

Alberta Antenatal Pathway



Version Control

Date/Version	Changes
V. 1.0 March 8, 2019	Original posted
V. 1.1 March 25, 2019	Pg 11 Immunizations. Removed “Rubella” from list of immunization, as this is a live vaccine and should not be administered during pregnancy
V. 1.2 July 3, 2019	Pg 14 clarity to section on appropriate place of birth for gestational age between 30-31 weeks if patient resides in Calgary or Edmonton Pg 28-30 Addition of Genetic and Teratogen Screening Subsection Pg 46 Preterm Birth -Addition to Interventions for at risk patients to include smoking cessation, screening for bacterial vaginosis, referral to OB for cervical length assessment, vaginal progesterone options Pg 57-60 Addition of Indigenous Pregnancy subsection
V. 1.3 November 15, 2019	Pg 8 Addition of Prenatal Website-resources by zone: ahs.ca/prenatal Pg 19-21 Addition of Hepatitis B subsection Pg 45 Addition of Nutrition for twins, triplets and more resource
V.2.0 March 4, 2020	Pg 22 Addition of Vaccine Preventable Infections
V.2.1 November 2020	Clarify timing of Syphilis screening to be at delivery not at 35 weeks or time of deliver. All pregnant patients will be screened for syphilis in the first trimester and at delivery. If there is ongoing risk, women will be re-screened throughout pregnancy. Added information regarding Congenital Syphilis. Revisions made with Jennifer Gratrix and Dr. Petra Smyczek AHS STI Services.
V.2.2 September 2024	Addition of illicit drug information, Substance Use section, Postpartum

Using this Pathway

Navigate between sections in this pathway by using page 4 as your landing page or main table of contents. Click on any area of interest to go directly to that section. You can return to this page by either clicking on the “ReturnToFC” link at the end of each section or by using the pdf. Navigation “Bookmarks” or “Table of Contents Headers” on your browser.

The image shows a PDF of the Antenatal Pathway. A blue circle highlights the number '4' at the bottom left of the main document page. A blue arrow points from this '4' to a 'Table of Contents' overlay on the right side of the PDF. The overlay is a grid with columns for 'Pregnancy Classification', 'Gestational Week', and 'Frequency of Visits'. A red circle highlights a 'Return to FC' link at the bottom right of the overlay. Another blue arrow points from the 'Return to FC' link back to the main document page.

Or use Bookmarks/Table of Contents on Browser

The image shows two browser screenshots. The left screenshot shows a PDF viewer with a sidebar on the left containing a 'Bookmarks' list. A red arrow points to the 'Antenatal Pathway' bookmark. The right screenshot shows a PDF viewer with a 'Table of Contents' menu open on the left side, with a red arrow pointing to the 'Table of Contents' option.

Pathway Contact & Updates

Forward any questions, concerns, or feedback to: maternalnewbornchildyouth.scn@ahs.ca

Antenatal Pathway

Routine Antenatal Care

Recommend 8-10 clinician visits for **average** risk OBS patient

Pregnancy with Added Risk?

Birth Place Plan based on Early Identified Risk Factors

Medical Concerns

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Healthy Parents Healthy Children Resource

An on-line resource for patients & clinicians

Evaluation – Benchmarking Metrics

Birth Activity, Risk Factors, Interventions, Outcomes

Overview

Early identification and management of prenatal risk factors is crucial for optimizing pregnancy, maternal, and newborn outcomes. A prenatal visit that occurs as soon as possible following the time of positive pregnancy test would help to identify women with added risk factors and enables the health care provider to tailor prenatal care accordingly. Evidence suggests that 8-10 prenatal visits is sufficient for uncomplicated pregnancies, and improvement in outcome indicators does not increase with greater than 10 prenatal visits in the absence of increased risk. Virtual prenatal visits appear to be as safe as in-person prenatal care, associated with high patient satisfaction, and result in improved access to regular and specialized care for women in rural and remote areas.

Maternal Fetal Assessments – Schedule of Appointments

A recommended pattern of prenatal visits for the woman of average obstetrical risk is 8-10 visits. Generally, visits are recommended at – 10, 16, 20, 24, 28, 34, 36, 38 and 41 weeks. The nulliparous woman should have additional assessments at 31 and 40 weeks. Identify women who may need additional care based on risk factors and plan pattern of care for their pregnancy accordingly. The following provides an example of visit patterns for an **average risk** patient- additional visits are based on risk factors identified and management plans.

1. 10 week or initial booking appointment

- Identify women with risk factors who may require an alternate pattern of care for pregnancy.
- Lab/diagnostics: hepatitis B surface antigen, syphilis, HIV, rubella susceptibility, Varicella IgG, blood group, screen for haemoglobinopathies, anemia, red cell alloantibodies, screening for pre-eclampsia, urine for proteinuria as indicated, screening for type 2 diabetes with A1C, or fasting glucose if A1C not reliable such as with haemoglobinopathies (If this is not diagnostic of type 2 diabetes, then the patient should have the usual screening done at 24-28 weeks), ultrasound for multiples and gestational age assessment and offer ultrasound for structural anomalies.
- Genetic screening: Does genetic testing align with patient values and preferences? If yes, schedule 1st trimester aneuploidy screen
- Screen for and develop plan to manage chronic disease
- Measure BP, height, weight and calculate BMI.
- Consider need of ASA for at risk patients for hypertensive concerns
- Discuss healthy weight and weight gain goals.

- Consider a Dietitian referral for all women pregnant with multiples in the first trimester or as early as possible.
- Recommend prenatal vitamins and folic acid.
- Provide education about safe behaviors, exposures, hyperemesis-identification and management and significance of bleeding in the first trimester.
- Ask about anxiety/depression and any past or present mental illness or psychiatric treatment,
- Ask about the patient's occupation to identify potential risks.
- Provide link or access to Healthy Families, Healthy Children on-line resource

2. 16 week appointment

- Review results of screening tests, reassess planned pattern of care. Investigate HB below 110g/L and consider iron supplementation if required.
- Patients with ongoing risk for syphilis, will be re-screened throughout pregnancy
- BP and Urine for proteinuria as indicated.
- Discuss healthy weight gain goals,
- Ask about anxiety/depression.
- Discuss pregnancy topics and offer prenatal classes.

3. 20 week appointment

- Ultrasound for detection of structural/placental anomalies.
- BP, Urine for proteinuria as indicated,
- Patients with ongoing risk for syphilis, will be re-screened throughout pregnancy
- Fetal heart sounds/movement.
- Information on pregnancy,
- Healthy weight gain discussion,
- Assess fetal heart sounds,
- Assess for anxiety/depression.

4. 24 week appointment

- Initiating precautions for preterm labor,
- Consider risk for preeclampsia, Urine for proteinuria as indicated,
- Discuss Anti-D prophylaxis to rhesus- negative women
- Fetal heart sounds/movement
- Screen all women without known diabetes for GDM between 24-28 weeks of gestation
- Patients with ongoing risk for syphilis, will be re-screened throughout pregnancy
- Healthy weight gain discussion
- Assess for anxiety/depression

- Assess for social support networks.

5. 28 week appointment

- Screening for anemia and atypical red cell alloantibodies. Investigate Hemoglobin below 105 g/L and consider iron supplementation if indicated.
- Anti-D prophylaxis to rhesus- negative women
- Patients with ongoing risk for syphilis, will be re-screened throughout pregnancy
- BP, Urine for proteinuria as indicated
- Measure and plot symphysis fundal height,
- Fetal heart rate and movement,
- Healthy weight gain discussion,
- Ask about anxiety/depression.
- Begin discussions about infant feeding choices and contraception considerations following birth

6. 34 week appointment

- 2nd dose of anti-D to rhesus negative women if bleeding or ECV,
- BP, urine for proteinuria as indicated,
- Patients with ongoing risk for syphilis, will be re-screened throughout pregnancy
- Plot symphysis fundal height, fetal heart rate and movement,
- Review and discuss results of screening tests,
- Discuss healthy weight gain,
- Assess anxiety or depression,
- Reassess planned pattern of care.

