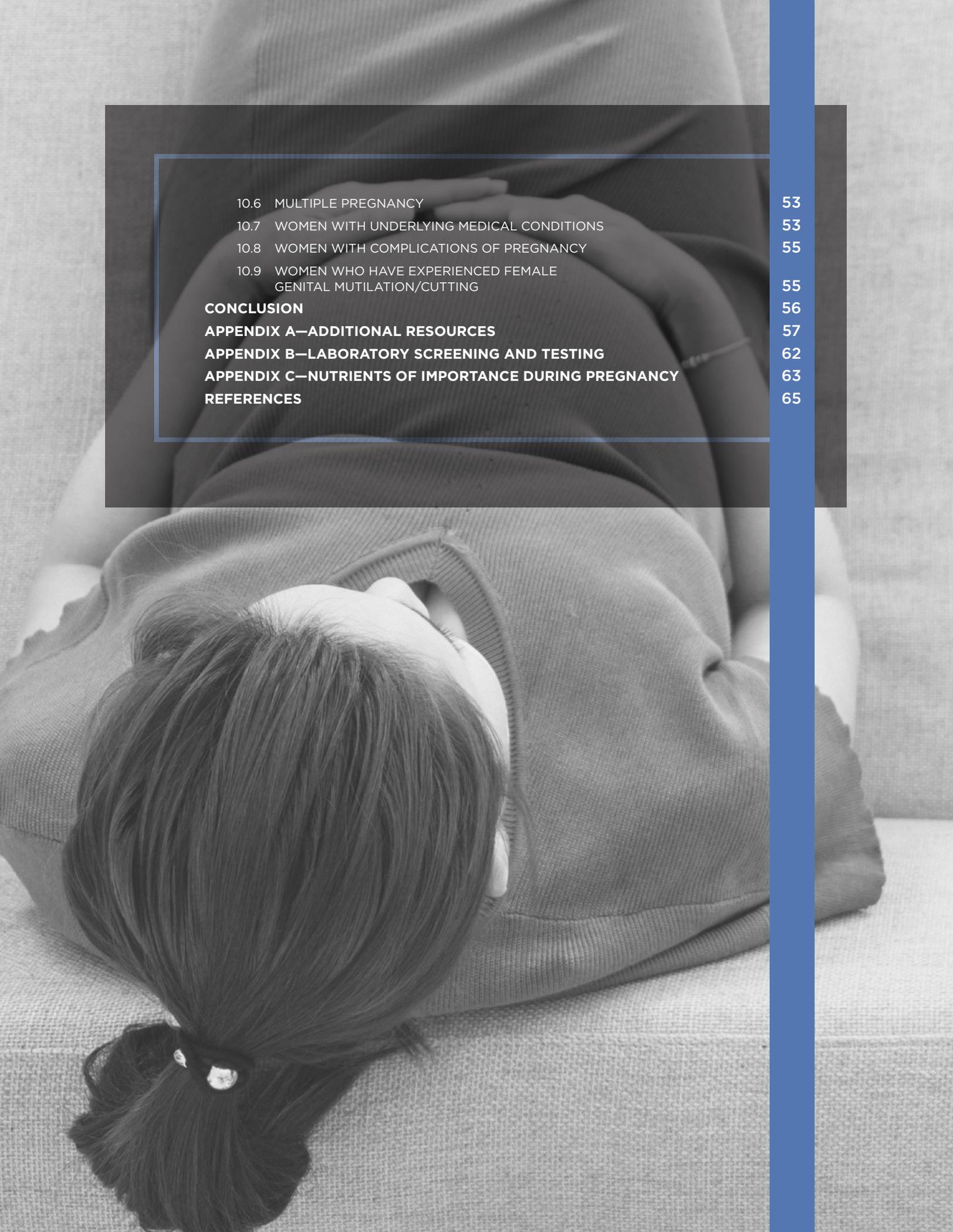
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Women who receive early and regular prenatal care generally have better outcomes.¹⁻⁴ Prenatal care influences the health of women and newborns in complex, multifactorial ways. Although there is a tendency to equate regular prenatal care with good outcomes, those accessing prenatal care tend to be more financially secure and often have a strong social support system.⁵

Not everyone in Canada has equal access to prenatal care. Women—including many Indigenous women and their families, as well as those women and their families living in rural or remote areas of the country—may not always have access to health care providers (HCPs) who are trained in the provision of prenatal care. Immigrant and refugee women may face barriers related to culture, language, and finances.⁶ The *Canadian Maternity Experiences Survey* (MES) found that younger women (15–19 years old) were more likely to start prenatal care later than older women. Women with less than a high school education or who were living in low income circumstances were also more likely to delay starting care.⁷ Community- or population-based approaches to prenatal care are required to achieve equitable access to health care services.

Consistent with the principles of family-centred care during pregnancy:

- HCPs recognize that pregnancy is a state of health and a normal physiological event—as well as a profound event in the life of a woman and her family. All care should be based on the unique needs of each woman and her family.
- Women and families make informed decisions about their care. They must be fully informed and have open and transparent communication with their HCP. Shared decision-making should be the norm during pregnancy care, irrespective of the risks that may be associated with the pregnancy. Shared decision-making requires an active and committed role on the part of the HCP, as well as individualized care matched to the circumstances and needs of the woman and her family.
- HCPs base their practice decisions on current evidence, acknowledging the gaps in research and the limitations of evidence-based practice. Consistent with research evidence, providers are encouraged to support the normal physiological process of pregnancy—and interventions should have known benefits and be acceptable to the pregnant woman and her family.



> [ADDITIONAL RESOURCES ON CARE DURING PREGNANCY: SEE APPENDIX A](#)



1

FAMILY INVOLVEMENT AND DECISION-MAKING

1.1 INVOLVEMENT OF PARTNERS AND OTHER SUPPORT PERSONS

Family-centred maternity and newborn care (FCMNC) includes welcoming the woman's support persons and acknowledging them at all points of care. Women who have meaningful social support systems adjust to the changes and stressors of pregnancy and early motherhood better than those without these supports. The woman's chosen support system might include her partner, immediate or extended family, friends, community, a labour companion or doula, or her spiritual adviser. Generally, women choose support persons who they consider will enhance their physical, emotional, and social well-being, and these individuals can foster the woman's sense of belonging and safety. Conversely, women with inadequate social support may feel isolated. Lack of social support may also be associated with intimate partner violence and postpartum depression.⁸

“ Women who have meaningful social support systems adjust to the changes and stressors of pregnancy and early motherhood better than those without these supports.”

It is incumbent on HCPs to determine if a woman has social supports or is socially isolated during pregnancy, birth, and early motherhood. An important part of these assessments is helping the woman develop her support options. This can be done by providing print or web-based information on how to involve her partner, family, or friends and information about community programs and services. Women with inadequate social support should be encouraged to reach out and connect with or create a social network that will meet their needs—HCPs can reinforce this by staying current on what services are offered in the community.

If a woman has a partner, they too may have specific psychological, emotional, and physical needs connected with a successful transition to parenthood.⁹ It is equally important that HCPs also find ways to include and support partners.¹⁰

1.2 SHARED DECISION-MAKING

Shared decision-making is based on the principle that the woman's self-determination is an essential component of her care. It follows that HCPs would choose to support this goal. Shared decision-making involves:

1. Explaining the right to choose;
2. Describing options; and
3. Helping families explore preferences and make decisions.

Shared decision-making requires that sufficient latitude and time be given; for some clinical issues, this may require discussion that extends to more than one prenatal visit. It is a process that requires collaboration between families and HCPs, and is reflected in the principles of FCMNC.

HCPs may encounter families whose values fall significantly outside accepted evidenced-based maternity care standards and the provider's own model of care. The goal of care remains one of shared decision-making. Achieving this goal depends on building an open and trusting

relationship, the foundation of which is sharing information in a clear, unbiased manner and supporting the woman in deliberating over her preference(s) and expressing them.

When decisions cannot be agreed upon and the woman's preferences fall outside the HCP's code of ethics or scope of practice, or may affect the safety of the mother or baby, mediation options include obtaining a second opinion, seeking the guidance of a health care facility ethics professional, or proposing a referral to another provider.



2 CULTURAL CONSIDERATIONS

Canadians are an ethnoculturally diverse population. It is vital to be aware of the influence of culture on the unique needs, hopes, and expectations that women have during pregnancy. Women from different cultures may be Canadian-born or newcomers to Canada and they may be influenced somewhat or greatly by their background. It is incumbent on HCPs to understand these backgrounds—if they are newcomers, their place of birth, how long they have been in Canada, and their support networks.¹¹



Most women who are newcomers to Canada face challenges, and multiple issues may influence their health during pregnancy and prenatal care, including:

- They may be isolated from mainstream society.
- They may not know about the Canadian health care system and available supports, or their cultural values, beliefs, and practices may cause them to feel the system is foreign and strange.
- They may have different expectations from those of their HCPs.
- They may not share a common language with available HCPs, and their communities may not have access to culturally sensitive health care or translation services.¹²

Cultural competency, or cultural awareness and sensitivity, is defined as “the knowledge and interpersonal skills that allow providers to understand, appreciate, and work with individuals from cultures other than their own. It involves an awareness and acceptance of cultural differences, self-awareness, knowledge of a patient’s culture, and adaptation of skills.”^{13,14}

Cultural competence involves respect, valuing differences, being inclusive, and maintaining equity. Providing culturally competent care means upholding dignity. It is critical to positive, healthy outcomes.¹¹ In order to provide culturally competent care, providers need to assess the beliefs, values, and practices of women and families, as well as their own.¹¹ Cultural safety goes beyond awareness and acknowledgement of differences, and focuses on power imbalances, institutional discrimination and historical factors.¹⁵ The key to practising cultural safety is self-reflection and building trust and respect.¹⁶

Communication with families from various cultural backgrounds can be challenging. It involves not only translating words, but also understanding subtle variations in meaning, style, volume and gestures.¹⁷ It is important to find the best possible interpreter for the specific situation. Interpreters must be trusted with private information and, ideally, have specific health-related language skills. Using children or other family members in this role is not recommended.

Each family is unique; they adapt their cultural traditions and practices to their own experience and needs and they interpret the culture of health care within this context. HCPs will want to be aware of this and assess each situation individually. While HCPs may not agree with all cultural practices, it is important to respect families’ needs and decisions.

Giving Birth in a New Land: Strategies for Service Providers Working with Newcomers offers specific strategies that promote family-centred, culturally competent prenatal care and help HCPs engage in a dialogue with women and families to determine their values and beliefs and how these apply to their pregnancy.¹⁸

QUESTIONS TO FACILITATE COMMUNICATION ABOUT VALUES AND BELIEFS

If families are newcomers to Canada, ask about their place of birth, how long they have been in Canada, and their support systems.

To ensure that women have an opportunity to express their needs, questions to ask include:

- How is health care different in your homeland or culture?
- What do you and your family believe you should do to remain healthy during your pregnancy?
- What are the things you can or cannot do to improve your health and the health of your baby?
- Do you have beliefs about pregnancy that I need to know about?
- Do you have any beliefs, practices, and faith rituals related to pregnancy and giving birth?
- Are there any specific foods that you might eat/drink (or not) during pregnancy?
- Are there any home remedies that you may use during this pregnancy?
- Who do you want to be involved in decision-making?

Adapted from *Giving Birth in a New Land: Strategies for Service Providers Working with Newcomers* (2014) and *Maternal Child Nursing Care in Canada* (2017).^{11,18}

2.1 CARE FOR INDIGENOUS WOMEN

Integrating cultural safety into prenatal care for Indigenous women involves providing an environment of respect and open communication—consistent with the principles of family-centred care. Indigenous women, as all women, need to feel safe, and building a trusting relationship with their HCPs and communities will facilitate this.

Indigenous women in Canada are diverse in their culture, languages, ancestry, beliefs, and practices. Working with Indigenous women is about understanding their individual values, beliefs, and needs and finding common ground. The Society of Obstetricians and Gynaecologists of Canada (SOGC) *Health Professionals Working with First Nations, Inuit and Métis Consensus Guideline* is a useful resource for HCPs. It recommends that “Health professionals should be aware that each First Nations, Inuit, and Métis community has its own traditions, values, and communication practices and should engage with the community in order to become familiar with these.”¹⁷ This may involve seeking guidance from community resources, Elders, and/or individual patients to ensure effective communication, feedback, and the establishment of a respectful relationship.

Indigenous women face many barriers to accessing prenatal care. These can include distance from care, lack of child care for other children, and fear or distrust of the health care system. As a result, some Indigenous women may have little or no prenatal care, which can put them and their baby at increased risk for negative health outcomes.¹⁶ Studies have provided insight on how to address these barriers to seeking prenatal care, including:¹⁶

- Building a trusting relationship;
- Educating about prenatal care—what to expect, why it is important, and the benefits for mother and baby;
- Helping to navigate the health care system;
- Providing translation services so that Indigenous women receive care in their own language whenever possible;
- Supporting access to an Elder, Indigenous liaison worker, or Indigenous coordinator for counselling and spiritual support;
- Including partners and families in all aspects of assessment, teaching, and care, based on the woman’s wishes;
- Referring women to community agencies that provide parenting classes, support, and mentorship;
- Exploring ways to overcome transportation and childcare challenges; and
- Collaborating with the leaders of on- and off-reserve community prenatal programs and liaising with community health nurses to initiate supports for the expectant mother, and her partner and family.

NON-INSURED HEALTH BENEFITS PROGRAM

The Non-Insured Health Benefits (NIHB) Program is a national program that provides coverage to registered First Nations and recognized Inuit for a specified range of medically-necessary items and services that are not covered by other plans and programs. This includes:

- Dental care;
- Eye and vision care;
- Medical supplies and equipment;
- Drugs and pharmacy products;
- Mental health counselling; and
- Assistance with medical transportation to access medically-necessary services.

The Government of Canada is committed to walking a path of partnership and friendship with Indigenous Peoples. However, reconciliation with Indigenous people in Canada requires the active engagement of all Canadians, including health professionals and policy makers. One important step is implementing the Truth and Reconciliation Commission’s Calls to Action.

Call to Action 23 calls on all levels of government to increase the number of Aboriginal professionals working in the health-care field, ensure the retention of Aboriginal health-care providers in Aboriginal communities, and provide cultural competency training for all healthcare professionals.



3 ORGANIZATION OF PRENATAL CARE

3.1 PROVIDERS OF PRENATAL CARE

Prenatal care requires the collaboration and coordination of many different personnel and services. This may include, among others, primary care providers (family physicians, midwives, and nurse practitioners), nurses, obstetricians and other consultant specialists, physician assistants, dietitians, social workers, mental health workers, physiotherapists, prenatal educators, doulas, outreach workers, health educators, home visitors, and psychologists. When there are multiple care providers, communication and documentation becomes even more complex.

“ Women should be informed of their options and make their decision based on their medical needs as well as their own philosophy of care.

The availability of choice in prenatal HCPs depends largely on the size of the community, its location, and its resources. Women should be informed of their options and make their decision based on their medical needs as well as their own philosophy of care.

According to the MES, over half of women (58%) surveyed received their prenatal care from an obstetrician, 34% were cared for by a family physician, and 6% by a midwife.⁷ Ideally, women at low obstetrical risk are cared for by a primary care provider such as a midwife or family physician, saving obstetric care for women whose pregnancies require specialist attention. Family physicians and midwives are focused on normal pregnancy and are more likely to have a detailed knowledge of the woman and her circumstances. Comparisons of outcomes between these three groups of care providers find that, in general, major outcomes are similar, with fewest interventions by midwives. Intervention rates among family physicians fall between those of midwives and of obstetricians.^{19–22}

3.2 CONTINUITY OF CARE

During pregnancy and childbirth, every effort should be made to provide women with continuity of care from the same HCP or team. According to the MES, about one-half of survey participants had the same caregiver for prenatal and birth care, and almost all said this was important for them.⁷ Evidence suggests that women receiving continuity of care have many positive outcomes. These include less likelihood of prenatal admission to hospital, greater likelihood of attending prenatal education programs, less likelihood of using pharmacological methods of pain relief during labour, and less likelihood of newborn resuscitation. Women report higher satisfaction with their antenatal, intrapartum, and postpartum care if they experience continuity of care.²³

In some cases, continuity of care is lost in the prenatal period if a woman is transferred between HCPs because of medical circumstances, human health resource issues, or lack of availability of services. This is especially true for many women in remote communities which may have high staff turnover, no dedicated prenatal care provider, and policies requiring evacuation prior to delivery.²⁴ Despite a preference for continuity of care, women generally understand and accept the need for different models of prenatal and intrapartum care.²⁵ Communication between the old and new HCP—and between them and the woman and her family—is key to a successful transfer of care. HCP societies/colleges and institutional guidelines can be used to guide a successful transfer of care.



3.3 FREQUENCY OF PRENATAL VISITS

There is no consensus in the literature—nor are there any Canadian guidelines—about the optimal number of prenatal visits.²⁶ The routine number of prenatal visits was determined without evidence of how much care is necessary to optimize the health of pregnant women or what is helpful to them.¹ The frequency of prenatal visits should be determined according to the physical and psychosocial needs of the woman, her family, and her unborn baby.

“ The frequency of prenatal visits should be determined according to the physical and psychosocial needs of the woman, her family, and her unborn baby.

Women in developed countries typically have 7 to 11 regular prenatal visits throughout each pregnancy.²⁷ A recent Cochrane review found that when this number was reduced, women in high-income countries were not more likely to experience more preterm births, low birthweight babies, or preeclampsia or to die than those receiving the standard care. However, the women were less satisfied with fewer visits, and some felt the length of time between visits was too long.¹ In contrast, in low- and middle-income countries, perinatal mortality increased as the number of visits was reduced, even if pregnant women were not more likely to have preeclampsia or to die.¹

3.4 LENGTH OF PRENATAL VISITS

The National Institute for Health and Clinical Excellence (NICE) guidelines recommend that prenatal visits be structured and have focused content, and provide adequate time for the first visit, to allow for a comprehensive assessment and discussion.² The first visit generally requires more time than subsequent visits, although there are no Canadian guidelines on the length of prenatal visits.²

3.5 TYPES OF PRENATAL CARE

Just as there are different providers of prenatal care, there are also different models of prenatal care, from individual provider, to interprofessional teams, to group prenatal care. A review of research into women's experiences of prenatal care found that while some women reported respectful, comprehensive, individualized care, others experienced long waits and rushed visits and perceived prenatal care as mechanistic or harsh. Women's preferences included reasonable waits, unhurried visits, continuity, flexibility, comprehensive care, meeting with other pregnant women in groups, developing meaningful relationships with professionals, and becoming more active participants in their own care.²⁸

In addition, some women who live in low income circumstances and are in minority groups, experienced discrimination or stereotyping, as well as external barriers to care. Women expressed a preference for a single provider, for counselling and education (which they felt was lacking), and for being involved in decision-making and anticipatory guidance. Different models of care suit different people, and depending on availability, women should be offered a choice that is evidence-based, women-centred, and reduces barriers to care.^{28,29}

“ Different models of care suit different people, and depending on availability, women should be offered a choice that is evidence-based, women-centred, and reduces barriers to care.

Individual Care

Traditional prenatal care refers to the woman having one-on-one visits with her HCP over the course of her pregnancy. The individual care model generally focus on health assessments, lab tests, screening for medical concerns, and education.³⁰ The emphasis placed on each of the areas of care under this model can vary depending on the HCP. Individual care can be provided by a family physician, obstetrician or midwife depending on the woman's choice and her health needs.

Interprofessional Model

A number of innovative models of prenatal care have been developed, coming about from a desire to meet women's needs while supporting human resource issues such as a paucity of intrapartum HCPs in certain communities and the declining participation of family physicians in birth. Specifically, the interprofessional model (i.e., obstetrician, nurse practitioner, midwife, family physician) has been a focus over the last 20 years in Canada. The approach may include innovative ways of sharing responsibilities, all while respecting each scope of practice.^{31,32} These interprofessional models of prenatal care can either be practised in the traditional one-on-one manner or be part of group prenatal care.

Successful collaborative interprofessional models require that all team members share the common goal of woman- and family-centred care. This entails mutual respect, flexibility and a full understanding of everyone's scope of practice, while addressing barriers to collaboration such as fee structure and liability/insurance issues.^{33,34}

Group Prenatal Care

The group model of pregnancy care was developed in the United States (U.S.) by Sharon Schindler Rising. Her version is known as Centering Pregnancy. Practitioners across Canada have developed versions of group prenatal care; the basic tenets are to increase family-centredness and improve the content and efficiency of prenatal care by combining the individual pregnancy assessment with prenatal education and social support in a group setting. Typically, women are initially assessed by their HCP, followed by 1 or 2 more individualized visits. Beginning in the second trimester, women join a group of 8 to 12 pregnant peers of similar gestational ages. These group sessions, usually 90–120 minutes long, continue through to the early postpartum period. In a typical session, participants have a brief individual and private assessment, take part in self-care activities such as weight and blood pressure measurement and urinalysis, and join in group discussions on prenatal education topics that build on shared experiences. Women are often accompanied by their partner, family member, or a friend.

Women who participated in group prenatal care had greater prenatal knowledge, felt more prepared for labour and birth, and were more satisfied with their care than women who only had individual prenatal care.³⁵ Research also suggests that group prenatal care may reduce incidence of preterm birth and caesarean birth rates, and may increase breastfeeding rates.³⁵ However, further studies are required to better understand this model's effectiveness and to determine its general application to all populations.



3.6 LOCATION OF PRENATAL VISITS

The location and organization of prenatal care can be a critical factor in determining whether women choose (or are able) to access services. Many reasons can interfere with a women's access to pregnancy care, often linked to such social determinants of health as socioeconomic status, culture, language, age, and geography. Services need to be located and organized in such a way that these determinants do not serve as barriers to care.

Attending prenatal care visits in an HCP's office or clinic may not work for all women. To minimize barriers, it may be necessary to provide care in the community or at a woman's home, making a range of services available, including public health, primary care, acute care, mental health, laboratory and diagnostic imaging services, pregnancy community-based programs, transport, and childcare. A number of agencies and services need to be considered in planning a comprehensive system: health units/community health centres, social service agencies, community-based organizations, and services that address specific issues, such as addictions, young mothers, breastfeeding, and smoking cessation.

For example, the Nurse–Family Partnership (NFP) program, originally developed in the U.S. and adapted in Canada, provides support and advice from a public health nurse during the prenatal period and after the infant is born for low-income young mothers who have had no previous live births. The program has demonstrated improved parenting, reduced injuries and poisonings, and improved infant emotional and language development. The mothers also have been found to have benefitted, with greater participation in the workforce and less reliance on social assistance.^{36,37} The researchers caution that successful replication of this program requires that the organization and community environment are supportive, the nurses are trained and receive guidance, the program is monitored, and continuous improvement strategies are implemented.³⁶

Regardless of the location of prenatal visits, effective outcomes depend upon innovative interprofessional models that provide high quality, collaborative, integrated, woman- and family-centred, culturally sensitive, and respectful care.

3.7 DOCUMENTATION OF CARE— THE ANTENATAL RECORD

Many provinces and territories provide a standardized care record for prenatal, birth, and newborn care. There is no standardized national antenatal record. The primary purpose of the antenatal record is to provide a structured approach to chronicling care and assessing maternal and fetal risk so that further care can be planned. Structured medical histories—on paper or electronic—are superior to unstructured histories in terms of improved clinical response to risk factors. In addition, information in antenatal records is collected for administrative purposes and, when aggregated, can be used to inform HCPs, consumers, health care planners, and researchers. The records also serve as vehicles for quality assurance, legal documentation, and communication along with continuity of care.³⁸

Woman-held Antenatal Record

Studies show that women who are provided with a copy of their antenatal record, which they then bring to every prenatal and other medical visit, feel more informed, in control, and satisfied. They like having access to their results and believe that it gives them greater opportunity to share information, particularly with other family members and partners.³⁹

“ Continuity of care is enhanced when women bring their information when they go to their birth site or see a different provider.

Moreover, enabling women to keep a copy of their antenatal record can strengthen the partnership and improve communication between women and their HCPs. Evidence shows that continuity of care is enhanced when women bring their information when they go to their birth site or see a different provider.³⁹ In addition to documenting the essential, basic health information, the hand-held record can also provide women with the opportunity to record their plans for pregnancy and birth as well as any questions or concerns they may have. Regardless of whether the antenatal record is held by the woman or the HCP, a copy must also be provided to the planned place of birth to help ensure it is available.

Electronic Medical Record (EMR)

The integration of best practice guidelines into electronic medical records (EMRs) has the potential to enhance care. The direct connectivity to databases can ensure the accurate data collection required for quality assurance and research. The ability to access the EMR in a variety of settings can improve continuity of care from community to hospital or birth centre and across different provider groups, possibly improving pregnancy outcomes. Achieving this connectivity would enhance seamless maternal and newborn care for Canadian women and their families.

However, using EMRs necessitates printing out up-to-date copies or making them electronically accessible for women to have their own records. Systems that allow women to access parts of their own EMR remotely, such as on their mobile devices or desktop computer, are under development. These systems may help overcome access shortcomings and enhance patients' involvement in their own care.



4 ONGOING CARE

By asking women about their questions, concerns and current needs at each prenatal visit, and documenting this information, HCP's can help ensure continuity of care when other HCPs are involved prenatally or during labour and birth. Adequate time must be provided for discussion. Assessments during prenatal visits should focus on issues appropriate to the woman's needs and gestational age. Particulars of the history for each visit are determined, in part by the presence of risk factors or health issues identified at previous visits. If issues identified in the history or ongoing assessments raise concerns, it may be beneficial to increase the frequency of prenatal visits.

4.1 RISK ASSESSMENT

Thorough knowledge of the woman's health history, lifestyle, and mental well-being is foundational to the dynamic process of risk assessment. Without this vital information, it is not possible to ascertain risk. Social and economic factors such as income, employment, education, social supports and coping skills, culture, and access to health services are important risk assessment considerations for their role in determining the woman's health and health outcomes for the baby, and may trigger the need for referrals to social and community supports.

HCPs will appreciate that the nuances of pregnancy health assessment cannot be contained in a simple history questionnaire or risk-scoring tool. Meaningful risk assessment requires a skilled and informed HCP who is aware of the woman's past and current health and her psychosocial status, and who is conscientious about the potential for complications to develop or to meliorate after the initial assessment. There are no agreed upon criteria to determine risk.

Benefits of Risk Assessment

Initial and ongoing risk assessment facilitates appropriate care during pregnancy and birth. It is also a valuable way to identify women who require special care or referral to specialized facilities, and when their care can return to their original HCP. Risk assessment considers both the mother and her unborn baby. Risk assessment can:

- Systematically and consistently address and document a large range of issues;
- Extend to encompass preconception evaluation and early pregnancy health status;
- Attend to the potential for emerging or diminishing problems, antenatally or in the postpartum; and
- Examine medical, obstetrical, and psychosocial factors.



Using structured questions, risk assessment supports routine prenatal care in obstetrical, family practice, or midwifery models while identifying women who may require specialist or obstetrical input into their care. Risk assessment identifies women who:

- Can remain within or return to the routine antenatal path of care;
- May need additional obstetric care for medical reasons;
- May need specialized care for a variety of physical or psychosocial complexities; and
- Are particularly vulnerable and at increased risk of poor maternal and perinatal outcomes, including death.

Cautions on Labelling Women 'at Risk'

The goal of risk assessment is to determine the woman's needs and provide her with the most appropriate care for her situation. However, antenatal risk assessment tools have high specificity but low sensitivity in predicting poor pregnancy outcomes. Evidence is lacking as to the effectiveness of risk assessment with respect to maternal and neonatal outcomes. Because of this, and because risk does not always remain static throughout pregnancy, caution is called for when it comes to assigning risk labels that can follow a woman and flag her care in negative ways. While regarding pregnancy as a normal, healthy process, HCPs will want to remain vigilant for the development of complications.²⁹

Collaboration within Evolving Risk Assessment

Experienced HCPs are able to recognize a full range of medical and psychosocial risks, and then refer women for appropriate care throughout their pregnancy. Depending on the circumstances, the HCP may choose to consult with other providers. Depending on the HCP's expertise, these consultations could be limited or extensive in scope.

Whenever prenatal care involves assessment or treatment from more than one provider, appropriate and timely communication between providers and documentation of care is essential.

4.2 MENTAL HEALTH

Poor mental health and mental illness are among the most common complications in pregnancy.⁴⁰⁻⁴² According to the MES, before they became pregnant, 15.5% of women were either diagnosed with depression or treated with antidepressants.⁷ Without early intervention, up to 70% of women with prenatal depression or anxiety experience chronic symptoms that extend through the postnatal and early childhood periods.^{24,41,43-48} Recent evidence also shows that almost 40% of women who have clinical depression (a 10+ score on the Edinburgh Postnatal Depression Scale) or subclinical depression (a 6 to 8 score), and do not seek treatment, continue to have symptoms when their children are aged 4 to 5 years.⁴⁹⁻⁵¹

A number of risk factors that contribute to poor mental health and mental illness during pregnancy have been identified. They include:⁵²⁻⁵⁵

- A previous history of mental illness;
- Discontinuation of medication(s) for their mental illness;
- A previous history of postpartum depression;
- A family history of mental illness;
- Problematic substance use;
- Poor resilience (low coping skills); and
- Psychosocial factors including:

- > A negative attitude toward the pregnancy;
- > Lack of social support;
- > Poverty;
- > Unemployment;
- > Discrimination;
- > Maternal stress;
- > Intimate partner violence; and
- > A partner or family member who is unhappy about the pregnancy.

Indigenous women in Canada are subject to a set of factors—including social exclusion, intergenerational trauma from residential schools and other forms of colonization—that increase their risk for perinatal depression. Treatment plans for Indigenous women with perinatal or pre-existing mental health concerns should take into account the importance of finding culturally safe and relevant care.⁵⁶⁻⁵⁸

Psychosocial Assessment

Many women express discomfort with initiating discussions about their mental health with their HCP. They may worry about stigma, want to avoid antidepressants, and do not know if their concerns are outside the range of *normal* in the context of pregnancy.⁵⁹⁻⁶¹ However, pregnant women do want their providers to talk about

mental health—fewer than 4% of women express discomfort with their provider inquiring about their mental health.^{62,63} A recent Canadian study found that 97% of pregnant women reported that they find mental health assessment as part of routine prenatal care acceptable.⁶⁴⁻⁶⁶

While Canada does not have any national guidelines on prenatal screening for depression and anxiety, international guidelines recognize the benefits of such screening.⁶⁷⁻⁷⁰ The most recent international position statement by the Marcé Society of Perinatal Mental Health reports a growing consensus for universal psychosocial assessment during the perinatal period when an integrated care model comprises assessment, referral, and treatment. The evidence is clear that in the absence of routine, standardized screening as a component of prenatal care, prenatal mental illness is underdetected and undertreated. Fewer than one-third of women with depression and anxiety are detected by maternity providers, and fewer than 20% of women screened as positive follow up on a referral or undergo treatment.⁷¹⁻⁷³ In countries where psychosocial assessment is routinely conducted during prenatal care, women and HCPs consistently report high levels of acceptability and benefit.⁷⁴⁻⁷⁸ Several assessment tools have been validated for use during pregnancy.

SCREENING AND PSYCHOSOCIAL ASSESSMENT TOOLS VALIDATED FOR USE IN PREGNANT AND POSTPARTUM WOMEN

Screening Tool	Description
Edinburgh Postnatal Depression Scale (EPDS) ^{66,79}	<ul style="list-style-type: none"> • Free (available on the Internet) • Self-report tool (the woman completes the questionnaire) • 10 items referring to past 7 days; takes 3-5 minutes to complete • Can be used during prenatal and postnatal periods • Can be completed on paper or online (e.g., using a tablet) • Available and validated in multiple languages
Whooley Questions ⁸⁰	<ul style="list-style-type: none"> • Free (available on the Internet) • Self-report tool (the woman completes the questionnaire) • 3 items referring to past month; takes 1-2 minutes to complete • Can be used during prenatal and postnatal periods • Recommended by recent NICE guidelines

SCREENING AND PSYCHOSOCIAL ASSESSMENT TOOLS VALIDATED FOR USE IN PREGNANT AND POSTPARTUM WOMEN

Screening Tool	Description
The Patient Health Questionnaire-2 (PHQ-2)	<ul style="list-style-type: none"> • Free (available on the Internet) • Self-report tool (the woman completes the questionnaire) • 2 items referring to past 2 weeks; takes 1-2 minutes to complete • Can be used during prenatal and postnatal periods
Generalized Anxiety Disorder (GAD-2) ⁸¹	<ul style="list-style-type: none"> • Free (available on the Internet) • Self-report tool (the woman completes the questionnaire) • 2 items referring to past 2 weeks; takes 1 minute to complete • Score ranges: 0-6 • Can be used during prenatal and postnatal periods • Recommended by recent NICE guidelines
Psychosocial risk assessment	Description
Antenatal Psychosocial Health Assessment (ALPHA) ^{66,78,82,83}	<ul style="list-style-type: none"> • Free (available from the authors) • Self-completed and provider-completed versions available • If the self-completed version is used, the assessment form is completed by the HCP during discussion of women's responses to identify them as low risk, some risk, or high risk on different sections • Sections include family status; family life (support, and partner response to pregnancy); relationship with partner; life stressors; woman's response to pregnancy; feelings about being a mother; relationship with parents as a child; past and current emotional health; alcohol and drug use in pregnancy; domestic violence • Takes 5-10 minutes to complete • Can be completed on paper or online (e.g., using a tablet)
Antenatal Risk Questionnaire (ANRQ) ^{66,84}	<ul style="list-style-type: none"> • Free (available from the authors) • 11 items; responses include 5-point Likert scales and yes/no responses; • Takes 5-10 minutes to complete • Sections include level of support; family status; relationship with partner; emotional, sexual, or physical abuse and domestic violence; anxiety level; life stressors and impact; past and current emotional health and professional help obtained; alcohol and drug use in pregnancy • A decision algorithm describes pathways of care based on the clinical risk score derived from combined EPDS + ANRQ scores • Can be completed on paper or online (e.g., using a tablet)



A recent Canadian study found that the majority of pregnant women were most comfortable with computer-based and paper-based modes of assessment, and preferred provider-initiated screening (97.4%) rather than self-initiated (68.7%) approaches.⁶⁶

By initiating conversations about the pressures of life and pregnancy, HCPs can emphasize that while a certain amount of stress and anxiety is normal, any factors that negatively affect a woman’s day-to-day life are important to discuss. Adequate time needs to be scheduled to allow for this conversation to unfold, followed by referrals to available community services if appropriate.

For women identified as having significant psychosocial risk factors (i.e., being at risk for poor mental health or mental illness), the following principles of care are important:

- Referring the woman to the appropriate services;
- Developing an integrated care plan;
- Defining the roles of all HCPs—this includes identifying who will be responsible for coordinating and monitoring the care plan and providing the interventions and support; and
- Providing care and support based on each woman’s needs and the variations in the course of the illness/problems.⁸⁰

4.3 PHYSICAL EXAM

Many practices related to physical examinations have become routine or common in prenatal care in Canada and worldwide. Some of these examinations are controversial, and various guidelines recommend routine prenatal assessments such as fundal height, maternal weight, blood pressure measurement, fetal heart auscultation, and abdominal palpation.^{27,85}

ROUTINE OR COMMON ASSESSMENTS

Assessment	Guideline
Symphysis–fundus height measurement	<ul style="list-style-type: none"> • The SOGC guideline <i>Intrauterine Growth Restriction: Screening, Diagnosis, and Management</i>.⁸⁶ • BC Perinatal Pathway recommends measuring and plotting symphysis–fundus height.⁸⁷ • NICE guidelines recommend measuring symphysis–fundus height at each prenatal visit from 24 weeks on.⁸⁰ • American Academy of Family Physicians (AAFP) recommends measuring and plotting fundal height for pregnancies starting at 20 weeks.⁸⁵
Caution: Measurement of the symphysis–fundus height is subject to observer variation. ^{27,87,88}	
Blood pressure measurement	<ul style="list-style-type: none"> • The SOGC guideline <i>Diagnosis, Evaluation, and Management of the Hypertensive Disorders of Pregnancy</i> provides guidance on how blood pressure should be measured.⁸⁹

ROUTINE OR COMMON ASSESSMENTS

Assessment	Guideline
Fetal heart rate auscultation	<ul style="list-style-type: none"> No Canadian guidelines. NICE (2008) advises that auscultation is not recommended; however, when requested by the mother, auscultation of the fetal heart may provide reassurance.² BC Perinatal Pathway recommends offering auscultation at each visit.⁸⁷ AAFP recommends fetal heart auscultation to confirm viability at each visit.⁸⁵
<p>Caution: Auscultation for fetal heart tones is commonly done to confirm a viable fetus. Aside from reassuring some women, there is no evidence of other clinical benefits, although there has been no relevant research.^{2,27,87,88}</p> <p>Auscultating too early in pregnancy can cause women undue anxiety.</p>	
Weight measurement	<ul style="list-style-type: none"> Health Canada's <i>Prenatal Nutrition Guidelines for Health Professionals: Gestational Weight Gain</i> recommends tracking weight gain over time to identify unusual patterns, but does not provide specific weight measurement intervals.⁹⁰ The SOGC guideline <i>Obesity in Pregnancy</i> provides recommendations on the counselling and care of obese patients.⁹¹ NICE guidelines advises against routine weighing at every visit, but recommend checking weight only if clinical management is affected or if there are nutritional concerns.² The BC Perinatal Pathway leaves routine weighing to maternal preference.⁸⁷ AAFP recommends measuring weight and height at the first visit, and then weight at every subsequent visit.⁸⁵
<p>Caution: There is lack of consensus as to whether pregnant women should be weighed at every visit.</p> <p>Most provincial antenatal records include a field for recording of weight at every visit and, as a result, it is usually routine.</p>	
Abdominal palpation for fetal presentation	<ul style="list-style-type: none"> No Canadian guidelines on when to perform abdominal palpation. The BC Perinatal Health Guidelines recommend assessing fetal presentation by abdominal palpation at 34 weeks.⁸⁷ NICE recommends starting palpation at 36 weeks if presentation will affect birth choices, and using ultrasound to confirm malpresentation.²



4.4 SCREENING, LABORATORY OR OTHER INVESTIGATIONS

At each visit, HCPs need to consider if any laboratory tests are required, depending on current guidelines and the woman’s medical history. In addition, results of any laboratory tests should be shared and necessary follow-up and interventions discussed. Recommendations for screening for conditions vary with the jurisdiction: some authoritative bodies recommend specific screening for certain disorders, while others do not.