7. 36 week appointment

- BP, urine for proteinuria as indicated, GBS culture,
- Patients with ongoing risk for syphilis, will be re-screened throughout pregnancy
- Symphysis fundal height, position of baby, fetal heart rate and movement
- Discuss healthy weight gain,
- Assess for anxiety or depression.
- For women with breech presentation may offer external cephalic version

8. 38 week appointment

- BP, Urine for proteinuria as indicated,
- Patients with ongoing risk for syphilis, will be re-screened throughout pregnancy
- Measurement and plotting of symphysis fundal height, fetal heart rate and movement.
- Offer membrane sweep.

9. 41 week appointment

- Symphysis Fundal height, fetal heart rate and movement.
- BP and Urine for proteinuria.
- Patients with ongoing risk for syphilis, will be re-screened throughout pregnancy
- Offer induction of labor, as indicated.

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Routine Antenatal Care

Routine antenatal care that will assist in the early identification and subsequent management of obstetrical risks are outlined in by trimester in the following table:

Trimester	Primary Care Physician/Midwife	PCN Nurse/Clinic nurse-anticipated guidance
<p>1st Trimester 10-12 weeks</p> <p>1st visit</p>	<p>First Visit- following confirmed pregnancy – Initiate prenatal record/risk assessment</p> <ul style="list-style-type: none"> • History- Medical, Maternal, Neonatal • Maternal Assessment <ul style="list-style-type: none"> ○ Height, weight, (BMI) identify and discuss healthy weight gain for pregnancy, BP, Breast, Pelvic Exam- cervix, position, uterus ○ Anxiety/ depression ○ Pap smear if not completed in last three years in accordance with Alberta guidelines • Lab <ul style="list-style-type: none"> ○ Complete Blood Count ○ Platelets ○ ABO/Rh (<i>if patient is Rhesus negative; Repeat ABO/Rh at 26 weeks, if still negative, give WhinRo at about 28 weeks</i>) ○ Red cell antibodies (<i>if red cell antibody screen is positive, continue testing q4weeks</i>) ○ HBsAG ○ Rubella Immunity ○ Varicella immunity ○ Syphilis screening ○ HIV ○ Chlamydia ○ Gonorrhoea 	<p>Counselling (1st and subsequent visits):</p> <ul style="list-style-type: none"> • Provide link to Prenatal Resources by zone: ahs.ca/prenatal • Provide link to HPHC resource • Healthy Mothers, healthy babies questionnaire https://www.albertahealthservices.ca/frm-20590.pdf • Information about prenatal classes • Healthy Weight Gain during pregnancy: Pregnancy Weight Gain Calculator https://healthyparentshealthychildren.ca/resources/tools/weight-gain-calculator • Nutrition and supplements • Food quality / safety-Discuss food safety and implications of food borne infections • Management of symptoms: Nausea & vomiting • Educate regarding safe behaviors, exposures • Hyperemesis- identification and management, • Significance of first trimester bleeding • Exercise / sleep • Work / environmental concerns / seatbelt use • Smoking, Alcohol, Cannabis and drug use • Intimate partner violence / relationship stability

	<ul style="list-style-type: none"> ○ Urine Culture and sensitivity ○ TSH in women with known thyroid disease or symptoms of thyroid disease. ● Diabetes – is it present (pre-existing Type 1 or Type 2?), for Type 2 check Netcare, if no previous testing and high risk do A1C ● Genetic screening – Does genetic testing align with patient values and preferences? If so- schedule 1st trimester aneuploidy screen ● Schedule dating ultrasound- 12 weeks ● Initiate prenatal vitamins and counsel re: folic acid in the prevention of neural tube defects, oral clefts and heart defects ● Consider need for ASA for at risk patients ● Screen for and manage chronic disease ● Educate regarding safe behaviors, exposures, hyperemesis- identification and management, significance of first trimester bleeding ● Recommend and provide influenza vaccine prior to and during flu season. 	<ul style="list-style-type: none"> ● Mental Health https://www.healthyparentshealthychildren.ca/im-pregnant/overview-of-pregnancy/mental-health/#depression-and-anxiety ● Sexuality https://www.healthyparentshealthychildren.ca/im-pregnant/overview-of-pregnancy/taking-care-of-your-relationships/ <p>Refer to HPHC content specific to 2nd trimester https://www.healthyparentshealthychildren.ca/im-pregnant/second-trimester</p> <p>Birth Preferences https://admin.healthyparentshealthychildren.ca/wp-content/uploads/2018/11/Birth-wishes.pdf</p>
	<p>13-20 week visit</p> <ul style="list-style-type: none"> ● Review antenatal risk factors <ul style="list-style-type: none"> ○ Discuss screening results, Identify place of birth, birth preferences and maternity care provider. Consult/Refer as indicated by risk factors identified. 	

<p>2nd Trimester 13-27 weeks (3-4 visits)</p>	<ul style="list-style-type: none"> • Maternal Physical assessment: <ul style="list-style-type: none"> ○ Weight- Healthy weight gain discussion ○ Blood pressure ○ Symphysis - fundal height in cm to assess fetal growth. ○ Urine for protein to assess risk of preeclampsia as indicated ○ Red cell antibody titres every 4 weeks if antibody screen positive ○ All pregnant women will be screened for syphilis in the first trimester. If there is ongoing risk, women will be re-screened throughout pregnancy ○ Early Diabetic screening if risk factors present ○ Anxiety/ Depression? • Fetal Assessment <ul style="list-style-type: none"> ○ Fetal heart sounds ○ Presence of fetal movements >20 weeks ○ Assign gestational age and EDB based on 12 week U/S results • Diagnostics <ul style="list-style-type: none"> ○ Quad Screen: genetic screening for spina bifida, Down Syndrome, Trisomy's (if 1st trimester screen missed) ○ Amniocentesis ○ Ultrasound for anatomical & fetal growth 	<p style="text-align: right;">Return ToFC</p>
	<p>21-27 week visit</p> <ul style="list-style-type: none"> • Maternal Physical Assessment <ul style="list-style-type: none"> ○ Weight-healthy weight gain? ○ Blood pressure 	<p>Counselling:</p> <ul style="list-style-type: none"> • Fetal movement awareness and maternal response to a decrease in fetal movement • Healthy Weight management • Nutrition

	<ul style="list-style-type: none"> ○ Anxiety/depression ○ All pregnant women will be screened for syphilis in the first trimester. If there is ongoing risk, women will be re-screened throughout pregnancy ● Fetal Assessment <ul style="list-style-type: none"> ○ Symphysis – fundal height in cm ○ Fetal heart sounds ○ Presence of fetal movements ● Diagnostics <ul style="list-style-type: none"> ○ Urine for protein to assess risk for preeclampsia as indicated ○ Red cell antibody titres every 4 weeks if antibody screen positive ○ Hemoglobin ○ Diabetic screening <ul style="list-style-type: none"> ▪ GCT followed by GTT if indicated ○ HIV screening / rescreening ○ Assess need for Pertussis immunization ○ Discuss risk for preterm labour – signs & symptoms ○ Obtain VBAC consultation / documentation as needed 	<ul style="list-style-type: none"> ● Diphtheria, tetanus, pertussis (dTap) immunization is available through public health or community pharmacies – ideally given between 27 and 32 weeks gestation ● Mental well being https://www.healthyparentshealthychildren.ca/im-pregnant/overview-of-pregnancy/mental-health/#depression-and-anxiety ● Exercise/activity https://www.healthyparentshealthychildren.ca/im-pregnant/overview-of-pregnancy/physical-activity/ <p style="text-align: right;">Return ToFC</p>
<p>3rd Trimester 28-41 weeks 3-5 visits</p>	<p>28-32 weeks</p> <ul style="list-style-type: none"> ● Maternal Assessment <ul style="list-style-type: none"> ○ Weight- healthy weight gain? ○ Blood pressure ○ Anxiety /Depression? ○ All pregnant women will be screened for syphilis in the first trimester. If there is ongoing risk, women will be re-screened throughout pregnancy ● Fetal Assessment 	<p>Third Trimester content from HPHC resource: https://www.healthyparentshealthychildren.ca/im-pregnant/third-trimester</p> <p>Counselling</p> <ul style="list-style-type: none"> ● Healthy Weight Gain ● Nutrition ● Mental Well Being ● Exercise ● Plans for feeding baby Link to "Deciding how to feed your baby" antenatal worksheet

	<ul style="list-style-type: none"> ○ Symphysis - fundal height in cm ○ Urine for glucose & protein as indicated ○ Fetal heart sounds ○ Presence of fetal movements ● Diagnostics <ul style="list-style-type: none"> ○ Red cell antibody titres every 4 weeks if antibody screen positive ○ Syphilis Screen ● Actions: <ul style="list-style-type: none"> ○ Send prenatal record to birth hospital ○ Give Rh immune globulin if indicated ○ Immunizations- dTap, influenza 	<p>https://admin.healthyparentshealthychildren.ca/wp-content/uploads/2018/11/Options-for-feeding.pdf</p> <ul style="list-style-type: none"> ● Breastfeeding https://www.healthyparentshealthychildren.ca/im-a-parent/feeding-your-baby ● Signs of Labor- when to go to hospital https://www.healthyparentshealthychildren.ca/im-pregnant/labour-and-birth/knowning-what-to-expect/ ● Begin discussions about contraception strategies to consider following birth <p style="text-align: right;">Return ToFC</p>
	<p>35-38 week visit</p> <ul style="list-style-type: none"> ● Maternal Assessment <ul style="list-style-type: none"> ○ Weight- healthy weight gain? ○ Blood pressure ○ Anxiety / depression ○ All pregnant women will be screened for syphilis in the first trimester. If there is ongoing risk, women will be re-screened throughout pregnancy ● Fetal assessment <ul style="list-style-type: none"> ○ Symphysis – fundal height in cm ○ Fetal heart sounds ○ Presence of fetal movements ○ Fetal presentation at > 36 weeks ● Diagnostics <ul style="list-style-type: none"> ○ Chlamydia and gonorrhea ○ Syphilis rescreening at 35 weeks or time of delivery ○ GBS culture 	<p>Counselling</p> <ul style="list-style-type: none"> ● Admission and Discharge to hospital ● Child care ● Circumcision ● Contraception ● Maternal Vaccinations ● Membrane Sweeping ● Mother-Infant Interaction ● Newborn vaccinations ● Postpartum care and support ● Postpartum/parenting classes ● Reasons to go to hospital ● Skin to skin care ● Vitamin D supplement ● Safe infant sleep ● https://www.healthyparentshealthychildren.ca/im-a-parent/newborn-birth-2-months/safe-sleep-preventing-injuries/






	<p>40-42 weeks</p> <ul style="list-style-type: none"> • Fetal assessment <ul style="list-style-type: none"> ○ Symphysis - fundal height in cm ○ Fetal heart sounds ○ Presence of fetal movements ○ Fetal presentation ○ NST Biophysical profile • Diagnostics <ul style="list-style-type: none"> ○ Syphilis & HIV screening / re-screening • Book induction 	<p>Counselling</p> <ul style="list-style-type: none"> • Induction of labor – what to expect https://www.healthyparentshealthchildren.ca/im-pregnant/labour-and-birth • Plan for follow-up after birth • Contraception https://www.healthyparentshealthchildren.ca/im-pregnant/postpartum • Postpartum Depression https://www.healthyparentshealthchildren.ca/im-pregnant/postpartum/mental-health-2/
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Birth Place Plan

Establishment of a planned place of birth during antenatal care is intended to minimize the risk of an adverse outcome by ensuring the appropriate staff and resources are available given a patient's specific risk factors. In addition to the consideration of the need for increased antenatal monitoring, discuss the need for consultation and your recommendations for birth site based on resources and supports needed with the patient and family. Geographical corridors of maternity care are used to support access to appropriate levels of care as close to home as possible.

Community and Rural Maternal Services Intrapartum Pathway for Planned Birth					
Indicators	Level 1A No OR	Level 1B 24/7 OR	Level 1C OR + OB/Gyn	Level 2 OR + OB/Gyn+ L2 NICU	Level 3 Tertiary L3 NICU
Average risk obstetrics 37 to 40 or greater weeks gestation	→ Home, Birth Center, L1, L1A, 1B, 1C, 2 or 3				
Planned Low Risk Induction gestation of 38 weeks or greater, multip, Bishop score of 6 or greater, established back up plan with referral hospital and patient consent	→ L1A, 1B, 1C, 2 or 3				
Planned cesarean of 39 weeks or greater gestation	→ L1B, 1C, 2 or 3				

<p>Planned induction of labor 37weeks or greater gestation with medical indication</p>	 <p>L1B, 1C, 2 or 3</p>
<p>Women presents to hospital in labor at assessment/triage area Professional judgement is used to assess maternal risk and need for consult and/or transfer to appropriate level of care facility.</p>	
<p>Consider consultation: Abnormal presentation, atypical or abnormal fetal heart, dystocia.</p>	 <p>L1B, 1C, 2 or 3</p>
<p>Consultation and possible transfer Maternal tachycardia, maternal hypertension, urine protein 2+, pyrexia, significant vaginal blood loss.</p>	 <p>L1C, 2 or 3</p>
<p>Consultation and transfer Preterm labor, cesarean less than 37 weeks, rupture of membranes greater than 24 hours, non-labor pain with other risks, multiple fetuses, intrauterine growth restriction, macrosomia, oligohydramnios or polyhydramnios.</p>	 <p>L2 or 3</p>
<p>Transfer- Preterm labor- Between 22 and 30-31^{6/7} weeks' gestation.</p> <p>Note: Some L2 NICUs in Calgary and Edmonton will care for 30 + weeks gestation.</p> <p>If patient resides in Edmonton or Calgary discuss which hospital to present to if labor begins prior to 32 weeks gestation. Presenting at the appropriate level of care facility will support access to the immediate and required resources to best meet the needs of the baby.</p> <p>The following may provide further clarity for women residing in Calgary or Edmonton:</p> <ul style="list-style-type: none"> • Women at 30-31 weeks gestation who have received a course of steroids for pulmonary maturity may be delivered in the level II facility. • Women at 30-31 weeks gestation, who have not received steroids should be delivered at a tertiary center unless a emergency delivery is necessary • Women at < 30 weeks gestation should all be delivered at a tertiary center unless a emergency delivery is necessary. 	 <p>L3</p>
<p>If any of the factors above are present but birth is imminent, assess whether birth in the current location is preferable to transferring the woman to alternate level site. Consider need for neonatal transport.</p> <p>Any plan for transport should be preceded by cervical exam and discussion with the health care team and EMS to determine risk of en-route delivery.</p>	