Refer to the SOGC guidelines on screening as well as the guidelines within jurisdictions. Canadian Blood Services offers guidance on *Hemolytic Disease of the Fetus and Newborn and Perinatal Immune Thrombocytopenia*, which provides recommendations on serological testing and the recommended doses of RhIg.⁹²

The availability of ultrasound for non-clinical purposes has grown in popularity. Health Canada has established *Guidelines for the Safe Use of Diagnostic Ultrasound*. These Guidelines state that ultrasound should not be used for any of the following activities:

- To have a picture of the fetus, solely for non-medical reasons;
- To learn the sex of the fetus, solely for non-medical reasons; and
- For commercial purposes, such as trade shows or producing pictures or videos of the fetus.⁹³

The SOGC and Canadian Association of Radiologists (CAR) support Health Canada’s position on the non-medical use of ultrasound, and HCPs are referred to their *Joint SOGC/ CAR Policy Statement on Non-medical Use of Fetal Ultrasound*.⁹⁴

See [Appendix B](#) for more information on Laboratory Screening and Testing.

4.5 LIFESTYLE ISSUES

Several lifestyle issues should be addressed on an ongoing basis throughout pregnancy, with the discussions individualized depending on the woman’s needs, concerns and identified risks. Use of evidence-based strategies, such as motivational interviewing, will help to promote positive behaviour change.^{95,96} HCPs are referred to the various Canadian guidelines on lifestyle issues for recommendations.

PREGNANCY LIFESTYLE GUIDELINES

Issue	Guideline
Nutrition and food safety	<ul style="list-style-type: none"> • SOGC <i>Canadian Consensus on Female Nutrition: Adolescence, Reproduction, Menopause, and Beyond</i>⁹⁷ • SOGC <i>Health Professionals Working with First Nations, Inuit, and Métis Consensus Guideline</i>¹⁷ • Health Canada <i>Prenatal Nutrition Guidelines for Health Professionals</i>⁹⁸
Smoking	<ul style="list-style-type: none"> • CAN-ADAPTT <i>Canadian Smoking Cessation Clinical Practice Guideline</i>⁹⁹
Alcohol consumption	<ul style="list-style-type: none"> • SOGC <i>Alcohol Use and Pregnancy Consensus Clinical Guidelines</i>¹⁰⁰ • SOGC <i>Substance Use in Pregnancy</i>¹⁰¹
Other substances	<ul style="list-style-type: none"> • SOGC <i>Substance Use in Pregnancy</i>¹⁰¹
Exercise	<ul style="list-style-type: none"> • Joint SOGC/CSEP <i>Clinical Practice Guideline: Exercise in Pregnancy and the Postpartum Period</i>¹⁰² • SOGC/CSEP <i>Canadian Guideline for Physical Activity throughout Pregnancy</i>¹⁰³
Sexuality	<ul style="list-style-type: none"> • SOGC <i>Female Sexual Health Consensus Clinical Guidelines</i>¹⁰⁴ • PHAC <i>Canadian Guidelines on Sexually Transmitted Infections</i>¹⁰⁵

4.6 VACCINATION/IMMUNIZATION

Maternal vaccination protects the mother from vaccine-preventable diseases that she otherwise might transmit to her fetus or infant. Pregnant women respond adequately to vaccines even though pregnancy is an immunologically-altered state. In addition, protective concentrations of maternal antibodies are transferred to the fetus across the placenta, with the majority of transfer occurring during the third trimester.¹⁰⁶

When choosing vaccines for pregnant women, it is important to distinguish between live attenuated and inactivated vaccines. Inactivated vaccines are considered to be safe when administered to pregnant women.

Live attenuated vaccines are generally contraindicated during pregnancy but may be considered when the benefits of maternal immunization outweigh the risks, for example, yellow fever vaccine in a pregnant woman travelling to an endemic area.¹⁰⁶

Vaccines that are recommended during pregnancy include the tetanus, diphtheria, and pertussis (Tdap) and annual influenza vaccines. Vaccination with the Tdap vaccine is recommended once in every pregnancy, ideally during a prenatal visit between 27 and 32 weeks of gestation. This vaccine is given to protect newborns and infants against pertussis infection in their 2 first months of life when the disease can cause severe illness or death. If these vaccines are not administered during pregnancy, consider giving them as early as possible post-partum, preferably before discharge from the hospital. In addition, a pregnant woman who has no markers of hepatitis B (HB) infection but who is at high risk of HB acquisition should be offered a complete HB vaccine series at the first opportunity during the pregnancy and be tested for antibody response.

Prenatal visits are a time to evaluate the immunization status of the pregnant woman and to begin talking about childhood immunization and the importance of getting vaccines on time and keeping them up to date. HCPs have a key role in addressing vaccine hesitancy in parents and are referred to the CPS practice point *Working with Vaccine-Hesitant Parents*.¹⁰⁷ Specific recommendations for the immunization during pregnancy and while breastfeeding are found in the *Canadian Immunization Guide* and the SOGC guideline *Immunization in Pregnancy*.¹⁰⁸ Although the National Advisory Committee on Immunization (NACI) makes recommendations at the national level, specific programs and schedules are determined by provinces and territories. As such, HCPs should also refer to the immunization schedules of their respective jurisdictions.

“ Prenatal visits are a time to evaluate the immunization status of the pregnant woman and to begin talking about childhood immunization and the importance of getting vaccines on time and keeping them up to date.

4.7 COMMON DISCOMFORTS OF PREGNANCY

Many healthy women experience a variety of symptoms or discomforts during pregnancy, such as urinary frequency, fatigue, palmar erythema and heartburn. Most of these accompany the normal physiological changes as a woman's body adapts to pregnancy. Whereas some of the symptoms continue throughout pregnancy, others are temporary. HCPs need to provide women with information about potential discomforts in advance and offer practical solutions. Women should be counselled on what to do if symptoms become more intense and do not improve, or if multiple discomforts are present.

4.8 SIGNS AND SYMPTOMS OF CONCERN, AND PRETERM LABOUR

Pregnant women need advice on when a situation constitutes an emergency requiring them to contact their HCP or emergency department immediately. Similarly, they should understand when a situation can be followed up less urgently. It is also important that women know the signs of preterm labour.



SIGNS AND SYMPTOMS OF CONCERN^{109,110}

Pregnant women should contact their HCP or emergency department immediately if they have any of the following:

- Bleeding or spotting from the vagina;
- Fluid leaking from the vagina any time before labour begins;
- Lower back pain/pressure or change in lower backache;
- Contractions, or change in the strength or number of contractions;
- A feeling that the baby is pushing down;
- Dizziness, light headedness, fainting, loss of consciousness;
- Severe and prolonged headaches;
- Visual disturbances such as blurring, spots, flashes, or double vision;
- Abdominal pain;
- Chest pain;
- Fever accompanied by chills;
- Pain or burning when urinating with fever or flank pain; or
- Decrease in the baby's movement.

Pregnant women should contact their HCP as soon as possible (but not necessarily immediately) if they have any of the following:

- Swelling or puffiness of the face, hands, or feet;
- Pain or burning when urinating without a fever or flank pain;
- Nausea or vomiting that lasts throughout the day;
- Severe pelvic pain that interferes with walking; or
- Low grade fever or rash following a fever.



SIGNS AND SYMPTOMS OF PRETERM LABOUR^{110,111}

Any one or more of the following:

- Menstrual-like cramps;
- Regular contractions that gradually increase in frequency, duration, or intensity;
- Abdominal cramps, with or without diarrhea;
- Constant low, dull backache;
- Sensation of low pelvic/abdominal pressure or dragging feeling;
- Increase or change in the vaginal discharge;
- Fluid leaking from the vagina/ruptured membranes; or
- Bleeding or spotting.

What a woman should do if she is concerned that she is in preterm labour:

- Change position and decrease activity;
- Rest and watch for symptoms to subside;
- Contact her physician/midwife or the hospital unit where she is planning to give birth and describe her signs and symptoms; or
- Call her physician/midwife or the hospital unit where she is planning to give birth if she suspects her membranes have ruptured.

The woman should go immediately to the nearest emergency room or obstetrical unit if she:

- Has any of the above signs and is also feeling unwell;
- Has significant or worrisome vaginal bleeding;
- Has unexplained pain; or
- Is having regular contractions that are coming closer together, longer, or stronger.

4.9 PRENATAL NUTRITION, FOOD SAFETY, AND NUTRITIONAL SUPPLEMENTS

A woman's nutritional intake, both before and during pregnancy, influences the health of her developing baby. Eating well by following the advice of Canada's Food Guide, combined with taking a daily multivitamin, can help her obtain the nutrients she needs to feel good, have energy, and support a healthy pregnancy. Health Canada and the SOGC provide recommendations for pregnant women including:^{97,98,112,113,114}

- Pregnant women need just a little more food during their second and third trimesters to meet increased energy needs. Canada's Food Guide encourages regular consumption of vegetables, fruit, whole grains and protein foods.
- Folate
 - > Women who could become pregnant and pregnant women need to take a daily multivitamin containing 400 mcg (0.4 mg) of folic acid.
 - > Some women require a higher dose of folic acid, including those with the following risk factors:
 - » Previous pregnancy affected with a neural tube defect (NTD)
 - » Personal or male partner family history of NTDs
 - » Personal or family history of other folic acid related congenital anomalies
 - » Pre-pregnancy diabetes (type 1 or 2)
 - » Kidney dialysis
 - » GI malabsorption condition such as inflammatory bowel disease, celiac disease and gastric bypass surgery
 - » Antiepileptic or other folate inhibiting medications
 - » Advanced liver disease
 - » Alcohol overuse

- Iron
 - > Take a daily multivitamin that has 16 to 20 mg of iron.
 - > Some women may require more iron depending on their individual needs.
- Fish and omega-3 fatty acids
 - > Fish contains omega-3 fats and other important nutrients for a healthy pregnancy.
 - > Support women in understanding how to meet recommendations for omega-3 fatty acids during pregnancy by discussing foods rich in omega-3 fatty acids (e.g., fatty fish and nuts/seeds).
 - > Vary the types of fish eaten and follow advice to limit exposure to environmental contaminants such as mercury. Health Canada's recommended intake for some predatory fish is no more than 150 grams (5 ounces) per month.
 - > Consult local, provincial or territorial governments for information about eating locally-caught fish.
- Individuals with special dietary requirements should seek additional guidance.

Refer to Health Canada's *Prenatal Nutrition Guidelines for Health Professionals*, the SOGC *Canadian Consensus on Female Nutrition: Adolescence, Reproduction, Menopause, and Beyond*, and [Appendix C](#) for more information on nutrition and pregnancy.



Pregnancy may motivate some women to change their lifestyle habits, including nutrition. Canada has comprehensive prenatal nutrition programs that address food supplementation, nutrition assessment and counselling, social support, interagency referral, and education on lifestyle issues such as smoking, substance use, family violence, and stress. HCPs need to be aware of these programs in their communities. The programs are often designed to help organizations and community groups address the needs of vulnerable populations such as Indigenous women, women living in poverty, pregnant teens, and pregnant women who are geographically, socially, or culturally isolated. For example, the Canada Prenatal Nutrition Program uses a community development approach aimed at improving the overall health of vulnerable pregnant women, new mothers, and their infants.¹¹⁵

Food Safety

Pregnancy is a good time to remind women about the general principles of safe food handling. Foodborne illnesses pose greater risk to the pregnant woman and her unborn baby than to the general population. Resources available from Health Canada review safe practices relative to buying, cleaning, chilling, thawing and cooking food and dealing with leftovers.¹¹⁶

Listeriosis

Pregnant women are particularly susceptible to listeriosis, which can cause spontaneous abortion or stillbirth in up to 20% of affected pregnancies.

“ **The Canada Prenatal Nutrition Program uses a community development approach aimed at improving the overall health of vulnerable pregnant women, new mothers, and their infants.** ”

Methyl Mercury

Methyl mercury is a neurotoxin that can cause poor physical and mental development, blindness, deafness, and cerebral palsy. It accumulates in the aquatic food chain and thus levels depend on the predatory nature and lifespan of different species of fish. Fresh and frozen tuna, shark, swordfish, marlin, orange roughly, and escolar are particularly susceptible, and pregnant and breastfeeding women should limit their intake of these fish to no more than 150 grams (5 ounces) per month. Similarly, women who are or may become pregnant or are breastfeeding should limit their intake of canned (white) albacore tuna to no more than 300 grams (10 ounces) per week. This advice does not apply to canned light tuna. Canned light tuna contains smaller fish such as skipjack, yellowfin, and tongol, which are low in mercury. Health Canada does not suggest a limitation on pregnant women’s consumption of these forms of canned tuna.⁹⁸

Caffeine

Although excessive caffeine is thought to be associated with spontaneous abortion and fetal growth restriction, there is insufficient evidence to confirm or refute the effectiveness of caffeine avoidance on birthweight and pregnancy outcomes.¹¹⁷ Health Canada recommends limiting consumption to 300 mg/day (equivalent to 2 8-ounce cups of coffee).¹¹⁸

Herbal Teas

Many women choose herbal teas instead of coffee to minimize their caffeine exposure during pregnancy. While Health Canada states that teas with citrus peel, rosehip, and ginger are considered safe, pregnant women are advised not to consume herbal teas containing chamomile, aloe, coltsfoot, juniper berries, pennyroyal, buckthorn bark, comfrey, Labrador tea, sassafras, duck root, lobelia, stinging nettle and senna leaves.¹¹⁸

FOODS TO AVOID DURING PREGNANCY¹¹⁶

- Unpasteurized and pasteurized soft cheeses, such as Brie and Camembert
- Unpasteurized and pasteurized semi-soft cheeses, such as Havarti
- All unpasteurized and pasteurized blue-veined cheeses
- Refrigerated smoked seafood and fish. Frozen smoked seafood and fish are of lower risk, with fully cooked, canned, or shelf-stable being the safest alternatives
- Unpasteurized milk and juices (apple cider)
- Hot dogs, unless reheated until steaming hot
- Deli meats, unless dried and salted or heated until steaming hot
- Pâté and meat spreads, unless frozen, canned, or shelf-stable
- Raw or undercooked meat, poultry, and fish (sushi)
- Raw or lightly cooked eggs
- Raw sprouts, especially alfalfa sprouts

4.10 PRESCRIBED MEDICATIONS

About 59% to 66% of pregnant women use prescription medication during their pregnancy.¹¹⁹ When deciding whether to continue, start, stop, or change a medication, its reproductive safety needs to be weighed against the benefit(s) of treating/controlling the mother's condition and the risk(s) of an untreated disorder

or condition.¹²⁰ The dose, duration of treatment, and the timing during gestation (critical window of exposure) also need to be considered. Major congenital malformations occur in 3% to 5% of newborn infants, and 8 to 10% of stillborns in Canada, but only about 6 out of 1000 (0.6%) neonates are born with a major malformation that was induced by a medication.^{121,122}

KNOWN TERATOGENIC PRESCRIPTION MEDICATIONS

Medication	Adverse effect
Angiotensin-converting enzyme inhibitors (ACEIs) and angiotensin II antagonists	Use in the second and third trimester has been associated with ACEI fetopathy, resulting in fetal hypotension, anuria oligohydramnios, growth restriction, pulmonary hypoplasia, renal tubular dysplasia and hypocalvaria, and renal failure. ¹²³
Carbamazepine	Use in early pregnancy has been associated with a 0.2–1% increased risk of NTDs (baseline 0.1%). ^{124–126} HCPs should discuss, with pregnant women, the need for a higher dose of folic acid. ¹¹³
Coumarin derivatives	Exposure to coumarin derivatives during pregnancy has been associated with fetal warfarin syndrome, which causes skeletal defects, intrauterine growth restriction, intellectual disability due to central nervous system (CNS) damage, eye defects, and hearing loss. ¹²⁷
Folic acid antagonists (aminopterin, methotrexate)	Use of more than 10 mg per week of methotrexate during pregnancy has been associated with fetal aminopterin syndrome, which causes CNS defects (hydrocephaly, meningoencephalocele, anencephaly, partial craniosynostosis), facial anomalies (cleft lip or palate, hypo- or retrognathia), limb defects (syndactyly, club hands/feet), intrauterine growth retardation, and intellectual disability. ¹²⁸ HCPs should discuss, with pregnant women, the need for a higher dose of folic acid. ¹¹³
Lithium	Use in the first trimester has been associated with Ebstein's anomaly. Risk is estimated between 0.05% and 0.1% (baseline 0.005%). ^{129,130}

KNOWN TERATOGENIC PRESCRIPTION MEDICATIONS

Medication	Adverse effect
Misoprostol	Use in the first trimester has been associated with increased risk for Möbius sequence and limb defects, as well as with abortion and premature labour. ^{131,132}
Mycophenolate Mofetil	Use of Mycophenolate during pregnancy has been associated with an increased risk for ear (microtia, auditory canal atresia), craniofacial (cleft lip and palate), limb/skeletal (hypoplastic toenails), ocular, and cardiac malformations. ¹³³
Retinoids (systemic)	Exposure to systemic retinoids during pregnancy has been associated with increased risk for spontaneous abortion, embryopathy (craniofacial [microtia/anotia, micrognathia], thymic, central nervous system and cardiac defects), and behavioural effects. ¹³⁴⁻¹³⁶
Tetracyclines	Use of tetracyclines in the second or third trimesters of pregnancy may lead to dental staining and up to a 40% decrease in bone growth. ^{137,138}
Thalidomide	Thalidomide exposure 34-50 days after the last menstrual period has been associated with a high rate of stillbirth and neonatal death (~40%) as well as severe malformations, including limb reduction and eye and ear, cardiovascular, renal, and gastrointestinal defects. ^{125,139}
Valproic acid	Use of valproic acid during the first trimester has been associated with a 2- to 7-fold higher risk for NTDs, genitourinary and musculoskeletal anomalies, cleft lip or palate, and congenital heart defects compared with other antiepileptic medications. ¹⁴⁰ Valproic acid during pregnancy has been associated with developmental delays and cognitive deficits with the most prominent effect on verbal IQ. ¹⁴¹ HCPs should discuss, with pregnant women, the need for a higher dose of folic acid. ¹¹³

In addition, some medications, while not teratogenic, may lead to an increased risk for adverse effects in the newborn if used in late pregnancy. Effects may include withdrawal (following maternal opioid use), poor neonatal adaptation (following maternal selective serotonin reuptake inhibitor [SSRI] use), and symptoms of β -blockage (following maternal β -blockers). The symptoms may be self-limiting or require medical intervention. The increased risk of these neonatal symptoms does not necessarily warrant stopping use of the drug, but the woman needs to be aware of the situation in order to make an informed choice.

Several resources provide evidence-based information on the safety of medications during pregnancy. Canadian HCPs can access teratology information through Info-Médicaments en Allaitement et Grossesse and MotherToBaby.

4.11 OVER-THE-COUNTER MEDICATIONS

About 66.9% of women use over-the-counter (OTC) medications during pregnancy.¹⁴² Painkillers (50.6%), mostly acetaminophen and its combinations (47.7%), are the most commonly used.¹⁴² The same considerations apply to the reproductive safety of OTC medications as they do for prescription drugs. HCPs can direct questions to community or facility pharmacists, or refer to Info-Médicaments en Allaitement et Grossesse and MotherToBaby for information on OTC medications and their associated maternal and fetal risks.

4.12 SUBSTANCE USE

Of the women surveyed in the MES, 11% reported smoking cigarettes daily or occasionally during the last 3 months of pregnancy, 11% reported drinking alcohol during pregnancy, and 1% reported using illegal drugs during pregnancy.⁷ Another study reported that 5% of pregnant women use illegal drugs during pregnancy.¹⁴³ However, the rates are probably higher because of the tendency of people to underreport illegal drug use or misuse of prescription drugs.¹⁴⁴

The causes and outcomes of problematic substance use (both of illegal and prescription drugs) during pregnancy are complex. It is important to consider both the health and medical aspects of the use or addiction as well as the psychological and sociological factors.¹⁴⁴ A woman-centred, harm reduction approach is needed during pregnancy.

HCPs need to be aware of trends in their communities surrounding substance use, including the use of non-traditional substances. For example, some communities experience higher rates of inhalant use. Research indicates that inhalant use in pregnancy may produce effects similar to fetal alcohol spectrum disorder (FASD), namely, head and facial deformities, smaller-than-normal head and brain development, low birth weight, developmental delays, and other pregnancy and birth complications, along with a potential neonatal abstinence syndrome.¹⁴⁵

“ HCPs need to be aware of trends in their communities surrounding substance use, including the use of non-traditional substances.

The SOGC recommends that all pregnant women be screened for substance use.¹⁰¹ Substance use is not confined to any socioeconomic or sociodemographic profile.

Many women fear discussions about substance use—HCPs can counter this by adopting a non-judgmental approach where they are perceived as a partner working with the woman to reduce her substance use, rather than as an authority figure admonishing them to stop using. The best approaches meet women where they are in terms of readiness to change; they focus on harm reduction for those for whom abstinence is not feasible, and offer brief interventions and referral to community resources for psychosocial interventions.

Women with dependence challenges may be afraid of issues related to child protection services. Providers need to work with women and agencies to seek the best options for both mother and baby.

For additional recommendations, see the SOGC guideline *Substance Use in Pregnancy*.¹⁰¹

Tobacco and Vaping products/ E-cigarettes

Smoking tobacco during pregnancy is associated with low birth weight, stillbirth, spontaneous abortion, decreased fetal growth, premature birth, placental abruption, and sudden infant death syndrome (SIDS) as well as many risks to the pregnant woman's health.¹⁴⁶ Smoking rates vary across Canada among pregnant women, with the highest rate in the northern territories (59.3%) and lowest in Ontario (18.5%).¹⁴⁷

Like tobacco cigarettes, vaping products (e-cigarettes) can deliver nicotine as well as other substances that can be potentially harmful to pregnant women and their babies. The safest option is to avoid the use of tobacco cigarettes and vaping products when pregnant.

Stopping the use of nicotine before or during pregnancy will have numerous positive effects for both women and their babies. Women who use nicotine, whether through tobacco cigarettes or vaping products, should be offered cessation counselling. Women and their partners also need to be informed of the effects of second-hand smoke during pregnancy, and the importance of a smoke-free environment after the baby is born.

The *Canadian Smoking Cessation Clinical Practice Guideline* offers recommendations and strategies for pregnant women giving up smoking cigarettes.⁹⁹

Alcohol

FASD is a brain injury that can occur when an unborn baby is exposed to alcohol. It remains the leading known cause of preventable developmental disability in Canada. Because there is no evidence-based threshold for low-level drinking in pregnancy, Canadian guidelines recommend that pregnant women abstain from alcohol altogether. Canadian guidelines also recommend periodically screening all pregnant women for alcohol use.¹⁰⁰

It is important to discuss alcohol use with women during pregnancy, as early screening can improve maternal and fetal outcomes.¹⁴⁴ HCPs need to be aware of the risk factors associated with alcohol misuse and availability of supports and interventions.

See the SOGC *Alcohol Use and Pregnancy Consensus Clinical Guidelines*.¹⁰⁰

Drug Use

Cannabis: Cannabis is the drug most commonly used during pregnancy and is now legalized in Canada.¹⁴⁸ Evidence from the U.S. shows that cannabis use during pregnancy increased 62% from 2002 through 2014.¹⁴⁹ Research also suggests that women are turning to cannabis to treat nausea and vomiting in pregnancy.¹⁵⁰

Although findings are conflicting, prenatal exposure to cannabis has been shown to affect the growth and development of the fetus and immediate birth outcomes, and to lead to behavioural and learning difficulties later in life. Further research is needed on the immediate and long-term effects of cannabis use during pregnancy. The safest option is to avoid the use of cannabis altogether (smoking, vaping, edibles or topically) when pregnant. The SOGC recommends that HCPs discuss cannabis use with pregnant women and counsel abstaining or reducing use during pregnancy.¹⁰¹

Opioids: Opioid dependence is considered a serious crisis in Canada and can stem from prescription or non-prescription use. From 2012 to 2016, the number of opioid prescriptions increased 6.8%; however, the quantity dispensed decreased 4.9%.¹⁵¹ U.S. data demonstrates opioid use in pregnant women has increased significantly.¹⁵² Opioids should not be stopped suddenly when the woman becomes pregnant as this poses a risk to the fetus such as spontaneous abortion and preterm labour. If infants are exposed to opioids during pregnancy, they may experience neonatal abstinence syndrome. The SOGC recommends opioid agonist treatment, with methadone or buprenorphine, as the standard of care for opioid use disorder during pregnancy.¹⁰¹

Cocaine: The risks of cocaine use during pregnancy include preterm birth, placenta-associated syndromes (e.g., placental abruption, preeclampsia, and placental infarction), and impaired fetal growth. There are also risks of long-term neurodevelopmental and cognitive deficits such as poor language development, learning and perceptual reasoning, behavioural problems, and adverse effects on memory and executive function. It is important to recognize, however, that if a woman uses cocaine, she may also have other sociodemographic risk factors contributing to these outcomes.¹⁵³ Cocaine is short-acting and can be safely stopped during pregnancy.¹⁵³

Hallucinogens: Hallucinogen use (MDMA, LSD) has been associated with congenital anomalies, including cardiovascular and kidney anomalies.¹⁰¹ Hallucinogens can be safely stopped during pregnancy.

HCPs should refer to the SOGC guideline *Substance Use in Pregnancy* for recommendations on the care and treatment of women using substances in pregnancy.¹⁰¹

4.13 HEALTHY WEIGHT

Given the increasing incidence of obesity in the childbearing population and the associated risks (e.g., gestational diabetes, hypertension, abnormal labour patterns, increased caesarean birth, venous thromboembolism, large-for-gestational age babies, etc.), there is much focus on maternal weight and weight gain in prenatal care. Weight is a sensitive topic for many women and needs to be discussed with discretion and respect. Indeed, this may be a factor in obese or overweight women not seeking prenatal care.¹⁵⁴ Understanding a woman’s cultural customs, beliefs, and life circumstances is important, as many factors affect her feelings about her weight and expectations about weight gain in pregnancy.

There is lack of consensus as to whether pregnant women should be weighed at every visit. The

NICE guidelines recommend not doing so, but weighing them again after the initial visit only if this will change their clinical management or if nutrition is a concern. The BC Perinatal Pathway leaves routine weighing up to maternal preference.⁸⁷ Most provincial antenatal records include a field for recording weight at every visit and, thus, it is usually considered a routine practice.

Health Canada and the SOGC follow the 2009 U.S. Institute of Medicine guidelines for recommended weight gain in singleton pregnancies. Recommended weight gain for underweight or normal weight women is fairly consistent across jurisdictions; however, there is debate about weight gain guidelines for obese (body mass index [BMI] ≥ 30 kg/m²) women. Some consider the current guidelines as too generous and advise that obese women gain little if any weight in pregnancy.⁸⁷

WEIGHT GAIN IN SINGLETON PREGNANCIES^{91,97,98}

Pre-pregnancy BMI	Mean ^a rate of weight gain in the 2 nd and 3 rd trimester		Recommended total weight gain ^b	
	kg/week	lb/week	kg	lbs
<18.5	0.5	1.0	12.5-18	28-40
18.5-24.9	0.4	1.0	11.5-16	25-35
25.0-29.9	0.3	0.6	7-11.5	15-25
$\geq 30.0^c$	0.2	0.5	5-9	11-20

a) Rounded values.

b) Calculations for the recommended weight gain range assume a gain of 0.5 to 2 kg (1.1 to 4.4 lbs) in the first trimester.¹⁵⁵⁻¹⁵⁷

c) A lower weight gain may be advised for women with a BMI of 35 or greater, based on clinical judgement and a thorough assessment of the risks and benefits to mother and child.¹⁵⁸⁻¹⁶⁰

Women who are underweight or who gain less than the recommended amount of weight are at risk of adverse outcomes such as preterm birth and small-for-gestational age infants.

Healthy weight and healthy lifestyle practices are affected by factors such as genetics and personal choices as well as a woman’s social, cultural, physical, and financial environment. HCPs play an important role in helping women adopt healthy eating and activity levels during

pregnancy. Providers need to be sensitive to the issues that may present barriers to this, in addition to having appropriate equipment in their office to properly care for obese women.

See Health Canada’s *Prenatal Nutrition Guidelines for Health Professionals: Gestational Weight Gain* and the SOGC guidelines *Obesity in Pregnancy* and *Canadian Consensus on Female Nutrition: Adolescence, Reproduction, Menopause, and Beyond*.^{97,98}

4.14 WORKPLACE SAFETY

Continuing to work outside the home during pregnancy is usually safe, although the following aspects of work need to be assessed: the type of work, hours of work, levels of physical and emotional stress, and the mother's health status. Strenuous extended work (lifting heavy objects, shiftwork, high stress environments) may be associated with decreased birth weight, prematurity, and miscarriage.² This assessment should take place early in pregnancy to determine if any adaptations need to be made.

Job discrimination against a person solely due to pregnancy is illegal. Pregnant women should know their maternity rights and benefits. More information is available from Service Canada, the federal *Policy on Pregnancy & Human Rights in the Workplace*, and respective provincial/territorial human rights agencies.

Because everyone is exposed to various chemicals and toxins, in and outside the home, it is important to assess women's current and previous exposure to environmental toxins. Women in sedentary jobs should be encouraged to take walking breaks at regular intervals. Chairs should provide adequate back support, while using a footstool while seated can help prevent backache. Women should avoid crossing their legs at the knees to optimise circulation in their legs. Women who stand for long periods should be encouraged to rest regularly, as prolonged standing can increase the risk of preterm labour.



All pregnant women should avoid certain chemicals and metals, such as lead, mercury, and PCBs, which are known to adversely affect them and their unborn babies.¹⁶¹ Some inhalant gases, such as anaesthetics, slightly increase the risk of spontaneous abortion. Exposure occurs in medical, dental, and veterinary operating room environments. This risk can be minimized through the use of effective gas-scavenging systems and proper anaesthetic techniques (e.g., testing for leaks, using cuffed endotracheal tubes, etc.).¹⁶²

4.15 SEXUALITY IN PREGNANCY

Although a wide range of physiological sexual responses exist during pregnancy, sexual interest, frequency, and satisfaction often change for both men and women. Sexual relationships during pregnancy depend on many factors, including the quality of the relationship, sexual values and attitudes, cultural and religious beliefs, general health, discomfort during different trimesters, and specific pregnancy-related health concerns. Physical changes such as breast enlargement, nausea, fatigue, abdominal changes, leucorrhoea, pelvic vasocongestion, and orgasmic responses may affect sexuality and sexual expression.¹¹

Pregnant women and their partners require a basic understanding of sexuality and the impact of pregnancy on sexuality. They require information about the following: the physical and psychological changes of pregnancy and how these can change physical and emotional sexual responses; the different ways of pleasuring; and the importance of communicating changes, needs, and desires. Sex counselling of expectant couples includes countering misinformation, providing reassurance of normality, and suggesting alternative behaviours. For healthy pregnant women, intercourse and orgasm are not contraindicated.¹⁰⁴ Certain sexual restrictions during pregnancy may be necessary, for example, if vaginal bleeding, premature rupture of the membranes, or premature labour occur. Women at risk for acquiring or conveying sexually transmitted infections (STIs) are encouraged to use condoms during sexual intercourse throughout the pregnancy.

HCPs need to appreciate the range of attitudes and feelings that women and their partners may experience with regard to intimate relationships during pregnancy. They should also be aware of their own personal attitudes, values, and biases and how these might affect their assessment of women’s sexual health. The SOGC recommends that HCPs discuss sexuality during an early prenatal visit. HCPs need to communicate their openness to discussing sexual concerns and educate women and their partners about the normal changes in sexual frequency and interest and the range of permissible sexual activities. It is important to consider the option of rescreening women for STIs.

See the SOGC *Female Sexual Health Consensus Clinical Guidelines* and PHAC *Canadian Guidelines on Sexually Transmitted Infections* for more information on sexuality in pregnancy.^{104,105}

4.16 PHYSICAL ACTIVITY

There are many benefits to physical activity and leading an active lifestyle during pregnancy, including:^{103,163-168}

- Avoiding gaining excessive weight during pregnancy and maintaining a healthy weight after the birth;
- Possibly reducing the risk of pregnancy complications such as preeclampsia, macrosomia, and gestational diabetes, as well as the length of labour;
- Contributing to long-term prevention of type 2 diabetes, obesity, and heart disease;
- Lessening physical discomfort during labour, decreasing complications of labour and birth, and recovering more quickly following childbirth;
- Achieving better mental health during and after pregnancy; and
- Alleviating typical pregnancy discomforts, including fatigue, poor sleep quality, back pain, and constipation, and possibly facilitating the return to daily routines after birth.



HCPs should encourage pregnant women without contraindications to be physically active.¹⁶⁹ It is important for pregnant women to know that in a healthy low-risk pregnancy, beginning or continuing mild- to moderate-intensity exercise is not associated with adverse outcomes and is, in fact, beneficial.^{2,103} Women who have not been active before pregnancy should be advised to start with mild activities such as walking and swimming, even for short periods of time, and gradually increase the duration of the exercise.¹⁰²

The Canadian Society for Exercise Physiology (CSEP) has published *PARmed-X for Pregnancy*, a screening tool to help clinicians advise women who are interested in starting an exercise program or who wish to continue being active.¹⁶⁹ Practical resources in the tool include:

- A questionnaire for pregnant women to complete that includes a profile of their physical activity and health history;
- Contraindications to exercise during pregnancy; and
- Guidelines for aerobic and muscle conditioning activities that are based on evidence.

For some women, physical activity may not be appropriate or may require modification. The CSEP *Canadian Guideline for Physical Activity throughout Pregnancy* outlines relative and absolute contraindications to exercising in pregnancy.¹⁰³ It is important for health professionals to be aware of the contraindications to exercise found in *CSEP guideline* and the SOGC guideline *Exercise in Pregnancy and the Postpartum Period*.¹⁰²

The SOGC/CSEP *Canadian Guideline for Physical Activity throughout Pregnancy* encourages performing pelvic floor muscle training (e.g., Kegel exercises) daily to help reduce the risk of urinary incontinence.¹⁰³

The SOGC also recommends performing pelvic floor exercises immediately postpartum to help prevent urinary incontinence.¹⁰² Discussing pelvic floor health during pregnancy can raise awareness of the importance of the exercises and assist in optimizing pelvic floor health.

HCPs are referred to the CSEP *PARmed-X for Pregnancy*, SOGC/CSEP *Canadian Guideline for Physical Activity throughout Pregnancy*, and SOGC *Exercise in Pregnancy and the Postpartum Period* guideline for screening for physical activity readiness, contraindications and recommendations.

4.17 INTIMATE PARTNER VIOLENCE

It is estimated that 6–8% of pregnant women experience violence.^{170–172} This is considered a conservative estimate, since women often do not report the violence. Intimate partner violence can affect anyone regardless of socioeconomic situation, race, sexual orientation, age, ethnicity or health status. In a survey of women who have reported being abused, 1 in 10 reported that they experienced violence during pregnancy. Pregnancy does not prevent intimate partner violence and there is conflicting evidence about whether it increases or decreases during pregnancy.^{173,174}

Intimate partner violence during pregnancy is a significant cause of negative health outcomes for the women and her baby, both due to the physical trauma and psychological effects.^{174,175} Women experiencing abuse have higher rates of pregnancy complications, such as low weight gain, anemia, first and second trimester bleeding, miscarriage, preterm birth, intrauterine growth restriction, low birth weight, and perinatal death. Furthermore, intimate partner violence results in a higher incidence of depression, thoughts of suicide, and negative outcomes for the mother and baby, including death.¹⁷⁵ Intimate partner

violence during pregnancy also results in negative outcomes postpartum and later in life, such as the effects of maternal antenatal stress on the behavioural and emotional development of the child.¹⁷⁴

Women's experiences of intimate partner violence vary, influencing their likelihood to disclose. Some groups of women, including women who are newcomers, women who are LGBTQ2, women of colour, Indigenous women, and women who have disabilities may face increased barriers to disclosure. Some of those barriers include marginalization, stigma, stereotypes, lack of access to resources, lack of knowledge of resources, lack of knowledge of the law, language barriers, physical barriers and dependency on the person being abusive.^{176,177}

“ Trauma- and violence-informed approaches aim to minimize the potential for harm and re-traumatization, and to enhance safety, control and resilience for clients and patients.

Although many women do not report violence spontaneously, they often will disclose this information if asked.¹⁷⁵ There is no evidence to support universal screening for intimate partner violence, including during pregnancy. The Canadian Task Force on Preventive Healthcare does not recommend the use of the U.S. Preventative Services Task Force guideline, which recommends screening all women of reproductive age for intimate partner violence. It is important for HCPs to be able to recognize signs of intimate partner violence, and to provide trauma- and violence-informed care regardless of whether a disclosure of violence is made.¹⁷⁸ Trauma- and violence-informed approaches aim to minimize the potential for harm and re-traumatization, and to enhance safety, control and resilience for clients and patients.



5 FIRST TRIMESTER CARE

The first prenatal visit is critical to establishing a relationship between the HCP and the woman and her family that is grounded in two-way communication, demonstrates respect, and facilitates informed decision-making. To set the stage for family-centred care during the first visit, HCPs can:

- Describe the approach to shared decision-making;
- Take the time to determine the unique personal, psychosocial, educational, physical, spiritual, and cultural needs of the woman and her family;
- Communicate using language based on respect, inclusion, and acceptance; and
- Stress that pregnancy is a state of health.

In Canada, most women present to a family doctor to diagnose or confirm a pregnancy or for an initial visit after confirming their pregnancy themselves. For many women, their care may or may not continue with the same HCP, as they may choose a midwife, family doctor, or obstetrician for ongoing care. The early visits are critical for gathering and providing information on a wide variety of topics.