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Medical Concerns

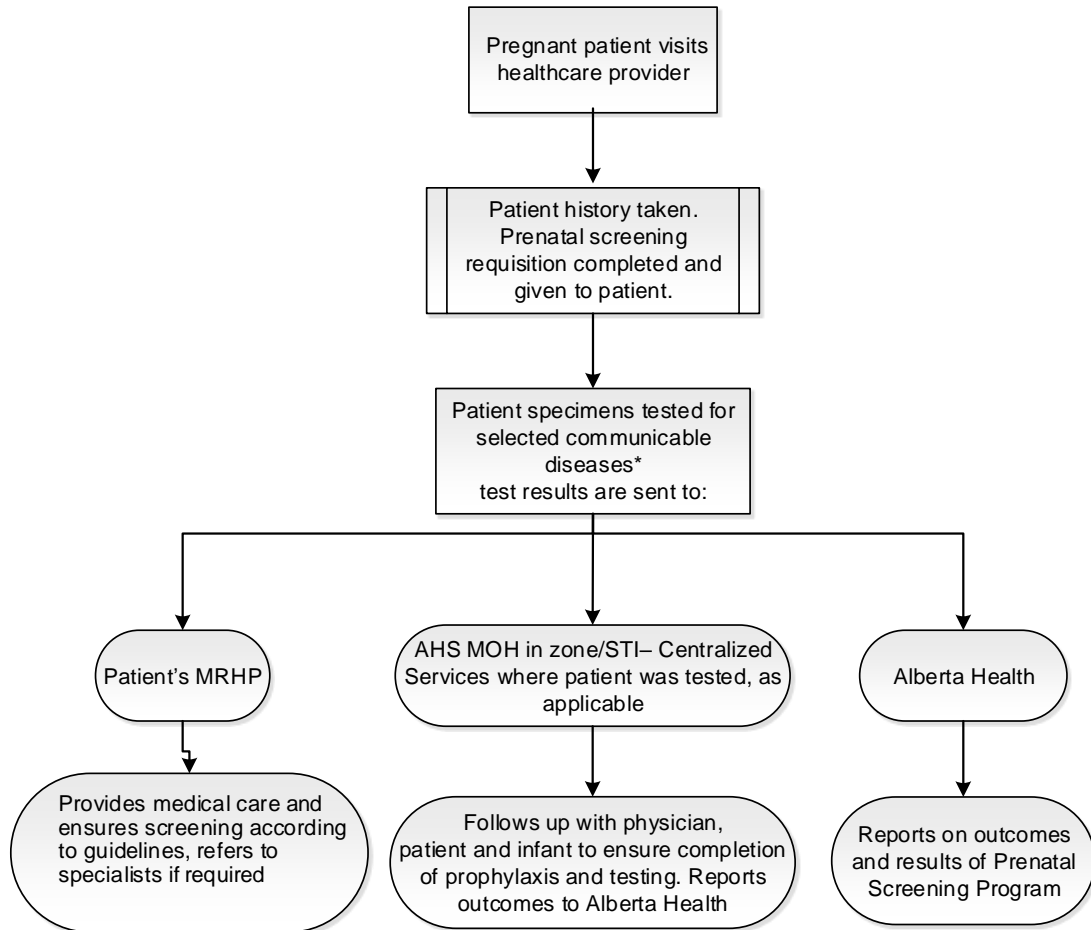
Medical concerns presenting additional risk to achieving optimal maternal or newborn outcomes have been identified as: [Communicable Diseases](#), Diabetes ([Gestational](#) and [Type 1 & 2](#)), [Fetal Malpresentation](#), [Fetal Well Being](#), [Genetic and Teratogen Screening](#), [Induction of Labor](#), [Hypertensive Disorders](#), [Preeclampsia](#), [Multiple Gestation](#), [VBAC - Trial of Labor](#), [Risk of Preterm Birth](#), , and [Venous Thromboembolism](#).

Communicable Diseases

The broad goal of prenatal screening tests is to identify selected communicable diseases and to provide suitable interventions to protect the health of pregnant women and their infants. Prenatal screening tests are recommended for seven communicable diseases to identify pregnant women who are infected with: human immunodeficiency virus (HIV), hepatitis B (HBV), syphilis, gonorrhea (GC), chlamydia (CT), and/or rubella, and varicella. Infection with one sexually transmitted infection can be an indicator of increased risk for future STI's.

(See flow chart on next page)

Prenatal Screening Flowchart



Alberta Prenatal Screening Program for Selected Communicable Diseases – Public Health Guidelines. Alberta Health (June 2018). (Revision made October 2020 per provincial STI request.)

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Syphilis

<p>Infants can develop congenital syphilis when exposed to syphilis during pregnancy or delivery. Congenital syphilis can be prevented by screening for maternal syphilis, appropriately treating those who are infected, and/or preventing re-infection.</p>	
<p>Perinatal Risks</p>	<p>Preterm birth; Stillbirth/spontaneous abortion; neonatal death, infant with congenital syphilis. Congenital syphilis can often have severe consequences for the infant, such as: hydrocephalus, sensorineural hearing loss, musculoskeletal deformity, learning challenges, or death.</p>
<p>Identification</p>	
<p>Patient Risk Factors</p>	<ul style="list-style-type: none"> • Limited or no prenatal care • Signs or symptoms compatible with syphilis • Contact with known cases • Persons who exchange goods/money for sex. • Street involvement/homeless • Multiple sex partners • History of syphilis, HIV or other STI's • Substance use • Incarceration • Having a sexual partner with any of above
<p>Screening & Diagnosis</p>	<p>Screening is key</p> <ul style="list-style-type: none"> • Err on the side of caution-as infectious syphilis is often asymptomatic • All patients diagnosed with syphilis should be tested for HIV, as this affects treatment and follow up. • Syphilis increases the risk of acquisition and transmission of HIV by 2-5 times. • Testing for gonorrhea and chlamydia should be performed. <p>Screening Recommendation</p> <ul style="list-style-type: none"> • Screen ALL pregnant patients in the 1st trimester, and at delivery even if a screen was done recently regardless of risk factors • Use a Prenatal Communicable Diseases requisition for all syphilis screening during pregnancy and at delivery https://www.albertahealthservices.ca/frm-21151.pdf. Indicate STAT on the requisition for patients with little/no prenatal care or ongoing risks • Monthly screening of pregnant patients with a recent diagnosis of infectious syphilis and pregnant patients at ongoing risk is appropriate. • Pregnant patients known to have reactive syphilis serology prior to delivery will have a dictated letter by the Provincial STI Medical Director with recommendations for follow up. This letter is sent to Pediatric Infectious Disease and the responsible Family Physician/obstetrician if known. Consult STI Centralized Services (1-800-535-1466) to obtain a copy of this letter or for advice. • Any patient delivering a stillbirth infant, regardless of gestational age, should be screened for syphilis.

	<p>Pregnant patients who are symptomatic may have these common symptoms:</p> <ul style="list-style-type: none"> • Anogenital/perioral chancre or ulcer • Regional lymphadenopathy • Rash • Fever & Malaise • Temporary alopecia <p>Patients who present with above should be tested immediately.</p> <p>Manifestations in Newborn – 60-90% of infants are asymptomatic at the time of delivery and will develop symptoms in the first few weeks of life if untreated.</p> <ul style="list-style-type: none"> • Rash • Enlarged spleen and liver • Watery nasal discharge (snuffles) • Radiographic abnormalities • Asymptomatic cerebrospinal fluid changes • Mucocutaneous lesions
<p>Intervention during Pregnancy and at Delivery</p>	
<p>Pregnancy</p>	<p>Treatment of Syphilis: Primary, Secondary, Early Latent</p> <p>Maternal Management during Pregnancy</p> <ul style="list-style-type: none"> • All pregnant patients with infectious syphilis should be managed in conjunction with an STI Specialist. • Benzathine penicillin G (Bicillin –LA) 2.4 million units IM for 1-2 doses. • Long-acting benzathine penicillin G (Bicillin L-A) is often confused with short acting benzathine penicillin G. Short acting benzathine penicillin G is not an effective substitute for the treatment of syphilis. • Alternate: There is no satisfactory alternative to penicillin for the treatment of syphilis in pregnancy; strongly consider penicillin desensitization followed by treatment with penicillin. • Refer to Community Infectious Diseases (STI) for desensitization protocol. • Once treatment is administered, complete the Notification of STI form https://www.alberta.ca/notifiable-disease-guidelines.aspx#toc-5 and fax to STI Centralized Services 780-425-219. If possible, collect sexual partner information on the Notification of STI form, so that treatment can be arranged for partners to prevent re-exposure to the case. • If diagnosed with infectious syphilis after 20 weeks gestation, a detailed ultrasound should be performed to screen for fetal abnormalities and to help stage the extent of the disease in order to assist with maternal counseling about treatment efficacy and potential complications of pregnancy.