As the number of tests and interventions in pregnancy have increased, so has the anxiety women and their support persons experience

when deciding which tests to do, and when interpreting and understanding test results. Women feel less anxious if they know in advance what the tests and interventions are for. Decision aids for women and families are proving useful for complex aspects of care. Provide women with both oral and written information on aspects of care ahead of time to allow them to consider the options prior to testing or treatments.

5.1 HISTORY

The purpose of an initial prenatal history is to identify medical information that is relevant to the pregnancy. Given that the factors that affect pregnancy are wide-ranging, it is important that HCPs spend the necessary time to discuss and review a comprehensive history. This is also a time to identify those factors that require immediate attention or action and those that can be addressed in future visits.

The prenatal history focuses on the following: ^{78,82-84,179-181}

- **Menstrual history**, to help determine initial pregnancy dates, which should be confirmed by ultrasound.
- **History of the pregnancy**, including nausea and vomiting, bleeding, and infections as well as emotional issues that may affect the pregnancy (e.g., whether it was intended).

- **Medication use history**, including prescription and OTC medications and traditional or other herbal remedies.
- **Allergies** to medications, foods, or other substances.
- **Past medical history**, focusing on medical problems that affect or may be affected by pregnancy and breastfeeding, such as diabetes, hypertension, and autoimmune conditions.
- **Past obstetrical history**, to identify factors that may affect the pregnancy, such as previous caesarean birth, preterm birth, stillbirth or preeclampsia.
- **Gynaecological history**, including cervical or uterine procedures that may affect the current pregnancy.
- **Previous breastfeeding experience** and any concerns that arose.
- **Sexual history**, including ongoing risk factors for STIs, history of herpes simplex virus (HSV) and syphilis.
- **Past surgical history**, focusing on surgeries that may affect pregnancy or breastfeeding, such as breast reduction.
- **Family history** of both mother and father of the baby, including conditions that place women at higher risk for pregnancy complications or conditions that increase risk of genetic abnormalities.
- **Diet and nutrition history**, including any dietary restrictions or eating disorders that may affect the pregnancy.
- **Activity pattern**, including work, rest, and recreation.
- **Exposure to environmental contaminants**, including occupational hazards.
- **Lifestyle issues**, including substance, alcohol, or nicotine use, past and present.
- **Psychosocial history**, using a validated psychosocial instrument (ex. ALPHA, ANRQ), which includes a psychosocial history as well as a history of mental health issues.
- **Current or previous abuse**, including physical, emotional, or sexual.
- **Traditions and religious or ethnic views** that may affect pregnancy, birth, or postpartum practices.
- **Other factors** that women and her supports feel would be relevant to her care.

The prenatal history should be taken in a comfortable environment and in a relaxed manner, with adequate time to discuss pertinent details. Antenatal records, which have been developed provincially, have considered what aspects of a women’s history have the most impact on care and can guide the history. Since additional information from individual women may be needed, depending on their initial answers, the prenatal form is a tool to start a conversation.

5.2 NAUSEA AND VOMITING

The initial and early visits are a time to address the common symptoms and discomforts of pregnancy.

Nausea and vomiting of pregnancy (NVP) or morning sickness is one of the most common medical conditions in pregnancy, affecting up to 85% of pregnant women with varying severity.^{182,183} Symptoms include nausea and retching with or without vomiting, typically starting between 4 and 9 weeks and peaking between 7 and 12 weeks of pregnancy. For most women, symptoms usually resolve between 12 and 16 weeks. However, up to 20% of women may have these symptoms up to 20 weeks’ gestation or until birth.^{184,185} NVP symptoms can negatively affect the overall well-being of pregnant women, as well as their family, work, and social life.^{184,186} In addition, the financial burden of NVP can be quite significant due to the impact of the symptoms on the ability to work.¹⁸⁷ Women often describe feeling helpless, isolated, irritable, depressed, anxious, and frustrated.^{184,186} When NVP symptoms begin after 10 weeks of gestation, they should be investigated for other possible causes.

The most severe form of NVP, hyperemesis gravidarum (HG), affects up to 3% of pregnant women.¹⁸⁸ HG is defined as severe and persistent nausea and vomiting, weight loss greater than 5% of pre-pregnancy weight, dehydration, electrolyte abnormalities, and nutritional deficiencies, typically requiring hospitalization.¹⁸⁸⁻¹⁹¹ Women with HG may have more severe psychosocial issues, including depression.¹⁹² In some cases, women may choose to terminate an otherwise wanted pregnancy.¹⁹³ Hospitalization and treatment for the condition can have negative effects for the mother, such as longer recovery time from the pregnancy, muscle pain, and postpartum gallbladder dysfunction.^{184,192} Also, negative fetal effects have been reported, such as higher incidence of low birth weight, small-for-gestational age, and premature babies.¹⁹⁴

The cause of NVP/HG remains unclear and is most likely related to a number of factors.¹⁹⁵ Thus, the management of NVP/HG becomes challenging for both HCPs and the women themselves. Women often worry about the use of pharmacological therapies during pregnancy in case of potential risks to the fetus.^{183,184,190,191,196} To optimize the management of NVP/HG symptoms, it is important that HCPs advise pregnant women of various options.^{183,184,190,191,196} Information about using cannabis to treat NVP is growing, particularly online, and although Canadian data are limited, U.S. research has demonstrated an increase in rates of pregnant women using cannabis. The SOGC does not recommend use of cannabis during pregnancy to treat NVP/HG and HCPs will want to discuss the associated risks with patients.

See the SOGC guideline *The Management of Nausea and Vomiting of Pregnancy* for recommendations on dietary and lifestyle changes and non-pharmacological and pharmacological interventions to manage NVP, and an algorithm for treatment.¹⁸² It is important that HCPs ask the pregnant woman about the impact of NVP on her daily life and the severity of her symptoms, and then assess the best course of treatment.^{184,191,196-199}

5.3 COMPLETE PHYSICAL EXAM

For women who are at low risk, it is recommended that a physical exam be done as indicated by the woman's history and current needs. While some maternal and newborn care guidelines do recommend that women have a physical examination on their first visit, a recent review has indicated that general health checks/physical exams did not reduce morbidity or mortality and concluded that they are unlikely to be beneficial or change outcomes.^{27,87,88,200} Furthermore, the benefits of a number of interventions done in the physical exam have not been researched.

The following components of the physical exam during the first visit (or early in pregnancy) are discussed in current guidelines for women who have no known risk factors.



PHYSICAL EXAM COMPONENTS DURING THE FIRST VISIT

Physical exam component	Guideline
Weight and height measurements	<ul style="list-style-type: none"> Health Canada <i>Prenatal Nutrition Guidelines for Health Professionals: Gestational Weight Gain</i> recommends tracking weight gain over time to identify unusual patterns, and offers pregnancy weight gain recommendations.⁹⁰ SOGC <i>Obesity in Pregnancy</i> offers recommendations on the counselling and care of obese patients.²⁰¹
Blood pressure measurement	<ul style="list-style-type: none"> SOGC <i>Diagnosis, Evaluation, and Management of the Hypertensive Disorders of Pregnancy</i> provides guidelines with regard to how blood pressure should be measured.⁸⁹
Pap smear	<ul style="list-style-type: none"> Canadian Task Force on Preventive Healthcare <i>Cervical Cancer</i> offers guidance on screening for women in general but not specific to pregnancy.²⁰² For women aged 25–69 years, they recommend routine screening for cervical cancer every 3 years. Thus, depending on when the pregnant women's last screening was performed, she may require testing during pregnancy.
Pelvic exam	<ul style="list-style-type: none"> There are no Canadian guidelines for routine pelvic exams in pregnancy. NICE guidelines do not recommend a routine pelvic exam during pregnancy.² AAFP guidelines discuss the benefit of a pelvic exam on the initial visit to identify reproductive tract anomalies or screening for STIs.
Breast exam	<ul style="list-style-type: none"> There are no Canadian guidelines for routine breast exams in pregnancy. NICE guidelines do not recommend routine breast exams relating to breastfeeding promotion.²

5.4 ULTRASOUND AND PRENATAL SCREENING

Dating Ultrasound

Current SOGC guidelines state that a first-trimester crown-rump length at 7–12 weeks gestation is best at estimating gestational age and due date, rather than using menstrual dates. Establishing an accurate expected date of birth is particularly important when considering the care needed for women who may face preterm birth or when pregnancy extends beyond 41 weeks. The SOGC recommends offering a first trimester dating ultrasound to all women.

See the SOGC guideline *Determination of Gestational Age by Ultrasound* and the *Clinical Practice Guideline on the Use of First Trimester Ultrasound* for further recommendations.^{180,203}

Prenatal Genetic Testing

The number and types of prenatal genetic testing technologies are changing rapidly, and knowing about them all is a challenge for both HCPs and pregnant women. Furthermore, the specific tests provided and funded and the prenatal screening infrastructure vary significantly across the country.

Consistent with family-centred care, prenatal genetic testing is built on the philosophy that women have the right to make informed decisions about their pregnancies. This includes the option to decline prenatal genetic testing.²⁰⁴

Prenatal genetic testing directly screens for chromosomal or genetic conditions. Examples of prenatal genetic screening tests are multiple marker serum screening in conjunction with nuchal translucency measurement performed at the scan at 11 to 14 weeks. It is important for

HCPs to inform women that the anatomic, or 18- to 22-week ultrasound, includes screening for structural malformations of the fetus and is a form of genetic/chromosomal screening.²⁰⁵ Many structural abnormalities, or ultrasound *markers* (e.g., a small or absent nasal bone, or increased nuchal thickness), are associated with chromosomal or genetic abnormalities. Finding such abnormalities should be followed by a discussion with the family about options and further testing. Cell-free fetal DNA testing is offered through various private companies in Canada, although coverage through provincial/territorial health insurance varies. It screens for fetal aneuploidies, and can determine gender and blood type of the fetus. Like multiple marker serum screening and nuchal translucency measurement, if cell-free fetal DNA screening is positive women and HCPs will need to discuss the results so the pregnant woman can make an informed decision on next steps. Both the *Joint SOGC-CCMG Guideline: Update on Prenatal Screening for Fetal Aneuploidy, Fetal Anomalies, and Adverse Pregnancy Outcomes* and the *Joint SOGC-CCMG Opinion for Reproductive Genetic Carrier Screening: An Update for All Canadian Providers of Maternity and Reproductive Healthcare in the Era of Direct-to-Consumer Testing* offer recommendations on cell-free fetal DNA screening.^{206,207}

Invasive diagnostic genetic testing is generally offered in Canada only when screening by multiple marker testing or ultrasound indicates an increased risk for a chromosomal or genetic disorder. Again, unbiased counselling and informed consent for ongoing testing is fundamental to any prenatal testing program. The 2 most commonly offered diagnostic genetic tests are amniocentesis and chorionic villus sampling (CVS). The most recent evidence indicates that the miscarriage rate associated with amniocentesis is approximately 0.1% and that associated with CVS is approximately 0.2%.²⁰⁸

The SOGC has several guidelines on genetic screening, including:^{204,206,207,209-212}

- *Current Status in Non-Invasive Prenatal Detection of Down Syndrome, Trisomy 18, and Trisomy 13 Using Cell-Free DNA in Maternal Plasma;*
- *Prenatal Screening, Diagnosis, and Pregnancy Management of Fetal Neural Tube Defects;*
- *Prenatal Diagnosis Procedures and Techniques to Obtain a Diagnostic Fetal Specimen or Tissue: Maternal and Fetal Risks and Benefits;*
- *Joint SOGC-CCMG Opinion for Reproductive Genetic Carrier Screening: An Update for All Canadian Providers of Maternity and Reproductive Healthcare in the Era of Direct-to-Consumer Testing;*
- *Prenatal Screening for Fetal Aneuploidy in Singleton Pregnancies;*
- *Prenatal Screening for and Diagnosis of Aneuploidy in Twin Pregnancies;* and
- *Joint SOGC-CCMG Guideline: Update on Prenatal Screening for Fetal Aneuploidy, Fetal Anomalies, and Adverse Pregnancy Outcomes.*

5.5 LABORATORY TESTS

Provincial and territorial guidelines recommend certain laboratory tests at the first visit, or as early as possible during the pregnancy, and other tests carried out or repeated later. HCPs can consult their professional associations and the guidelines within their jurisdictions for recommendations. See [Appendix B](#) for specific laboratory tests guidelines.

In keeping with the principles of family-centred care, HCPs should inform women and families about the rationale for the tests, the anticipated outcomes and follow-up, and any risks involved, and obtain informed consent.



6 SECOND TRIMESTER CARE

Many aspects of care continue from the first trimester and throughout the pregnancy, such as mental health check-ins, laboratory bloodwork (as required), as well as discussions and follow-up with regard to a woman's individualized care.

6.1 THE 18- TO 22-WEEK ULTRASOUND

The 18- to 22-week ultrasound screens or diagnoses fetal structural abnormalities; determines placental location; estimates gestational age (though less accurately than the 11- to 14-week ultrasound); and assesses amniotic fluid volume.

The SOGC recommends offering all women this ultrasound.²¹³ It is essential that women and families are fully informed about what they can expect from this examination. See the SOGC guideline *Content of a Complete Routine Second Trimester Obstetrical Ultrasound Examination and Report*.²¹³

In some circumstances, women may be offered an additional fetal anatomic scan at 13–16 weeks gestation, such as those with a significant higher risk of fetal anomalies or those for whom a midtrimester transabdominal scan would be technically challenging. Refer to the SOGC guideline *The Role of Early Comprehensive Fetal Anatomy Ultrasound Examination*.²¹⁴

6.2 GESTATIONAL DIABETES SCREENING

In 2010/11, 5.4% of women were diagnosed with gestational diabetes mellitus (GDM), an increase from 4.1% in 2004/05. Rates for GDM increase with maternal age, with 1.5% of mothers aged 15–19 diagnosed with GDM in 2010/11 versus 12.2% of mothers aged 40–44.²¹⁵ Gestational diabetes raises the risk of preeclampsia, shoulder dystocia, large-for-gestational-age baby, and caesarean birth. GDM also raises the risk of type 2 diabetes for the mother later in life.

The SOGC guideline *Diabetes in Pregnancy* and Diabetes Canada's guideline *Diabetes and Pregnancy* recommend screening all women for GDM at 24–28 weeks.^{216,217} If there is a high risk of GDM based on previous GDM, maternal age 35 years or older, and obesity (BMI ≥ 30), testing should occur in the first half of pregnancy. If the initial test is normal for high-risk women, repeat at 24–28 weeks.

“ Gestational diabetes raises the risk of preeclampsia, shoulder dystocia, large-for-gestational-age baby, and caesarean birth.

6.3 TRIAL OF LABOUR AFTER A CAESAREAN BIRTH

For women who have had a previous caesarean birth, the second trimester is an ideal time to begin talking about the birth plan for the current pregnancy. If there are no contraindications, the option of a trial of labour (TOL) after a caesarean birth should be discussed with the woman and her family. Data on outcomes suggest that 60% to 80% of women who choose a TOL after a

caesarean are successful in achieving a vaginal birth after caesarean (VBAC).²¹⁸⁻²²¹ Women who have had more than 1 previous caesarean birth are likely to have a vaginal birth, although it is associated with a higher risk of uterine rupture.²²²

See the SOGC guideline *Trial of Labour After Caesarean* for contraindications and recommendations for a TOL after a caesarean and achieving a VBAC.²²²



7 THIRD TRIMESTER CARE

The third trimester brings a mixture of emotional and physical challenges, excitement, and anxiety. Generally, women no longer perceive their due date as a distant event and they have new questions about what to expect during late pregnancy, labour, and birth. They want to know which symptoms are normal, and which might be of concern for themselves or for their baby. At 30–36 weeks, the frequency of prenatal visits usually increases, and this schedule provides several opportunities for caregivers to address women’s questions and concerns and welcome discussions around birth planning. Prenatal visits generally occur weekly beginning at 36 weeks.

As with the first and second trimester, there are ongoing areas of care that need to be addressed together with those unique to the third trimester.



7.1 FETAL MOVEMENT

Women should be made aware of the significance of fetal movement in the third trimester but not advised to do fetal movement counting regularly unless they are at risk for adverse perinatal outcome. Using fetal movement counting as a fetal surveillance tool is widely debated and controversial. Most guidelines do not recommend it routinely for all women.^{27,87,223,224} A large randomized trial comparing formal fetal movement counting to no formal counting or movement assessments showed no difference in fetal death rates between the 2 groups.²²⁵

The SOGC *Fetal Health Surveillance: Antepartum Consensus Guideline* recommends that low-risk healthy pregnant women need to be made aware of the importance of fetal movements in the third trimester and to do a fetal movement count if they think there is a decrease in movements.²²³ The guideline further recommends that if a woman does not feel 6 movements in a 2-hour period, she should contact her HCP or hospital as soon as possible.²²³ HCPs will want to carefully explain how to properly perform a fetal movement count and what actions to take in case this count appears to have decreased.

For women at risk of adverse perinatal outcomes, the SOGC recommends daily fetal movement counts starting at 26–32 weeks.^{87,223} In order to address the potential stress caused by the practice, HCPs need to be prepared to respond to women’s questions about fetal activity (either with appropriate procedural or informational responses) and help women see fetal movement counting as an opportunity to connect and engage with the pregnancy and growing fetus.

7.2 MENTAL HEALTH CHECK-IN

Ongoing, routine assessment of a woman’s psychosocial health is an integral component of continuing prenatal care. It is particularly important to assess the woman’s anticipation about the baby’s birth late in the pregnancy and

to determine how well she and her partner/family are coping. It is essential to discuss aspects of birth that may be causing fear and anxiety, such as:

- When and who to call when in labour or if membranes rupture;
- Hospital or birth centre guidelines and procedures; and
- Non-pharmaceutical and pharmaceutical strategies for pain management.

Steps can be taken in the third trimester to assess and support women and families with regard to perinatal mood disorder. These steps include:

- Reviewing predisposing risk factors, such as previous depression or anxiety, family history of depression, significant pregnancy challenges, stressful life situations;
- Assessing whether the woman is coping with mild episodes of mood swings and mild anxiety, and has normal expectations about her new roles;
- Discussing the availability of supportive family/friend networks for the postpartum period; and
- Discussing postpartum depression/mood disorder and psychosis signs and symptoms, and when to seek help from their HCP.

7.3 SCREENING FOR GROUP B STREPTOCOCCUS

Although the incidence of neonatal infection has decreased significantly since the adoption of screening during pregnancy and prophylactic treatment in labour, infection with group B streptococci (GBS) continues to be a concern. The SOGC guideline *The Prevention of Early-Onset Neonatal Group B Streptococcal Disease* recommends that all women be screened for group B streptococcus at 35–37 weeks’ pregnancy.²²⁶ See this guideline for further recommendations on GBS screening and intrapartum management.²²⁶



8 PREPARING FOR BIRTH AND BEYOND

8.1 PLANNED PLACE OF BIRTH

Prenatal care includes discussing where the woman plans to give birth. HCP preferences notwithstanding, family-centred care supports the woman in her decision about where to give birth. Safety in maternity care includes physical safety, as well as a woman's self-defined values of cultural, spiritual, and emotional safety for herself, her baby, and her family.

Deciding where to give birth may be based on a variety of factors: the services offered close to home and the need for travel; HCP availability and where they have privileges; maternal, fetal or neonatal risk factors and the birth process; cultural factors and maternal preference; and availability of emergency services.^{227,228} Some women report feeling more relaxed, comfortable, and safe giving birth in a hospital while others have the same feelings about a planned home or birth centre birth. A woman's preferences generally relate to past experiences and social and cultural factors.

“ Safety in maternity care includes physical safety, as well as a woman's self-defined values of cultural, spiritual, and emotional safety for herself, her baby, and her family.

When deciding on the baby's birthplace, families need to consider many aspects of care and the availability of services, for example, whether they plan to have other children present for the birth, and the number of family members and support people involved in the labour. Women and families should be aware of existing home birth or facility policies in order to make fully informed choices.

Hospital Birth

Prior to the mid-20th century, births took place in the home. However, with the creation of medicare, births transitioned to hospitals, where currently almost all Canadian women (98%) give birth.⁷ However, rates of babies born in hospital in Canada have been declining gradually over the last several years. In 2017/18, the rate was 100 per 10,000 population, down from 112 per 10,000 population in 2009/10.²²⁹ One of the results of this transition has been the medicalization of many aspects of labour and birth.

Over the past several decades, hospitals have made many changes to policies and practices, becoming more family-centred and promoting normal birth. They are more likely to include families in labour and birth; to have policies stipulating that the woman receive continuous labour support from a skilled caregiver; have a single-room system; and keep mothers and babies together. Women and families are encouraged to familiarize themselves with hospital policies and procedures.

Home Birth

In a number of jurisdictions in Canada, women have the option of giving birth outside of the hospital. The re-emergence of midwifery practice, which is regulated and available in most provinces and territories, has contributed to this. While the scope of midwifery practice and guidelines vary, offering women a choice about the place of birth is a core tenet of Canadian midwifery.²³⁰ In most jurisdictions, midwives offer birth at home or hospital or, in some areas, birth centres. Few physicians offer out-of-hospital birth.²³¹

Birth outside of a hospital might not be appropriate for all women. HCPs who provide home birth services must perform careful risk assessments to determine whether a home birth is suitable, following guidelines in their jurisdiction and from their professional colleges/associations. Current research supports home birth as a safe option for low-risk pregnant women.²³²⁻²³⁴ This is particularly true in jurisdictions where midwifery is regulated and integrated within the health care system, thereby ensuring good access to emergency services and consultation or transfers of care to a physician when needed.²³³ Research demonstrates that planned homebirth with a registered midwife is associated with low rates of maternal or neonatal morbidity or mortality that are comparable to birth in hospital. In addition, women who plan home births with a midwife have fewer obstetric interventions, including caesarean birth or episiotomy, and less significant vaginal trauma, than women who plan hospital births with either a physician or midwife.^{232,233} The overall rate of transfer to hospital for women planning a homebirth is approximately 25%, with transfers for urgent concerns being 3% or less.²³²⁻²³⁴ Nulliparous women who planned a home birth are more likely to require transport to hospital than multiparas.²³³

It is important that women understand what aspects of care are not available at home, for example, epidural analgesia, narcotic analgesia, electronic fetal heart rate monitoring, and operative birth. HCPs are referred to the SOGC guideline *Statement on Planned Homebirth* which promotes the importance of informed choice with respect to birthing options for families.²³¹

Birth Centre

In terms of safety, birth centres are comparable to the home birth setting for women with low-risk pregnancies when transportation protocols and protocols with receiving proximal hospitals have been prearranged in the case of emergencies. Both settings have similar considerations—the availability of transport, the proximity to hospital, the availability of pain medication, etc.—all have to be factored into the decision.

8.2 PRENATAL CLASSES/ EDUCATION

The goal of prenatal education is to provide women and families with information to help them develop skills and make informed, safe decisions about pregnancy, birth, and early parenthood. Topics covered include knowledge and strategies that help in decision-making about and during labour; pain relief; infant and postnatal care; breastfeeding; and changing roles and relationships, communication, and sexuality.

Prenatal education encourages behaviours such as exercise and healthy eating, and prenatal adaptation; builds pregnancy- and birth-related knowledge; helps develop confidence; leads to less perceived pain during labour; improves the likelihood of arriving at the hospital in active labour; increases the likelihood of not using epidural anaesthesia; promotes breastfeeding initiation, continuation, and duration; improves the psychological well-being of the mother, decreasing anxiety and depression; and increases postnatal satisfaction of the couple in their relationship and in the parent-infant relationship.²³⁵

Women have a variety of reasons for attending prenatal education/classes, including to:²³⁵

- Have questions answered and issues addressed;
- Facilitate partner involvement;
- Meet other parents;
- Receive support and education;
- Reduce anxiety about labour and birth;
- Satisfy the wishes of their partner or family; and
- Learn about caring for a baby.

Strategies for providing prenatal education include:²³⁶

- Traditional in-class prenatal education sessions;
- Group prenatal education courses through a health provider practice or as part of an existing program;
- One-on-one prenatal education;
- General universal prenatal information provided by an HCP;
- Brochures, handouts, and resources;
- Apps, websites;
- Online courses.

Prenatal education is an integral part of prenatal care for all families. According to the MES (2009), one-third of women pregnant with their first baby did not attend prenatal classes, although they were more likely to attend than multiparous women.⁷ Certain women may be less likely to attend prenatal education programs. Research has found that women who live in neighbourhoods with lower income, lower education, lower employment, and higher concentrations of recent immigrants and visible minorities, and in areas where a large proportion of residents speak neither English nor French, are less likely to attend prenatal classes. Further work needs to be done to ensure accessibility.²³⁵

“ The goal of prenatal education is to provide women and families with information to help them develop skills and make informed, safe decisions about pregnancy, birth, and early parenthood.”

Creative ways to provide prenatal education for all women, in consultation with them, are encouraged. Such programs should be community-based to give the women and their families ownership and responsibility in their planning. Educators and HCPs need to work with the community to identify barriers that discourage women from accessing prenatal education and to find appropriate solutions.

Prenatal Educators

Many prenatal educators have been trained and are certified as childbirth educators by the Childbirth and Postpartum Professional Association (CAPP), Lamaze International, or the International Childbirth Education Association (ICEA) or through doula training or certification. Some have a broader education or an undergraduate degree not specific to prenatal education, or informal training through in-house training workshops, observing colleagues, and learning on the job. As in any discipline, competencies vary. It is important that prenatal educators be enthusiastic, sensitive, and respectful of others and that they view parents as peers capable of making decisions related to their care.

Prenatal Education Content

Prenatal education may include information on: preconception, early pregnancy, later pregnancy, labour and birth preparation, early parenting, and the first year postpartum. This education should be offered at appropriate intervals and focus on nurturing the appreciation that pregnancy and birth are normal, healthy life events. Content should include information on the natural physiological and psychological patterns of pregnancy, labour, birth, and the postpartum period.

CONTENT FOR PRENATAL EDUCATION¹¹

Preconception care and preparation:

- Decision to have a child;
- Readiness for parenting;
- Physical and psychological preparation for conception;
- Healthy lifestyle choices; and
- Relationship changes.

Early pregnancy classes:

- Fetal growth and development;
- Physical and emotional changes during pregnancy;
- Mental health;
- Normal discomforts and ways to manage these;
- Prenatal care, prenatal screening, and diagnostic tests—their purpose and use;
- Maternal nutrition during pregnancy;
- Physical activity;
- Using alcohol, tobacco, and other substances;
- OTC and prescription medications;
- Teratogenic and iatrogenic influences in pregnancy;
- Sexuality;
- Relationships during pregnancy;
- Variations from the norm and warning signs;
- Complications of pregnancy and ways of coping with at-risk pregnancy;
- Communication strategies for discussing concerns with HCPs and communication strategies between the couple; and
- Community supports and resources

Later pregnancy/labour and birth preparation:

- Development of birth plans to help prepare for birth;
- Normal labour and birth;
- Preterm birth or NICU admission
- Coping methods for labour: relaxation, comfort, and pain management techniques, positioning and movement, eating and drinking, etc.;
- Role of the labour support person(s) and doulas;
- Caesarean birth and TOL after a caesarean/VBAC;
- Common medical interventions and procedures, including evidence-based information on the indications, risks, benefits, and alternatives;
- Postpartum contraception; and
- Interpregnancy interval.

Early parenting:

- Preparation for parenting;
 - Transition to parenthood;
 - Newborn characteristics, behaviour, and care;
 - Skin-to-skin contact;
 - Breastfeeding, infant nutrition, care of the baby, normal changes to expect, and emotional and physical support for the mother;
 - Mental health/postpartum depression;
 - Early warning signs of postpartum complications for the woman and her baby;
 - Partner involvement, role, and concerns and relationships;
 - Sexuality;
 - Perinatal grief; and
 - Community supports and resources
-

Familiarization with the Place of Birth

Prenatal educators usually include, or suggest, a visit to a birth facility for pregnant women and their family. This helps to allay fears and anxieties about the hospital or birthplace and makes the impending birth more real. Tours may be done by a prenatal educator or hospital/birth centre staff. Adequate time should be allowed for questions during and at the end of the visit. Online introductions are also offered at some facilities as an alternative to hospital or birth place tours.

What to Bring to Hospital/ Birth Centre

Hospitals/birth centres have different expectations as to what the woman should bring with her for her stay. Most hospitals/centres require women to bring all the newborn care requirements, although some may supply these. Women may also need to bring supplies for themselves, including sanitary pads, toiletries, and snacks.

HCPs and prenatal educators can provide this information or help women find out where to get it.

“ The purpose of the birth plan is not to focus on a particular outcome or process, but rather to have a tool to improve communication between a woman and her partner and with HCPs.

8.3 BIRTH PLANS

A birth plan is a way for a woman to articulate her preferences and hopes for her birth experience, to build trust with her care team, and to receive necessary information. It is also an opportunity for HCPs to learn about her preferences and identify opportunities for education and support.

A recent study found that women who had developed birth plans and had more of their requests fulfilled felt more satisfied, had a higher chance of their expectations being met, and felt more in control. On the other hand, having a high number of requests was associated with a reduction in overall satisfaction with their birth experience.²³⁷





In order for birth plans to be both positive and useful tools for women and their HCPs, they are best seen as collaborative, flexible documents. The purpose of the birth plan is not to focus on a particular outcome or process, but rather to have a tool to improve communication between a woman and her partner and with HCPs in order to work together to create a positive and safe birth experience. Most birth plans include:

- Information about where a woman wishes to give birth;
- Who will be at the birth;
- What forms of pain relief a woman wishes;
- What types of medical interventions and practices she welcomes and does not welcome; and
- What the woman would like to have happen immediately after the birth with the baby.

When a birth does not go according to plan, especially if those plans were extremely detailed, women and families can feel dissatisfied or that they have failed, even though the outcome was positive. It is best to keep the birth plan focused on a few key items, and to discuss medical interventions even if such interventions are not desired. Of note, while much useful information can be found online, many birth plan templates include outdated information that can create a disconnect and affect communication between a woman and her HCPs. For this reason, providers may want to recommend a particular template or suggest collaborating in creating a plan to ensure all content is relevant and current.

For women with high-risk pregnancies, HCPs will want to discuss expectations and provide information about what may happen during and after the birth. It is also important to review the choices the mother may still have so that she remains involved even if the pregnancy is high risk, and collaboratively develop a birth plan that considers her specific needs.

Whether or not a written birth plan is used, it is vital that women, their families, and their HCPs take the time to discuss everyone's expectations during prenatal visits.

8.4 SIBLINGS AT BIRTH

The essence of FCMNC is focus on the family as the woman defines it—and women differ in their wishes about who they want close by during their labour and birth. Some parents want their children to witness the arrival of their new sibling.

Parents must plan ahead and explore the resources available to help prepare children for birth. As much as possible, and age-appropriately, the child should be included and supported in making the decision to be at the birth. If children attend the birth, an adult should be present whose sole responsibility is to take care of them, including making sure they have eaten and are rested, as well as answering questions in keeping with the family's wishes.

Having siblings at birth can be a cherished experience, but should not be in lieu of arranging appropriate childcare in advance. It is essential to explore the options of childcare with families when preparing for birth. Hospitals and birthing centres need to have policies in place regarding sibling involvement in birth that support families' choices while ensuring the children's wellbeing and safety.

8.5 WHEN TO GO TO THE HOSPITAL/BIRTH CENTRE OR CALL THE HCP

When a labouring woman should go to the hospital or birth centre depends on her pregnancy history. Generally, a nulliparous woman at low risk does not need to go to the hospital or birth centre as early as a multiparous woman. Nulliparous women can stay home until their contractions are 4 to 5 minutes apart, lasting for 60 seconds for at least 1 hour. However, if a woman is having difficulty coping at home, she may need to come to the hospital/birth centre sooner. Multiparous women may need to go to the hospital when contractions are 5 minutes apart.

Warning signs that a woman should go to the hospital sooner may include lack of fetal movement, fever, bleeding, rupture of membranes, or a combination of these conditions. Many hospitals and birth centres and individual practitioners have guidelines indicating when women should contact them or go to the birth facility. HCPs should refer to their local resources. Women planning a home birth or a birth centre birth will require information from their midwife about whom to call.

8.6 BREASTFEEDING

Breastfeeding is the unequalled method of feeding infants. The World Health Organization, United Nations Children's Fund (UNICEF), Canadian Paediatric Society, Health Canada, and the Public Health Agency of Canada recommend exclusive breastfeeding for the first 6 months, and sustained for up to 2 years or longer with appropriate complementary feeding.²³⁸⁻²⁴⁰ Women who perceive their HCPs as supportive of breastfeeding are more likely to breastfeed than those who perceive them as neutral or favouring formula feeding.^{241,242} Also, the more often breastfeeding is mentioned during pregnancy, the more likely women will breastfeed.²⁴³ Because a woman may make the decision to breastfeed

prior to getting pregnant, during pregnancy, or during the early postpartum period, it is key that HCPs discuss the recommendations, the importance of breastfeeding, and the implications of giving formula and other breastmilk substitutes, from the first prenatal visit. Another excellent opportunity for discussing breastfeeding is during prenatal classes.²⁴⁴

Education (including written materials, videos, and online resources) and support increase the number of women who initiate and continue breastfeeding.²⁴⁴ The discussion about breastfeeding needs to focus on attitudes and previous experiences and on feeding plans that include the woman's partner. Women want practical information on breastfeeding, such as positioning, attachment, on demand feeding, recognizing feeding cues, skin-to-skin contact, initiating breastfeeding, supplementation, and rooming in, as well as on such potential challenges as engorgement, perceptions of not enough milk, and how to address these issues.²⁴⁰ Group prenatal classes can also support breastfeeding initiation by discussing its importance as well as how to breastfeed. Women can also get additional breastfeeding information from community health nurses, lactation consultants, or their physician or midwife.⁸⁷

HCPs will want to develop the knowledge and skill to counsel women and their families on infant feeding, and respect the International Code of Marketing Breastmilk Substitutes including no distribution of formula samples or educational material produced by companies of infant formula or other products under the scope of the Code.

“ Women who perceive their HCPs as supportive of breastfeeding are more likely to breastfeed.”



8.7 PREPARING FOR PARENTHOOD

The MES reported that women considered they had received enough information during pregnancy on breastfeeding, basic maternal and infant care, and community resources. They did not have enough information on the transition to parenthood, especially on the following topics: sexual changes, physical demands of newborn care, and the effects of the transition period on the relationship with their partner.⁷ Recently, the WHO Implementation Guidance: *Protecting, Promoting and Supporting Breastfeeding in Facilities Providing Maternity and Newborn Services* noted that women feel they do not receive enough information antenatally about infant feeding and breastfeeding.²⁴⁰

HCPs can provide information about the transition to parenthood or they may refer women to where they can get this information—drop-in clinics, breastfeeding support programs, home visit programs, parenting programs, and other local resources that women and families can access after their baby is born. It is helpful to give parents a list of resources that include books, websites, and videos.

Providers can also reassure women that it is normal to require support during the postpartum period. It is important to address some of the practical ways that families can ensure support in the transition phase (for example, initiating phone contact, accepting help with the care of siblings and opportunities for rest). This will help women identify who among the people they know can help them and to normalize this experience. Identifying women at risk of having problems transitioning to parenthood is important so that they can be referred to the appropriate services.

The focus of the prenatal period is commonly centred on the pregnancy and the birth itself, and parents often find it difficult to take in information about parenthood and the postpartum period. HCPs can discuss postpartum topics with women and her family to assist in the transition to parenthood.

“ Identifying women at risk of having problems transitioning to parenthood is important so that they can be referred to the appropriate services.

TOPICS TO DISCUSS ABOUT TRANSITIONING TO PARENTHOOD

General topics:

- What the parents can expect during the postpartum period and transition to parenthood;
- Preparing the family/siblings and home for the baby and
- Father/partner involvement, roles, and concerns.

Newborn care:

- Eye prophylaxis, vitamin K prophylaxis, and newborn screening;
- Car seat safety;
- Normal crying versus abnormal crying/behaviours;
- Infant safety: safe sleep, crib safety; shaken baby syndrome;
- Immunizations;
- Vitamin D supplements; and
- Infant feeding.

Relationships:

- Adjustments for the women and her partner and the impact on their relationship;
- Changes to the sexual relationship;
- Stress associated with the transition to parenthood;
- Staying connected as a couple and supporting each other; and
- Postpartum contraception and interpregnancy interval.

Community supports and resources:

- Health agency visiting professionals, phone lines for new parents, breastfeeding support programs/resources, parenting groups, library and recreation centre resources, shelters, food banks, financial resources, online resources.
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9 IMPORTANT CONSIDERATIONS

9.1 BREECH

Approximately 3% to 4% of term fetuses are in a breech presentation. The risk to the fetus is higher with breech versus cephalic vaginal birth, and in many jurisdictions, it is common practice to deliver breech babies by pre-labour caesarean birth. Caesarean birth, however, incurs greater maternal risk. An option for some women with a baby in a breech presentation is to try to turn the baby into a vertex position through an external cephalic version (ECV).

A recent Cochrane review found that non-cephalic presentation at birth was reduced if ECV was done before term. Beginning ECV between 34 and 35 weeks decreased the rate of non-cephalic presentation and risk of vaginal breech birth compared with beginning ECV at term. However, because early ECV may increase the risk of late preterm birth, it is important that HCPs discuss the timing of ECV and the associated risks so that women and families can make an informed decision.²⁴⁵

“ It is important that HCPs discuss the timing of ECV and the associated risks so that women and families can make an informed decision.

If ECV is unsuccessful or the woman chooses not to have one, HCPs need to determine if a vaginal breech birth is appropriate. A recent Cochrane review of the risks of planned vaginal breech birth versus planned caesarean birth for a term breech birth reached no clear conclusion, and the controversy remains unresolved. HCPs may choose to discuss the option of vaginal birth for some cases of term singleton breech babies, with decisions made on an individual basis.²⁴⁶ Women need to be informed of the benefits and risks of all options—an ECV, a planned breech birth, or a pre-labour caesarean birth—and have opportunities to discuss the risks and benefits with an HCP who has experience with all the options.