	<ul style="list-style-type: none"> If fetal abnormalities are identified, the patient should be managed with an obstetric/maternal fetal specialist and hospitalized for treatment and fetal monitoring due to potential complications such as preterm labor, abnormal fetal heart rate tracings and stillbirth. These complications may be more common if the fetus is infected and may be precipitated by the treatment.
Postpartum Newborn	<p>Newborn Management</p> <p>If you suspect an infant is at risk for congenital syphilis infection complete the following:</p> <ul style="list-style-type: none"> Peds-ID consult and inform STI Centralized Services (1-800-535-1466). Physical examination for evidence of congenital abnormalities (e.g. fetal hydrops, rhinitis, rash, jaundice, hepatosplenomegaly, pseudoparalysis of an extremity) Long-bone x-rays Syphilis serology (EIA) from infant and mother. Direct examination of tissues/fluids using Treponema pallidum PCR may be helpful in confirming a case of congenital syphilis. Although not validated for clinical use, collection of the following specimens may be helpful: <ul style="list-style-type: none"> Swabs from the placenta and/or umbilical cord (in addition to pathologic examination of the placenta) Swabs from (wet) skin lesions or nasal discharge CSF (in addition to cell count and differential, protein, glucose, VDRL and FTA-ABS) Plasma
Maternal	<p>Maternal Management</p> <ul style="list-style-type: none"> Follow treatment recommendations from Pediatric Infectious Diseases and STI Centralized Services and provide appropriate medical care. Provide information to STI Centralized Services on patient and infant. Continue surveillance of the child until follow-up has been completed at 12–18 months of age.
Resources	
For Providers	<p>https://open.alberta.ca/publications/treatment-guidelines-for-sti-2018</p> <p>https://www.albertahealthservices.ca/info/Page17136.aspx</p> <p>The deskside reference might be most useful as a one-pager.</p>

	https://www.albertahealthservices.ca/assets/info/hp/srh/if-hp-srh-infectious-syphilis-management-tool.pdf
For Patients	https://www.ahs.ca/srh https://www.albertahealthservices.ca/info/Page17087.aspx https://www.myhealth.alberta.ca/HealthTopics/sexual-reproductive-health

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Hepatitis B

In Canada, the rate of Chronic Hepatitis B (CHB) in the general population is less than 1%. However, in the foreign-born Canadian population, prevalence may approach 5% to 15%. Hepatitis B Virus (HBV) is highly infectious, being 100 times more infectious than Human Immunodeficiency Virus (HIV) after a needle-stick exposure. There is no definitive cure for HBV infection. The goal of CHB treatment is to decrease hepatocyte damage by achieving sustained suppression of viral replication to prevent progression to cirrhosis, end-stage liver disease, Hepatocellular Carcinoma (HCC), and possibly death. The most effective strategy for reducing HBV related disease and death is through its primary prevention by immunization.

Perinatal Risks	<ul style="list-style-type: none"> • Maternal: Following transmission, HBV infects the liver and causes inflammation and hepatocellular necrosis. Once infection occurs, the clinical course varies from subclinical disease to acute hepatitis or fulminant infection, which may result in death. • Neonatal: low birth weight, prematurity, lifelong chronic infection leading to liver damage, liver disease and cancer.
Identification	
Patient Risk Factors	<ul style="list-style-type: none"> • Mother to child transmission is the most common route of HBV transmission worldwide. It can also be transmitted by having unprotected sex with an infected partner, injection drug use with contaminated needle, contact with blood or open sores of an infected person, needle-sticks or sharp instrument exposures, including healthcare exposures in settings with inadequate Infection Prevention and Control practices, tattoo or piercings with unsterilized needles or contaminated ink, sharing items such as razors or toothbrushes with an infected person. • HBV is not spread through food or water, sharing eating utensils, breastfeeding, hugging or kissing, hand holding, coughing, or sneezing. • Between 1999 and 2008, reported rates of acute hepatitis B were three times higher for Aboriginal peoples compared to non-Aboriginal peoples. (Epi-Update- Public Health Agency of Canada 2011)

<p>Screening & Diagnosis</p>	<p>Note: Most pregnant women with HBV are asymptomatic</p> <ul style="list-style-type: none"> • Screen pregnant women for HBV infection in early pregnancy by determination of their Hepatitis B surface antigen (HBsAg). • Counsel women at high risk for acquiring HBV who are HBsAg negative and have not been vaccinated, on risk factor modification and offer recombinant Hepatitis vaccine series during pregnancy. Women at high risk for acquiring HBV because of lifestyle risk factors or certain chronic health conditions, who are HBsAg negative, are eligible to receive free immunization with hepatitis B vaccine through Public Health in Alberta. For most current eligibility criteria see the Alberta Health Services-Immunization Program Standards manual or contact your closest Public Health Centre for advice. • Hep B vaccine information sheet Pregnancy is not a contraindication for immunization to HBV. • Test HBsAg positive pregnant women for Hepatitis B envelope antigen (HBeAg), HBV-DNA level, alanine aminotransferase and ultrasound of the liver.
<p>Intervention</p>	
<p>Pregnancy</p>	<ul style="list-style-type: none"> • Consult with an adult infectious diseases or gastroenterology/hepatology specialist. • Antiviral treatment for prevention of perinatal transmission in women with hepatitis B DNA viral loads level >200 000 IU/mL is indicated. • The first line therapy is Tenofovir 300 mg once a day. • Therapy should be started between 24 and 32 weeks of pregnancy and continued at least until delivery. • Earlier initiation of therapy should be considered in women with risk factors for pre-term labour (e.g. pregnant with multiples) and women undergoing invasive procedures, such as amniocentesis. Initiation in the second trimester should be considered in women with a viral load greater than 10⁹ IU/mL. • If HBsAg is negative but there is an ongoing risk of infection (shared/reused drug or medical equipment, multiple sexual partners, multiple transfusions, hepatitis B positive partner, health care workers, incarceration, or abnormal alanine aminotransferase), screening should be repeated in late pregnancy. • Those at risk should be vaccinated. • Encourage non-invasive screening techniques for aneuploidy prior to invasive testing for women who are HBsAg positive and counsel women

	<p>that risk of transmission in utero increases if maternal HBV- DNA is >200 000 IU/mL (>106 copies/mL) at the time of amniocentesis.</p> <ul style="list-style-type: none"> HBsAg positive pregnant women should receive counseling on prevention of HBV transmission to sexual partners and household contacts. Collaborate with public health for support with counselling.
Intrapartum	<p>Avoid unnecessary intrapartum invasive procedures (e.g. fetal electrocardiogram, scalp lactate) that may increase the infant's risk of percutaneous HBV exposure.</p> <p>Cesarean section is not recommended unless medically indicated.</p>
Newborn	<p>Newborns of women who are HBsAg positive:</p> <ul style="list-style-type: none"> Post-exposure involves both immunization with first dose of Hepatitis B vaccine and administer Hepatitis B Immunoglobulin (HBIG) within the first 12 hours of life. Prophylaxis is provided free of charge for infants born to HBsAg positive women. It is initiated in hospital with the remainder of the doses provided free of charge through Public Health, typically along with the infant's other routine immunizations. Obtain serological confirmation of protection within 1 to 6 months after completion of Hepatitis B vaccination series, but at least 9 months after HBIG administration.
Postpartum	<p>Breastfeeding does not pose an additional risk of HBV infection, even without neonatal vaccination.</p> <p>Maternal: Continue routine follow up with HBV specialist.</p>
Resources	
For Providers	<p>SOGC Clinical Practice Guideline (2017) Hepatitis B and Pregnancy http://dx.doi.org/10.1016/j.jogc.2016.11.001</p> <p>Hepatitis B Infection in Canada- Public Health Agency of Canada https://www.canada.ca/en/public-health/services/infectious-diseases/hepatitis-b-infection-canada.html</p> <p>Alberta Health Public Health Disease Management Guidelines: Hepatitis B Acute and Chronic https://open.alberta.ca/publications/hepatitis-b-acute-and-chronic</p> <p>AHS Immunization Program Standards Manual https://www.albertahealthservices.ca/info/Page10802.aspx</p> <p>Immunize Alberta https://www.immunizealberta.ca/</p>

For Patients	Hepatitis B- MyHealth Alberta https://myhealth.alberta.ca/health/Pages/conditions.aspx?hwid=hw40968 Hepatitis B (Canadian Liver Foundation) https://www.liver.ca/patients-caregivers/liver-diseases/hepatitis-b/ Protect your baby for life- information brochure https://www.cdc.gov/hepatitis/HBV/PDFs/HepBPerinatal-ProtectWhenPregnant.pdf
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Vaccine Preventable Infections

The SOGC recommends that:

- The seasonal inactivated influenza vaccine be offered to all women at any stage during pregnancy
- The diphtheria, tetanus, and acellular pertussis vaccine (dTdap) be offered to all women during the second or third trimester of pregnancy

Travel Related Infections

Persons who travel outside of Canada may be at added risk for exposure to mosquito borne infections such as Malaria, Zika Virus or Yellow fever which can impact fetal growth and development. If patient planning on travelling out of the country, advise of risks related to different standards of safety, sanitation and healthcare, safe food and clean water. Recommend visit to community care travel clinic prior to travel.