See the SOGC guideline *Vaginal Delivery of Breech Presentation* for recommendations for a vaginal breech birth and specific contraindications.²⁴⁷

9.2 TRIAL OF LABOUR AND VAGINAL BIRTH AFTER CAESAREAN

Evidence suggests that a TOL after a caesarean birth is a safe and appropriate option for most women who have had a previous caesarean birth.^{218,220,222,248} The SOGC guideline *Trial of Labour After Caesarean* supports a TOL after a caesarean for women who have had 1 prior caesarean birth in the absence of contraindications. A trial of labour for women with more than one previous caesarean birth is also likely to be successful, but it is associated with a higher risk of uterine rupture.²²²

The overall rates of maternal and perinatal complications are low for both VBAC and elective repeat caesarean birth.²⁴⁹ Despite the current knowledge, the rate of VBAC has declined dramatically in Canada since the mid-1990s, with the repeat caesarean birth rate increasing from 65% in 1995 to 82% in 2012/13.^{250,251} The most significant morbidity for both mother and baby is associated with uterine rupture.^{249,252}

There is significant debate about the optimum place of birth for a planned TOL after a caesarean birth. Several guidelines indicate that TOL after a caesarean birth should be planned in facilities with readily available blood products and surgical intervention, which generally includes an obstetrician and anesthesiologist on site or within close proximity.^{218,222} This may be difficult in some rural and remote communities.²⁵³

When caring for a woman who has had a previous caesarean birth, it is important to start discussing birth options early, providing many opportunities for questions. This will allow her and her family to make an informed decision. It is incumbent on HCPs to consider the woman's priorities and preferences, circumstances of her previous caesarean birth, the risks and benefits of a repeat caesarean birth, and the risks and benefits of planned TOL after a caesarean birth.²⁴⁸

See the SOGC guideline *Trial of Labour After Caesarean* for a full review of risks, benefits, and contraindications.²²² Some Canadian hospitals also have decision making tools in place to help women understand the risks and benefits of having a TOL after a caesarean birth.

9.3 FETAL HEALTH SURVEILLANCE

Fetal health surveillance is an important component of care during labour and birth. HCPs need to discuss the 2 types of fetal monitoring used during labour and birth with pregnant women, intermittent auscultation and continuous electronic fetal heart rate monitoring. The discussion should include when each is indicated and how the assessment is done.

Refer to the SOGC's *Fetal Health Surveillance: Antepartum and Intrapartum Consensus Guidelines*, Canadian Perinatal Programs Coalition and Perinatal Services BC manuals/training, and other current clinical guidelines for guidance on fetal health surveillance.

9.4 INDUCTION

Induction of labour refers to the artificial initiation of contractions prior to the spontaneous onset of labour. Induction is indicated when the risks to the mother or baby of prolonging the pregnancy exceed the risks associated with induction.

The SOGC guideline *Induction of Labour and Guidelines for the Management of Pregnancy at 41+0 to 42+0 Weeks* recommends offering an induction between 41⁺⁰ and 42⁺⁰ weeks' gestation, to prevent postterm pregnancies (>42⁺⁰ weeks).²⁵⁴ Other medical indications for induction may include:

- Significant maternal disease not responding to treatment;
- Significant but stable antepartum hemorrhage;
- Chorioamnionitis;
- Suspected fetal compromise;
- Term pre-labour rupture of membranes (PROM) with maternal GBS colonization;
- Uncomplicated twin pregnancy ≥ 38 weeks;
- Diabetes mellitus;
- Alloimmune disease at or near term;
- Intrauterine growth restriction;
- Oligohydramnios;
- Gestational hypertension ≥ 38 weeks;
- Intrauterine fetal death;
- PROM at or near term, GBS negative; or
- Intrauterine death in a prior pregnancy.

Women who are 40 years and older may also be considered for induction at 39 weeks, given their higher risk of stillbirth.²⁵⁵

If induction of labour is being considered, the decisions should be based on a woman's individual needs and preferences, with her making informed choices in partnership with their HCP. The discussion needs to include:

- The indications for induction and the risk/benefits of inducing versus not inducing;
- Methods of induction and risks/benefits of each; and
- The induction process (e.g., the time it will take, the normal course of induction).²⁵⁵

There is evidence to support sweeping of membranes to promote the onset of labour and it can decrease induction rates.²⁵⁵ Women may also explore alternative or complementary methods of inducing labour such as castor oil, intercourse, acupuncture, or breast stimulation. A Cochrane review determined varied outcomes for these methods. HCPs can discuss these options with women based on best evidence.

See the SOGC guideline *Induction of Labour and Guidelines for the Management of Pregnancy at 41+0 to 42+0 Weeks* for further guidance on indications, contraindications, induction options, and management.^{254,255}



10 SPECIAL SITUATIONS

10.1 CARE FOR LGBTQ2 FAMILIES

FCMNC is based on mutually respectful and trusting relationships and individual needs. While progress has been made in providing equitable health care to lesbian, gay, bisexual, transgender, queer, or 2-spirit (LGBTQ2) individuals, these populations still face barriers to accessing culturally safe and specific health care. The rate of LGBTQ2 people having children is rising, although specific data are limited. In 2016, 12% of same sex couples had children living with them, an increase from 8.6% in 2001.²⁵⁶ There is a data gap when it comes to LGBTQ2 people who are lone parents.

For most LGBTQ2 people, having children is often considered over several years of research into options for conception, financial considerations for assisted reproductive technology or adoption, and legal concerns. LGBTQ2 people who are pregnant and their families require and deserve non-judgmental, sensitive, and accepting care. The same principles of family-centred care equally apply. Specific needs may require additional considerations, such as a non-pregnant lesbian partner wanting to breastfeed, a couple wanting to accompany their surrogate to her prenatal appointments, or the surrogate requiring additional psychological care.²⁵⁷

It is incumbent on HCPs to reflect on their own attitudes and assumptions about LGBTQ2 people and how this affects the care they provide. Providers should also advocate for culturally sensitive training that focuses on pregnancy care for the LGBTQ2 population.²⁵⁷

10.2 WOMEN WITH MENTAL ILLNESS

It is important that women who have a history of mental illness are assessed and referred as necessary during their pregnancy. Specific referral paths vary depending on local resources. Similar to other chronic illnesses, women with a mental illness may require specialty care, which includes a comprehensive mental health assessment by a mental health professional (e.g., for a diagnosis and management plan) and ongoing mental health assessment/monitoring at each prenatal visit. They may also require psychological therapies, such as cognitive behavioural therapy, or pharmacological treatment.

If a woman is taking medication to treat her mental illness, its reproductive safety must be weighed against the benefit(s) of its use, the risk(s) of not using it, and using another treatment. Sources of information related to prescription medications usage in pregnancy include Info-Médicaments en Allaitement et Grossesse and MotherToBaby.

Women should be encouraged to continue their other treatments, for example, cognitive behavioural therapy, counselling, or seeing a psychotherapist, psychologist or psychiatrist. In addition to treatment, mental health promotion programs also play a key role in helping women living with mental illness recover by building protective factors such as positive coping skills, healthy relationships, supportive environments and pride in one's culture and identity. If left untreated during pregnancy, poor mental health or mental illness can carry into postpartum and lead to poorer outcomes for both mother and baby.

10.3 PREGNANCY LOSS

Women and their families require sensitive and supportive care through a pregnancy loss, whether it is unexpected or elective. Women who experienced a loss during a previous pregnancy may undergo stress during their current pregnancy, particularly around the gestational age of their previous pregnancy loss. The cause of the previous loss may also affect the current pregnancy and the care required. The woman and her family may doubt their ability to successfully have and parent a baby.²⁵⁸ Women who experienced a previous stillbirth are at higher risk of another stillbirth and adverse pregnancy outcomes with subsequent pregnancies, such as preterm birth, low birth weight and placental abruption.¹⁸¹ HCPs are referred to the SOGC guideline *Management of Pregnancy Subsequent to Stillbirth* for recommendations for caring for women who have had previous stillbirth.¹⁸¹

HCPs also need to understand and process their own feelings of grief and loss, and know about grief responses and the bereavement process, to provide effective care to grieving families. Therapeutic communication and counselling can help families identify their feelings and express their grief. Referral to specialized services may be required.

10.4 PRETERM BIRTH

The anticipated birth of a preterm infant is cause for worry and anxiety for parents. Providing family-centred care is critical. Many families have not contemplated a preterm birth and may be unfamiliar with the challenges and outcomes of premature infants. Meeting with perinatal HCPs prior to labour and birth helps parents understand what to expect. It also allows the health care team to understand the parent's circumstances, expectations, family situation, educational background, support systems, needs and anxieties. A prenatal consultation by the pediatric/neonatal team can reduce anxiety, particularly later in the pregnancy, when parents may believe their infant's prognosis to be worse than it is.

The anticipated birth of an extremely preterm infant (22+0 to 25+6 weeks of gestation) is particularly distressing for parents. This will call for multiple opportunities to discuss their concerns and the plan of care. Refer to the CPS position statement *Counselling and Management for Anticipated Extremely Preterm Birth* for guidance on communicating with the expectant parents of a preterm infant.

10.5 WOMEN WITH PROBLEMATIC SUBSTANCE USE

It is critical that care and treatment for women who have problematic substance use during pregnancy be non-judgmental, woman-centred, and based on the individual woman's experience. Women who disclose substance use in pregnancy and seek treatment have made a major first step in their recovery—this is highly worthy of recognition and support. Society often blames pregnant women who engage in substance use, and women may be further stigmatized by the health and social care system.¹⁰¹

There are a number of important elements to consider when caring for pregnant women who have problematic substance use:

- Offer all women a harm reduction approach if abstinence is not an option. Any reduction in the amount of substances used will benefit the mother and the developing fetus. Studies show that harm reduction during pregnancy can result in women engaging in prenatal care and addiction treatment; engaging in other health and social services; and reducing their drug and alcohol use. Harm reduction during pregnancy also results in better outcomes for mothers and babies—including fewer preterm births and low birth-weight babies; greater likelihood of mothers and babies remaining together following birth and breastfeeding; early attachment, and improved early childhood development.^{101,259–263}

- Provide trauma-informed care because many of these women have experienced trauma and stress—including sexual abuse—from partners, family members, foster care families, and others. Trauma-informed care recognizes that women who have experienced trauma require compassion, support, and understanding in pregnancy from those around them. The role of intergenerational/historical trauma should also be considered. Well-meaning HCPs may inadvertently re-traumatize women if they do not acknowledge women's experience of trauma and support them.²⁵⁹
- Provide easily accessible integrated care that includes on-site pregnancy, parenting, and child-related services along with addiction services or coordinated referrals to other health and social services as needed.
- Encourage collaboration between the women and health and child protection/welfare systems.^{264–268}

As birth approaches, it is important to consider parenting after the birth. Depending on whether the woman is actively using substances or is stable in recovery, social services may need to be engaged in her care and assistance provided for her to create a supporting parenting network.

The principles of family-centred care apply to the care of women with problematic substance use regardless of the substance. The overall approach to care of the woman and fetus is the same, but each substance has specific treatment and therapies.

HCPs and other caregivers may need to consult substance use experts for guidance. Also, see the SOGC guideline *Substance Use in Pregnancy*.¹⁰¹



10.6 MULTIPLE PREGNANCY

In 2014, multiple births accounted for 3.3% of all births in Canada—an increase from 2.8% in 2001.^{269,270} The rate of multiple pregnancies has grown as a result of increasing maternal age and wider use of assisted reproductive technologies.

Women with multifetal pregnancy have a higher risk of preterm birth, hypertension in pregnancy, bleeding complications, miscarriage, anemia, caesarean birth, and postpartum complications.²⁷¹ Maternal mortality is also increased in women with multiple births, at 2.5 times that of women with singleton births.²⁷²

“ Women with multiple pregnancies require more monitoring and contact with HCPs due to the greater risks involved and support needed.

Fetal and neonatal complications include higher rates of preterm birth and stillbirth. Multiple pregnancies also have higher rates of congenital abnormalities and intrauterine growth restriction. Risks to the babies depend partly on the chorionicity and amnionicity of the pregnancy.²⁷¹ Women and families need to be aware of these risks, along with the increased social, emotional, and financial impact. Women with multiple pregnancies require more monitoring and contact with HCPs due to the greater risks involved and support needed.

Early detection of the chorionicity of twins is critical as it contributes significantly to risk and determines the care path. The SOGC recommends that all women suspected of being pregnant with multiples be offered a first trimester ultrasound, as this can yield important information on the number of fetuses, amnionicity and chorionicity.^{180,273} See the SOGC guideline *Ultrasound in Twin Pregnancies* and the *Clinical Practice Guideline on the Use of First Trimester Ultrasound*.^{180,273}

Monochorionic twin pregnancies have the highest risk of twin-to-twin transfusion and growth discrepancy. The highest risk twin pregnancies are monochorionic monoamniotic (mono-mono) twins because of pathological cord entanglement. Mono-mono twins require immediate referral to high-risk care. Twins who are monochorionic-diamniotic (mono-di) can usually be cared for by an obstetrician in consultation with maternal fetal medicine department—depending on the specific circumstances. Dichorionic-diamniotic (di-di) twins can be cared for in a shared care situation by a primary maternity care provider such as family physician or midwife, and obstetrician.

It is essential that HCPs discuss the timing and options for birth with women and their family. Timing of twin births varies with respect to chorionicity. Similarly, the best mode of birth is unclear. Discussions should be evidence-based to promote informed decision-making. It is also important to share information about support services for women expecting multiples because of the additional potential stress and anxiety, and preparing to parent multiples.²⁷⁴

10.7 WOMEN WITH UNDERLYING MEDICAL CONDITIONS

Pre-existing medical conditions that are diagnosed prior to or develop during pregnancy often require medical consultations with non-obstetrical specialists, and may require complex interdisciplinary care planning for labour and birth. Some of these conditions or their treatments may affect fetal health and referral for a pediatric consultation in these situations will facilitate optimal care. It is important to ensure effective communication between providers and the woman and her family, and that the information is consistent, to enable informed decision-making during pregnancy. The Canadian Medical Association and provincial/territorial midwives' regulatory bodies support the concepts of team or collaborative care.²⁷⁵ The SOGC has developed a consensus statement that clearly delineates the roles of multidisciplinary team members in the care of pregnant women.³⁴

Women with known pre-existing medical conditions may become pregnant having already been provided with pregnancy-related guidance by their respective specialists or primary care provider. It is important that obstetrical care providers and the woman's specialist/subspecialist/primary care provider collaborate in her care and communicate. When possible, obstetrical care providers should seek and establish early identification and clarification of subspecialist access for counselling and medical management.

In general, the approaches to common medical disorders in pregnant women are covered in associated guidelines. Information on safety of medications and other exposures during pregnancy can be obtained from resources such as MotherToBaby and Info-Médicaments en Allaitement et Grossesse.

It is incumbent on obstetrical care providers to recognize that several medical conditions that develop during pregnancy and resolve after birth may, in fact, be unmasking underlying chronic conditions. Thus, appropriate follow-up to determine the status of the condition postpartum is critical for counselling on future pregnancy risk and long-term health risks.

GUIDELINES FOR MANAGEMENT OF COMMON MEDICAL CONDITIONS

Medical Condition	Guidelines
Hypertensive disorders	<ul style="list-style-type: none"> • Hypertension Canada <i>Guidelines for the Management of Hypertension in Pregnancy</i>. • SOGC <i>Diagnosis, evaluation, and management of the hypertensive disorders of pregnancy</i>.
Venous thromboembolism	<ul style="list-style-type: none"> • SOGC <i>Venous thromboembolism and antithrombotic therapy in pregnancy</i>.
Pre-existing diabetes and gestational diabetes mellitus	<ul style="list-style-type: none"> • Canadian Diabetes Association <i>Diabetes and pregnancy</i>. • SOGC <i>Diabetes in Pregnancy</i>.
Thyroid disorders	<ul style="list-style-type: none"> • No Canadian guidelines. • The American Thyroid Association <i>Guidelines of the American Thyroid Association for the Diagnosis and Management of Thyroid Disease During Pregnancy and Postpartum</i>.
Seizures/epilepsy	<ul style="list-style-type: none"> • No Canadian guidelines. • American Academy of Neurology and the American Epilepsy Society <i>Management issues for women with epilepsy-Focus on pregnancy (an evidence-based review): I Obstetrical complications and change in seizure frequency</i>. • Royal College of Obstetricians and Gynaecologists <i>Epilepsy in Pregnancy</i>.
Inflammatory bowel disease	<ul style="list-style-type: none"> • Canadian Association of Gastroenterology <i>The Toronto Consensus Statements for the Management of Inflammatory Bowel Disease in Pregnancy</i>.

10.8 WOMEN WITH COMPLICATIONS OF PREGNANCY

When complications arise during pregnancy, the principles of family-centred care remain vital. Women and families will have anxieties and fears and require ongoing support and communication to address them. Women and families require information about the options available and the opportunity to discuss them with their HCPs to make informed decisions. The priority of care for women and families is always to maximize the probability of a healthy woman giving birth to a healthy baby. Patients may define health and safety differently, and providers need to remain sensitive to how different cultural background can influence this view.

All of the HCPs involved in the woman's care must work collaboratively and respect the roles of multidisciplinary team members who are essential for providing safe, family-centred care—including always placing priority on the interests of the woman, her baby, and family; respecting the woman's autonomy; maintaining mutual respect for all team members' scope of practice; and communicating respectfully.³⁴

Pregnancy complications often require more intensive surveillance, monitoring, and specialized care. Complications can occur without warning; ongoing communication and support are critical in these situations. Complications could include gestational diabetes, hypertension, intrauterine growth restriction, anemia, isoimmunization, multiple births, preterm birth, ectopic pregnancy, obesity, mental health problems, infections, and deep vein thrombosis/pulmonary emboli. HCPs should refer to clinical practice guidelines from professional groups and the provinces/territories in which they practise for specific information and guidance.

Depending on the complication, women may require admission to hospital. Depending on the resources available and her health situation, she may be admitted to an antepartum area, a medical-surgical unit, an intensive care unit, or a labour and birth area—any of which may require transfer to another hospital. Depending on the needs of the baby, she may also be transferred prior to the birth to a hospital that offers neonatal specialized care. This can be particularly stressful for women from remote and northern communities who may have to leave family and other children for extended periods of time.

Hospitals are encouraged to develop written policies and procedures for the management of pregnant patients seen in the emergency department or admitted to non-obstetric services so that family-centred care can guide practice regardless of the admitting unit.²⁷⁶

10.9 WOMEN WHO HAVE EXPERIENCED FEMALE GENITAL MUTILATION/CUTTING

Women who have experienced female genital mutilation/cutting (FGM/C) require care administered with dignity, modesty, and privacy, in addition to information about the implications of FGM/C on their pregnancy, labour and birth. Many women will not voluntarily disclose that they have undergone FGM/C and it may not always be visibly obvious (especially for less invasive types).²⁷⁷ Respectful and non-judgemental attitudes are particularly important.²⁷⁸ Care needs to be woman-centred—respecting the woman's wishes and views, while explaining that some requests may not be possible due to legal or ethical constraints. Having an open discussion with the woman and her partner about the illegality in Canada of FGM/C and infibulating again may help deter them from seeking traditional providers for the procedure or from seeking FGM/C for a daughter after a birth.