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Diabetes

Unrecognized or Undiagnosed Type 2 Diabetes:

Identification	
Patient Risk Factors	<ul style="list-style-type: none"> • Previous diagnosis of GDM, • Pre-diabetes, • Member of a high-risk population (Aboriginal, Hispanic, South Asian, Asian, African), • Age ≥ 35 years, • BMI ≥ 30 kg/m², • Polycystic Ovary Syndrome, • Acanthosis nigricans, • Corticosteroid use, • History of macrosomic infant • Family member with diabetes • High blood pressure • High cholesterol • Obstructive Sleep Apnea, • Psychiatric disorders.
Screening & Diagnosis	<p>Diabetes Canada 2018 Guidelines recommends:</p> <ul style="list-style-type: none"> • Women identified as being at high risk for type 2 diabetes should be offered earlier screening with an A1C test at the first antenatal visit to identify diabetes which may be pre-existing [Grade D, Consensus]. • For those women with a haemoglobinopathies or renal disease, the A1C test may not be reliable and screening should be performed with an FPG [Grade D, Consensus]. • If the A1C is $\geq 6.5\%$ or the FPG is ≥ 7.0 mmol/L, the woman should be considered to have diabetes in pregnancy and the same management recommendations for pre-existing diabetes should be followed [Grade D, Consensus]." • Test pre-conception or at first pregnancy visit with A1C, if not done within last 3 months, or fasting glucose if A1C not reliable such as with haemoglobinopathies. • If normal, re-test at 24-28 weeks to screen for gestational diabetes <p>Check Netcare, as sometimes patients do not know or admit to having diabetes.</p>
Resources	
For Providers	<ul style="list-style-type: none"> • SOGC guidelines on diabetes in pregnancy • Diabetes Canada https://www.diabetes.ca/about-diabetes
For Patients	

	<p>https://www.diabetes.ca/about-diabetes/risk-factors/are-you-at-risk</p> <ul style="list-style-type: none"> • Ready or Not: https://readyornotalberta.ca/ready/seeing-an-expert/pre-existing-conditions/
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Type 1 & Type 2 Diabetes in Pregnancy:

Type 1 or 2 Diabetes mellitus (DM) is glucose intolerance with diagnosis and onset prior to pregnancy.	
Perinatal Risks	Retinopathy; Stillbirth; Macrosomia; Gestational hypertension; Congenital anomalies; Neonatal hypoglycemia
Intervention	
Preconception	<p>Screen high risk patients preconception or at first visit.</p> <p>All women of reproductive age with type 1 or type 2 diabetes should receive advice on:</p> <ul style="list-style-type: none"> • reliable birth control • the importance of glycemic control prior to pregnancy • the impact of BMI on pregnancy outcomes • the need for folic acid • the need to stop potentially embryopathic drugs prior to pregnancy. <p>Before attempting to become pregnant, women with type 1 or type 2 diabetes should:</p> <ul style="list-style-type: none"> • Receive preconception counseling that includes optimal diabetes management and nutrition • Achieve a goal of a preconception A1C $\leq 7.0\%$ (ideally $\leq 6.5\%$ if possible) to decrease the risk of spontaneous abortion, congenital anomalies, preeclampsia, progression of retinopathy and stillbirth in pregnancy • Undergo a retinal evaluation by an eye care specialist, • Be screened for chronic kidney disease.
Pregnancy	<p>During pregnancy the woman with type 1 or type 2 diabetes should:</p> <ul style="list-style-type: none"> • Undergo a retinal evaluation by an eye care specialist early in pregnancy (first trimester), if not done preconception • Be screened for chronic kidney disease early in pregnancy (first trimester), if not done preconception

	<ul style="list-style-type: none"> • Receive an individualized management plan to achieve glycemic targets • Achieve a target glycemic control of A1C $\leq 6.5\%$ (ideally $\leq 6.1\%$ if possible) during pregnancy.
Resources	
For Providers	<ul style="list-style-type: none"> • SOGC guidelines on diabetes in pregnancy
For Patients	<ul style="list-style-type: none"> • Diabetes Canada guidelines https://www.diabetes.ca/about-diabetes • Nutrition Guideline: Diabetes in Pregnancy (Gestational diabetes, Type 1 & Type 2 Diabetes sections) • Ready or Not: https://readyornotalberta.ca/ready/seeing-an-expert/pre-existing-conditions/

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Gestational Diabetes

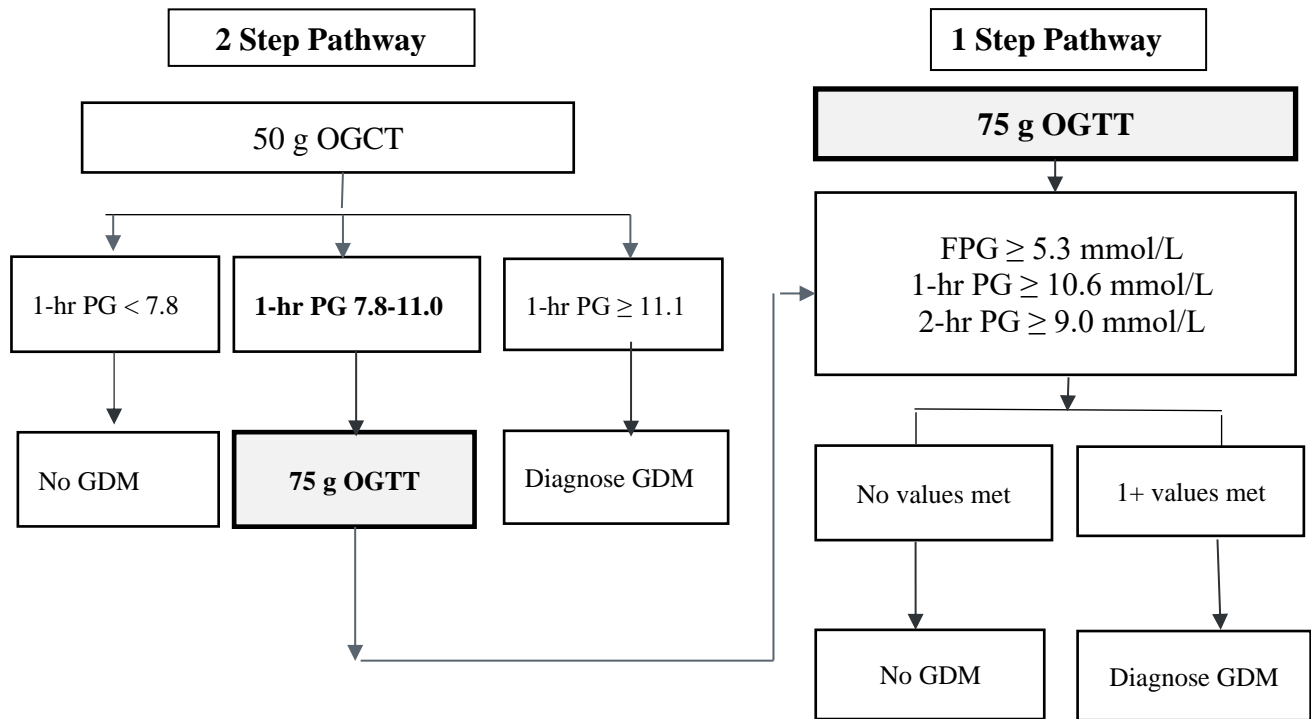
<p>Gestational diabetes mellitus (GDM) is glucose intolerance with onset during pregnancy. The prevalence of GDM has been steadily rising since 2000, affecting an estimated 7.7% of all women who gave birth in Alberta in 2016.</p>	
Perinatal Risks	Preeclampsia; Macrosomia; Stillbirth; Cesarean section; Neonatal respiratory distress; Neonatal hypoglycemia; Birth trauma
Identification	
Patient Risk Factors	Previous diagnosis of GDM, Pre-diabetes, Member of a high-risk population (Aboriginal, Hispanic, South Asian, Asian, African), Age ≥ 35 years, BMI ≥ 30 kg/m ² , PCOS, Acanthosis nigricans, Corticosteroid use, history of macrosomic infant, current fetal macrosomia or polyhydramnios.
Screening & Diagnosis	<p>AVERAGE RISK: All pregnant women without known diabetes should be screened for GDM between 24-28 weeks of gestation (according to the Diabetes Canada guidelines preferred methods of testing).</p> <p>HIGH-RISK: If there is a high risk of GDM based on clinical factors, screening should be done at first presentation with an A1C or fasting glucose.</p> <p>See Gestational Diabetes Screening</p>
Intervention	
Pregnancy	<ul style="list-style-type: none"> • Timely nutrition counseling from a registered dietitian during pregnancy, within 7 days of referral from a health care provider. • Perform Self-Monitoring Blood Glucose (SMBG), both fasting and postprandially.