Defibulation may be necessary to allow for a vaginal birth. This involves making an incision to open up the sealed vaginal opening in a woman who has been infibulated.²⁷⁹ If required, defibulation can be performed during pregnancy. However, many women prefer to delay until labour, to have this occur only if necessary.²⁸⁰ Some practitioners may offer a caesarean birth to women with FGM/C, even though FGM/C is not an indication for a caesarean birth.²⁸⁰ Unfamiliarity with FGM/C and practitioner discomfort with intrapartum management has resulted in an increase in preventable caesarean births among women with FGM/C.²⁸¹ It will be important for the HCP to proactively discuss options prior to labour. The various supports she may choose to have include having a doula or a traditional healer present at the birth.

See the SOGC guideline *Female Genital Cutting* for further recommendations on the care of women who have experienced FGM/C.²⁸⁰

CONCLUSION

Providing FCMNC to women and families during pregnancy is essential for all institutions, agencies, programs, and HCPs involved in their care. While pregnancy is often a time of great anticipation and joy for women and their families, it invariably comes with worries and concerns. Pregnancy provides the opportunity to work in partnership with women and families to help them gain the knowledge they require to make informed decisions about their care; to understand their individual values, needs, and circumstances; to prepare the way for a safe and satisfying birth experience; and to lay a sound foundation of care for their new infant while integrating their roles as parents.

APPENDIX A—ADDITIONAL RESOURCES

CLINICAL PRACTICE GUIDELINES RELATING TO PREGNANCY

Canadian Taskforce on Preventative Health Care

<https://canadiantaskforce.ca/guidelines/published-guidelines>

PEI Reproductive Care Program

<https://src.healthpei.ca/reproductive-care-program>

Perinatal Services BC—Maternity Care Pathway

www.perinatalservicesbc.ca/Documents/Guidelines-Standards/Maternal/MaternityCarePathway.pdf

**Provincial Council for Maternal and Child Health—Quality Based Procedures/
Clinical Practice Guidelines**

www.pcmch.on.ca/health-care-providers/maternity-care/quality-based-procedures-clinical-practice-guidelines

Reproductive Care Program of Nova Scotia

<http://rcp.nshealth.ca/clinical-practice-guidelines/antenatal>

Society of Obstetricians and Gynaecologists

www.jogc.com/current-guidelines-english

Toward Optimized Practice

www.topalbertadoctors.org/cpgs/cpgoverview

ALCOHOL

Best Start—Planning for Change, Facilitator Guide: Workshop for First Nations Women about FASD Prevention and Skills for Change—Booklet

www.beststart.org/resources/aboriginal/F19-E_PlanningforChange.pdf

Portico—Primary Care Addiction Toolkit: Dealing with alcohol problems

www.porticonetwork.ca/web/alcohol-toolkit

Saskatchewan Prevention Institute—Enhancing Patient Care Clinical Approaches to Addressing Alcohol Use During Pregnancy

http://skprevention.ca/wp-content/uploads/2016/07/3-141_ARA_Manual.pdf

CULTURE

American College of Obstetricians and Gynecologists—Cultural Awareness and Sensitivity in Women’s Health Services

www.acog.org/About-ACOG/ACOG-Departments/Public-Health-and-Social-Issues/Cultural-Awareness-and-Sensitivity-in-Womens-Health-Care

Best Start—Giving Birth in a New Land: Strategies for Service Providers Working with Newcomers

www.beststart.org/resources/rep_health/Newcomer_%20Guide_Final.pdf

ENVIRONMENTAL HEALTH

Best Start—Playing it Safe—Service Provider Strategies to Reduce Environmental Risks to Preconception, Prenatal & Child Health—Manual

www.beststart.org/resources/env_action/pdf/envirostrategies_rev.pdf

Health Canada—Our Health, Our Environment: A Snapshot of Environmental Health in Canada

http://publications.gc.ca/collections/collection_2013/sc-hc/H129-18-2012-eng.pdf

HEALTHY WEIGHT/NUTRITION/PHYSICAL ACTIVITY

Best Start—Obesity in Preconception and Pregnancy—Report

www.beststart.org/cgi-bin/commerce.cgi?preadd=action&key=F07-E

Canadian Society for Exercise Physiology—Guidelines

<https://csepguidelines.ca>

Health Canada—Canada’s Food Guide: Canada’s Dietary Guidelines

<https://food-guide.canada.ca/en/guidelines>

Health Canada—Canadian Nutrient File

<https://food-nutrition.canada.ca/cnf-fce/index-eng.jsp>

INDIGENOUS HEALTH

Anishnawbe Health Toronto—Aboriginal Cultural Safety Initiative

www.aht.ca/aboriginal-culture-safety

Best Start—Atuaqsijut: Following the Path Sharing Inuit Specific Ways

www.beststart.org/resources/howto/pdf/K84-AtuaqsijutFollowingThePath.pdf

Best Start—Open Hearts Open Minds

www.beststart.org/resources/howto/pdf/OHOM.pdf

Best Start—Pimotisiwin—A Good Path for Pregnant and Parenting Aboriginal Teens—Report
www.beststart.org/resources/rep_health/pimotisiwin_oct.pdf

Best Start—Supporting the Sacred Journey: From Preconception to Parenting for First Nations Families in Ontario
www.beststart.org/resources/rep_health/pdf/SupportingtheSacredJourney.pdf

First Nations Health Authority—Aboriginal Pregnancy Passport
www.fnha.ca/wellnessContent/Wellness/AboriginalPregnancyPassport.pdf

National Aboriginal Council Of Midwives—Bringing Birth Back Aboriginal Midwifery Toolkit
<https://indigenoumidwifery.ca/wp-content/uploads/2018/10/Aboriginal-Midwifery-Toolkit.pdf>

National Aboriginal Council Of Midwives—Stories and Teachings about Pregnancy
https://indigenoumidwifery.ca/wp-content/uploads/2017/03/NACM_Booklet_Pregnancy_2017_MED.pdf

Provincial Health Services Authority of British Columbia—Indigenous Cultural Safety Training
www.culturalcompetency.ca

Society of Obstetricians and Gynaecologists of Canada—Aboriginal Sexual Health
www.aboriginalsexualhealth.ca

INTIMATE PARTNER VIOLENCE

VEGA Project
<https://vegaproject.mcmaster.ca>

World Health Organization—Violence Info
<http://apps.who.int/violence-info/intimate-partner-violence>

LGBTQ2

Best Start—Welcoming and Celebrating Sexual Orientation and Gender Diversity in Families, From Preconception to Preschool
www.beststart.org/resources/howto/pdf/LGBTQ_Resource_fnl_online.pdf

College of Family Physicians of Canada—Gay and Lesbian Health
www.cfpc.ca/ProjectAssets/Templates/Resource.aspx?id=1615&langType=4105/li

Gay and Lesbian Medical Association—Guidelines for Care of Lesbian, Gay, Bisexual and Transgender Patients
<https://npin.cdc.gov/publication/guidelines-care-lesbian-gay-bisexual-and-transgender-patients>

The Joint Commission—Advancing Effective Communication, Cultural Competence, and Patient- and Family-Centered Care for the Lesbian, Gay, Bisexual, and Transgender (LGBT) Community: A Field Guide
www.jointcommission.org/lgbt

MEDICATIONS

Centers for Disease Control and Prevention—Treating for Two

www.cdc.gov/pregnancy/meds/treatingfortwo

Health Canada—Drug Product Database

www.canada.ca/en/health-canada/services/drugs-health-products/drug-products/drug-product-database.html

Info-Médicaments en Allaitement et Grossesse

www.chusj.org/fr/soins-services/P/Pharmacie/Centre-IMAGe

Merck Manual—Professional Version

www.merckmanuals.com/professional

MotherToBaby

<https://mothertobaby.org>

MENTAL HEALTH

Registered Nurses' Association of Ontario—Assessment and Interventions for Perinatal Depression

<https://rnao.ca/bpg/guidelines/assessment-and-interventions-perinatal-depression>

Saskatchewan Prevention Institute—Edinburgh Postpartum Depression Scale (EPDS) Screening and Care Guide

http://skprevention.ca/wp-content/uploads/2016/08/2-104_EPDS_Screening_and_Care_Guide.pdf

ORAL HEALTH

Saskatchewan Prevention Institute—Improving the Oral Health of Pregnant Women and Young Children

http://skprevention.ca/wp-content/uploads/2016/07/2-805_Oral_Health_Fact_Sheet.pdf

PRENATAL EDUCATION

Best Start—Prenatal Education Program Modules

<http://en.beststart.org/resources-and-research/prenatal-education-program>

L'Institut national de santé publique du Québec—Portail d'information périnatale

www.inspq.qc.ca/information-perinatale

SUBSTANCE USE

MotherToBaby

<https://mothertobaby.org>

Portico—Primary Care Addiction Toolkit: Opioids misuse and addiction

www.porticonetwork.ca/web/opioid-toolkit

TOBACCO

Best Start—Tobacco Misuse Resources

<https://resources.beststart.org/product-category/resources/tobacco-misuse/>

CAN-ADAPTT- Guidelines and resources

www.nicotinedependenceclinic.com/English/CANADAPTT/Pages/Home.aspx

CAN-ADAPTT—Pregnets

www.nicotinedependenceclinic.com/en/pregnets

Canadian Public Health Association—Stop Smoking: A Smoking Cessation Resource for Those Who Work with Women

www.cpha.ca/stop-smoking-smoking-cessation-resource-those-who-work-women

Portico—Primary Care Addiction Toolkit: Smoking cessation

www.porticonetwork.ca/web/smoking-toolkit

Registered Nurses' Association of Ontario—Supporting Pre- and Postnatal Women and Their Families Who Use Tobacco

<https://rnao.ca/bpg/courses/supporting-pre-and-postnatal-women-and-their-families-who-use-tobacco>

Saskatchewan Prevention Institute—Environmental Tobacco Smoke: The risk to unborn babies, pregnant women and children

http://skprevention.ca/wp-content/uploads/2016/07/3-306_Tobacco_Smoke_Booklet.pdf

VAGINAL BIRTH AFTER CAESAREAN

Health Quality Ontario—Vaginal Birth After Caesarean: Care for People Who Have Had a Caesarean Birth and Are Planning Their Next Birth

www.hqontario.ca/Evidence-to-Improve-Care/Quality-Standards/View-all-Quality-Standards/Vaginal-Birth-After-Caesarean-VBAC

APPENDIX B—LABORATORY SCREENING AND TESTING

TEST	GUIDELINE
Bacterial vaginosis	<ul style="list-style-type: none"> • SOGC guideline <i>Screening and Management of Bacterial Vaginosis in Pregnancy</i>
Blood group (ABO), Rh Screen and red cell antibodies	<ul style="list-style-type: none"> • Canadian Blood Services <i>Hemolytic Disease of the Fetus and Newborn and Perinatal Immune Thrombocytopenia</i>
Chlamydia	<ul style="list-style-type: none"> • PHAC <i>Canadian Guidelines on Sexually Transmitted Infections</i>.
Cytomegalovirus	<ul style="list-style-type: none"> • SOGC <i>Cytomegalovirus Infection in Pregnancy</i>
Gestational diabetes mellitus (GDM)	<ul style="list-style-type: none"> • SOGC <i>Diabetes in Pregnancy</i>
Gonorrhea	<ul style="list-style-type: none"> • PHAC <i>Canadian Guidelines on Sexually Transmitted Infections</i>.
Group B Streptococcus screening (GBS)	<ul style="list-style-type: none"> • SOGC <i>The Prevention of Early-Onset Neonatal Group B Streptococcal Disease</i>
Hepatitis B surface antigen (HBsAg)	<ul style="list-style-type: none"> • PHAC <i>Canadian Guidelines on Sexually Transmitted Infections</i> • SOGC guideline <i>Hepatitis B and Pregnancy</i>
Herpes simplex virus (HSV)	<ul style="list-style-type: none"> • PHAC <i>Canadian Guidelines on Sexually Transmitted Infections</i> • SOGC <i>Guidelines for the Management of Herpes Simplex Virus in Pregnancy</i>
HIV	<ul style="list-style-type: none"> • PHAC <i>Canadian Guidelines on Sexually Transmitted Infections</i> • SOGC guideline <i>HIV Screening in Pregnancy</i>
Parvovirus	<ul style="list-style-type: none"> • SOGC <i>Parvovirus B19 Infection in Pregnancy</i>
Rubella IgG (antibody titre)	<ul style="list-style-type: none"> • SOGC <i>Rubella in Pregnancy</i>
Syphilis	<ul style="list-style-type: none"> • PHAC <i>Canadian Guidelines on Sexually Transmitted Infections</i>.
Thalassemia and Hemoglobinopathies	<ul style="list-style-type: none"> • SOGC <i>Carrier Screening for Thalassemia and Hemoglobinopathies in Canada</i>
Toxoplasmosis	<ul style="list-style-type: none"> • SOGC <i>Toxoplasmosis in Pregnancy: Prevention, Screening, and Treatment</i>
Urine Culture	<ul style="list-style-type: none"> • Canadian Task Force on Preventive Health Care guideline <i>Asymptomatic Bacteriuria in Pregnancy</i> • SOGC guideline <i>Management of Group B Streptococcal Bacteriuria in Pregnancy</i>
Varicella	<ul style="list-style-type: none"> • SOGC <i>Management of Varicella Infection (Chickenpox) in Pregnancy</i>

APPENDIX C—NUTRIENTS OF IMPORTANCE DURING PREGNANCY

Nutrients are best obtained from dietary sources, but as this is not always feasible, the woman’s diet needs to be assessed for the adequacy of specific nutrients that are of particular importance during pregnancy. Additional vitamin or mineral supplementation may be called for to address any suspected inadequacy in nutritional intake.

Calcium	<ul style="list-style-type: none"> Pregnant women need calcium and vitamin D to maintain the integrity of their bones while providing for the skeletal development of the unborn baby. The Recommended Dietary Allowance (RDA) for calcium is 1300 mg/day for pregnant and lactating women aged 14–18 years and 1000 mg/day for pregnant and lactating women aged 19–50 years. Data suggest that the average dietary calcium intake of Canadian women of childbearing age is lower than the recommended intake.²⁸² Certain groups may be at greater risk for low calcium intake, including those of low socioeconomic status, members of some cultural groups, pregnant teenagers, and vegans.
Iron	<ul style="list-style-type: none"> Pregnancy requires approximately 600 mg/day net iron for the expanded blood volume, the placenta, the fetus, and because of losses during breast feeding.^{283,284} If a woman is at high risk of anemia, monitor her iron levels to ensure that she is ingesting adequate iron or recommend parenteral iron supplementation. In addition to hemoglobin, assess serum ferritin levels early and throughout pregnancy. A daily multivitamin that contains 16 to 20 mg of iron is recommended.²⁸⁵ However, some women stop taking prenatal iron-rich multivitamins because of constipation, nausea/ vomiting or other gastrointestinal issues. Iron deficiency is a concern for vegetarians/vegans or women living in lower socioeconomic circumstances or who have absorption problems (e.g., celiac or Crohn’s disease). First Nations, Inuit, and newly immigrant women (particularly from South Asia), are also at increased risk for anemia.^{286–289} Some foods, drinks and supplements may have an impact on iron absorption. It is recommended that women take iron supplements an hour or 2 before or after coffee, tea and calcium supplements.²⁹⁰ Vitamin C facilitates iron absorption, and women need to be advised to incorporate vitamin C into each meal.²⁹⁰
Iodine	<ul style="list-style-type: none"> Iodine is necessary for healthy brain development in the fetus. Iodine levels can be assessed through urine testing. Women with iodine deficiency need to be counselled about the risks to pregnancy outcomes and about the importance of a daily dietary iodine intake of 220 mcg (0.22 mg) during pregnancy.²⁹¹
Folic Acid	<ul style="list-style-type: none"> Women who could become pregnant and are at low risk for NTDs need to take a daily multivitamin containing 400 mcg (0.4 mg) of folic acid, or at minimum starting at least 3 months before conception, and continue throughout pregnancy.^{292,293} For women at moderate to high risk of NTDs, refer to the SOGC guideline <i>Pre-conception Folic Acid and Multivitamin Supplementation for the Primary and Secondary Prevention of Neural Tube Defects and Other Folic Acid-Sensitive Congenital Anomalies</i>.¹¹³ Women also need to eat a healthy diet, according to <i>Canada’s Food Guide</i>, taking care to include folate-rich foods.¹¹²

Vitamin A	<ul style="list-style-type: none"> The RDA for vitamin A is 750 mcg/day for pregnant women aged 14–18 years and 770 mcg/day for pregnant women aged 19–50 years. When taken in excess, vitamin A (retinol) is known to increase the risk of birth defects.²⁹⁴ Women should avoid exceeding 3000 mcg retinol activity equivalent (RAE) or 10 000 international units (IU) of vitamin A per day.²⁹⁴ Advise women that some prenatal vitamins contain more than 10 000 IU vitamin A. Pregnant women should also limit their intake of liver and cod liver oil, both of which contain high levels of vitamin A.²⁹⁴
Vitamin B12	<ul style="list-style-type: none"> The vitamin B12 RDA for pregnant women is 2.6 mcg/day.²⁹⁰ Women who are vegan or taking antacids may be at increased risk for vitamin B12 deficiency. Women with vitamin B12 deficiency are more likely to have children with NTDs, and require monitoring and supplementation.²⁹⁵
Vitamin D	<ul style="list-style-type: none"> The RDA for pregnant women of vitamin D is 600 IU (15 mcg)/day.²⁸² While there appears to be a high prevalence of inadequate intakes of vitamin D, available blood status measures do not suggest widespread vitamin D deficiency in the Canadian population. However, vitamin D status in certain sub-populations, such as those with darker skin, may warrant further consideration.²⁸²
Omega 3 fatty acids	<ul style="list-style-type: none"> Pregnant women need more omega-3 fatty acids in pregnancy.²⁹⁶ Omega-3 fatty acids are transferred across the placenta and play an important role in the growth and development of the fetus. The main types of omega-3 fatty acids in the diet are: <ul style="list-style-type: none"> > alpha-linolenic acid (ALA) > docosahexaenoic acid (DHA), and > eicosapentaenoic acid (EPA) ALA is found in some vegetable oils, nuts and seeds. These include canola oil, flax oil, walnut oil, walnuts and flax seeds. The best source of EPA and DHA is fatty fish, although DHA is found in other animal tissue lipids, like eggs. As some predator fish (e.g., fresh/frozen tuna, swordfish, shark) contain significant levels of mercury, the quantity consumed of these by pregnant women should be limited to no more than 150 g (5 ounces) per month.²⁹⁶ Women who are or may become pregnant should limit their intake of canned (white) albacore tuna to no more than 300 grams (10 ounces) per week. Fish oil supplements and DHA enriched foods can provide important omega-3 fatty acids found in fish. However, there is insufficient evidence to draw any conclusion on the effects of fish oil supplements and DHA enriched foods on infant development.²⁹⁶ Fish oil supplement should contain no more than 3 grams of EPA and DHA combined.

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