	<ul style="list-style-type: none"> • Achieve target glucose values: <ul style="list-style-type: none"> ○ Fasting BG <5.3 mmol/L ○ 1-hour postprandial <7.8 mmol/L or ○ 2-hour postprandial <6.7 mmol/L • If women with GDM do not achieve glycemic targets within 2 weeks from lifestyle or nutritional therapy alone, pharmacological therapy should be initiated according to Diabetes Canada guidelines.
Postpartum	<ul style="list-style-type: none"> • Women should be screened to detect pre-diabetes and diabetes, according to current standards, between 6 weeks and 6 months postpartum. • When being cared for by a GDM care provider, the patient's Family Physician should be made aware of GDM along with recommendations for follow-up for prevention of type 2 diabetes.
Resources	
For Providers	<ul style="list-style-type: none"> • SOGC guidelines on diabetes in pregnancy • Diabetes Canada guidelines https://www.diabetes.ca/about-diabetes
For Patients	<p>MyHealth Alberta- Gestational Diabetes https://myhealth.alberta.ca/health/Pages/conditions.aspx?hwid=hw197466</p> <p>Healthy Parents; Healthy Children https://www.healthyparentshealthychildren.ca/im-pregnant/second-trimester/pregnancy-concerns-3/#gestational-diabetes</p>

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Screening for gestational diabetes (SOGC and CDA)

Universal screening for all Pregnant Women not previously diagnosed at 24-28 weeks, including repeat testing for those who received early testing.



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Fetal Malpresentation

Performing Leopold's manoeuvres during third trimester prenatal exams will enable diagnosis in the majority of cases. Vaginal examination or ultrasound may be performed to confirm the presentation. An abdominal X-ray may be used to confirm the diagnosis if ultrasound is unavailable. Consider consult and external cephalic version (ECV) at 36 weeks gestation.

Fetal Well-Being

Fetal well-being includes concerns related to fetal intrauterine growth restriction (IUGR) and macrosomia as well as concerns related to heart rate and patterns. IUGR is defined as a fetus with an estimated weight <10th percentile on ultrasound that has not attained growth potential due to underlying pathology. Macrosomia is defined as a baby with an anticipated birth weight of greater than 4000 gms.	
Perinatal Risks	<p>IUGR: Poor respiratory, feeding, temperature and central nervous system regulation; Necrotizing enterocolitis; Neonatal mortality</p> <p>Macrosomia: Shoulder dystocia; Prolonged first and second stage labour; 3rd degree perineal trauma; instrumental delivery; Postpartum hemorrhage</p>
Identification	
Screening & Diagnosis	<ul style="list-style-type: none"> Concerns with fetal well-being may present through routine assessment of fundal height (IUGR or Macrosomia), or through assessment of fetal heart rate or fetal movement. Fetal health surveillance- non-stress test. <u>See Classification non-stress test.</u> Biophysical profile Abnormalities in fetal heart rate or heart beat patterns indicate that the fetus may be in distress.
Intervention	
Pregnancy	<ul style="list-style-type: none"> Support mother in achieving healthy weight gain during pregnancy Support mother in establishing daily activity and exercise Manage chronic medical risks such as diabetes Consider need for consult to appropriate specialty Consider need for expedient delivery.
Resources	
For Providers	<p>MORE^{OB} September 2017 17th Edition https://www.moreob.com/</p> <ul style="list-style-type: none"> SOGC guidelines on fetal well-being Antepartum and intrapartum non-stress test- Fetal Health Surveillance Program.
For Patients	<p>MyHealth Alberta https://myhealth.alberta.ca/health/tests-treatments/pages/conditions.aspx?Hwid=hw214546</p>

<https://myhealth.alberta.ca/health/tests-treatments/pages/conditions.aspx?Hwid=tw9854>

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Antepartum Classification: Non-Stress Test Guide to Interpretation

Parameter	NORMAL NST	ATYPICAL NST	ABNORMAL NST
Baseline	<ul style="list-style-type: none"> • 110 – 160 bpm 	<ul style="list-style-type: none"> • 100-110 bpm • >160 bpm for <30 mins • Rising Baseline 	<ul style="list-style-type: none"> • Bradycardia <100bpm • Tachycardia > 160 bpm for > 30 mins • Erratic Baseline
Variability	<ul style="list-style-type: none"> • 6-25 bpm (moderate) • ≤5 bpm (absent or minimal) for < 40 mins 	<ul style="list-style-type: none"> • ≤5 bpm (absent or minimal) for 40 – 80 mins 	<ul style="list-style-type: none"> • ≤5 bpm for ≥ 80 mins • ≥ 25 bpm for > 10 mins • Sinusoidal
Decelerations	<ul style="list-style-type: none"> • None OR • Occasional variables < 30 secs 	<ul style="list-style-type: none"> • Variable decelerations 30-60 secs in duration 	<ul style="list-style-type: none"> • Variable decelerations >60 secs in duration • LATE decelerations
Accelerations Term Fetus	<ul style="list-style-type: none"> • ≥2 accelerations with acme of ≥15 bpm, lasting 15 secs with < 40 mins of testing 	<ul style="list-style-type: none"> • ≤2 accelerations with acme of ≥15 bpm, lasting 15 secs in 40-80 mins 	<ul style="list-style-type: none"> • ≤2 accelerations with acme of ≥15 bpm, lasting 15 secs in >80 mins
Preterm Fetus (< 32 weeks)	<ul style="list-style-type: none"> • ≥2 accelerations with acme of ≥10 bpm, lasting 10 secs with < 40 mins of testing 	<ul style="list-style-type: none"> • ≤2 accelerations of ≥10 bpm, lasting 10 secs in 40-80 mins 	<ul style="list-style-type: none"> • ≤2 accelerations of ≥10 bpm, lasting 10 secs in > 80 mins
Action	FURTHER assessment OPTIONAL, based on total clinical picture	FURTHER assessment REQUIRED	URGENT ACTION REQUIRED An overall assessment of the situation and further investigation with US or BPP is required. Some situations require delivery.

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Intrapartum Classification of EFM Tracings

Parameter	NORMAL Tracing	ATYPICAL Tracing	ABNORMAL Tracing
Baseline	110 – 160 bpm	Bradycardia 100-110 bpm Tachycardia > 160 bpm for > 30 mins to 80 mins <i>Rising Baseline</i>	Bradycardia <100bpm Tachycardia > 160 bpm for > 80 mins Erratic Baseline
Variability	6-25 bpm (moderate) ≤5 bpm for < 40 mins	<ul style="list-style-type: none"> • ≤5 bpm for 40 – 80 mins 	<ul style="list-style-type: none"> • ≤5 bpm for > 80 mins • ≥25 bpm for > 10 mins • Sinusoidal
Decelerations	None OR Occasional uncomplicated variables OR Early decelerations	<ul style="list-style-type: none"> • Repetitive (≥3) uncomplicated variable decelerations • Occasional late decelerations • Single prolonged deceleration (>2 mins but <3 mins) 	<ul style="list-style-type: none"> • Repetitive (≥3) complicated variables: <ul style="list-style-type: none"> -Deceleration to <70bpm for >60 secs -Loss of variability in trough OR in baseline -Biphasic decelerations -Overshoots -Slow return to baseline -Baseline lower after deceleration -Baseline tachycardia or bradycardia • Late decelerations >50% of contractions • Single prolonged deceleration >3 mins BUT <10 mins

MNCY SCN
Antenatal Pathway

Accelerations Term Fetus (FHR increases ≥15 bpm lasting ≥15 secs) Preterm Fetus (<32 weeks) (FHR increases ≥10 bpm lasting ≥10 secs)	Spontaneous accelerations present Accelerations present with fetal scalp stimulation	Absence of acceleration with fetal scalp stimulation	Usually absent (but if present <u>does not</u> change the classification of the tracing)
Action	May interrupt EFM for up to 30 mins if maternal-fetal condition & oxytocin rate stable	Further vigilant assessment required, especially when combined features present	<u>ACTION REQUIRED!</u> Review overall clinical situation, obtain scalp pH if appropriate – prepare for delivery

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Genetic & Teratogen Screening

Pre-conception care and planning offers the potential to reduce fetal anomalies and pregnancy complications secondary to genetic risk and the risk due to comorbidity through maternal education, counselling, choice, and risk management.	
Perinatal risk	Newborn mortality and morbidity: Bleeding disorders, Neurodevelopmental disorders, Neural tube defects, Neuromuscular disorders, Cystic Fibrosis, Congenital malformations, Chromosome Abnormalities, Trisomy 13 and 18, Down's Syndrome, Tay Sachs Disease, Sickle Cell Disease
Identification	
Patient Risk Factors	<ul style="list-style-type: none"> • BMI > 35 • Maternal medical co-morbidities • Infertility • Recurrent pregnancy loss • Past personal or family history of pregnancy with fetal anomalies • Consanguinity • Genetic screening factors as outlined below
Screening & Diagnosis	<ul style="list-style-type: none"> • Every patient, regardless of age, should be offered maternal serum prenatal screening for the common aneuploidies, other 'at risk' chromosomal abnormalities and major congenital anomalies after an informed discussion of the risks and benefits. • Document whether the patient was counselled about their genetic risk, the availability of prenatal genetic investigations, and their choice / decision.

- Document the name of the test(s) performed, such as first trimester screening, cell-free placental DNA screening, chorionic villus sampling, first and second trimester ultrasound screening / diagnosis etc.
- See the SOGC guidelines for detailed discussions on prenatal screening, imaging, and teratogenic exposures.

The following screening tool can be used to identify patients at elevated genetic/teratogen risk:

Biological Parental Age/ART Pregnancy Screen

- Advanced maternal age – Egg ≥35 years
- Advanced parental age – Sperm ≥40 years
- ART required (namely intracytoplasmic sperm injection)

Maternal Co-Morbidity Medication Screen

- Pre-pregnancy maternal co-morbidity medication (Includes medication to manage hypertension, diabetes, epilepsy, anxiety, depression, or other)

Exposure to Infection/Substance (CHEAPTORCHES)

- Chickenpox and shingles (varicella)
- Hepatitis B, C, D, E
- Enterovirus
- AIDS/HIV
- Parvovirus B19
- Toxoplasmosis
- Other group B strep, Listeria, Candida, Lyme disease
- Rubella
- Cytomegalovirus
- Herpes simplex type I/II
- Everything sexually transmitted, Gonorrhea, Chlamydia, u-urealyticum, HPV
- Syphilis
- Substance use (tobacco, cannabis, opioids)

Family/Ethnic Genetic Carrier Screen

- Autosomal recessive (Thalassemia-Alpha, Thalassemia-Beta, Sickle Cell, Cystic Fibrosis, Tay Sachs, Familial Dysautonomia, Spinal Muscular Atrophy, PKU) Ashkenazi Jewish or other consanguinity population cohorts
- X-linked (Duchenne/Becker Muscular Dystrophy, Fragile-X, Hemophilia A or B, SCID (XL/AR), XL Hydrocephalus)

MNCY SCN
Antenatal Pathway

	<ul style="list-style-type: none"> Autosomal dominant (Myotonic dystrophy, Neurofibromatosis, Adult PC Kidney, Tuberous sclerosis); Advanced paternal age (new dominant mutations)
Intervention	
Pregnancy	<ul style="list-style-type: none"> Dependent on the congenital anomaly(ies) / diagnosis fetal therapy or postnatal surgery are possibilities Fetal genetic testing with micro-array or if determined genetically appropriate fetal exome sequencing Termination of pregnancy after counselling can be considered
Postpartum Newborn	<ul style="list-style-type: none"> Neonatal care and treatment planning dependent on diagnosis and prognosis and family choice
Resources	
For Providers	<p> https://doi.org/10.1016/j.jogc.2017.07.024 - SOGC http://dx.doi.org/10.1016/j.jogc.2016.06.008 - SOGC https://doi.org/10.1016/j.jogc.2017.08.037 - SOGC https://doi.org/10.1097/AOG.0000000000001406 - ACOG </p>
For Patients	<p> https://www.acog.org/Patients/FAQs/Prenatal-Genetic-Screening-Tests?IsMobileSet=false – ACOG https://www.canada.ca/en/public-health/services/fertility/genetic-testing-screening.html - PHAC https://geneticseducation.ca/public-resources/prenatal-and-preconception-genetics/guide-to-understanding-prenatal-screening-tests/ - Genetics Education Canada https://myhealth.alberta.ca/Health/pages/conditions.aspx?hwid=abh1912 – MyHealth Alberta </p>

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Induction of Labour

For induction of labour to be considered and to be offered, there must be evidence that such an intervention carries benefits for the mother and/or her baby and this requires careful consideration of the clinical evidence in discussion with the woman. In all cases, there is a clear need for the provision of information to allow women to make a fully informed choice. It is also important that the most accurate information is obtained concerning the gestational age of the pregnancy. In most instances there will be reliable menstrual data supported by evidence from an ultrasound examination made in the early weeks of pregnancy. In Canada the rates of induction have remained steady at around 21.8% since 2005. In Alberta induction of labour has been incrementally rising among all women giving birth from 28.4% in 2012, 30.1% in 2014, and 31.8% in 2016.

Induction of Labour	
Perinatal Risks	<ul style="list-style-type: none"> • Failure to achieve labour. • Risk of uterine rupture (increased risk with history of scarred uterus); • Chorioamnionitis; • Cord prolapse with artificial rupture of membranes (ARM); • Inadvertent delivery of preterm infant in the case of inadequate dating; • Uterine tachysystole (i.e., greater than five [5] contractions in 10 minutes averaged over 30 minutes.); • Dystocia, • Operative vaginal delivery.
Indications	
Patient Risk Factors High Priority	<ul style="list-style-type: none"> • Suspected fetal compromise • Severe pre-eclampsia, eclampsia • Significant maternal disease not responding to therapy • Significant but stable antepartum hemorrhage • Chorioamnionitis • Term rupture of membranes with maternal GBS culture positive >35 weeks
Patient Risk Factors Average Priority	<ul style="list-style-type: none"> • Postdates greater than 41 weeks • Uncomplicated twin pregnancy equal to or greater than 38 weeks • Diabetes Mellitus – level of glucose control may determine urgency or other maternal/fetal co-morbidities • Alloimmune disease at or near term • Intrauterine growth restriction • Oligohydramnios • Gestational hypertension greater than or equal to 38 weeks • Intrauterine fetal death • Premature rupture of membranes at or near term – Group B Strep negative

	<ul style="list-style-type: none"> • Logistical problems – history of rapid labour, distance to hospital • Intrauterine fetal death in prior pregnancy
Interventions	
Pregnancy	<p>Strategies to prevent induction</p> <ul style="list-style-type: none"> • Routine early ultrasound for confirmation of expected date of delivery has been shown to reduce induction rates. • Routine membrane sweeping or cervical massage at term may promote the onset of labour and decrease the rates of induction. When membrane sweeping is used the subsequent need for other induction methods needs to be balanced against women's discomfort and other adverse effects. • Clinician or unit preference should not be a consideration for induction
Labour & Delivery	<p>Discuss rationale and medical indications for induction of labor, as well as risks and benefits with patient and obtain consent.</p> <p>Predictors of successful induction include:</p> <ul style="list-style-type: none"> • Bishop score equal to or greater than 6 • Parity (prior vaginal delivery) <p>Risk factors that may contribute to failure of induction include:</p> <ul style="list-style-type: none"> • BMI greater than 40 • Later maternal age of 35 or greater • Estimated fetal weight greater than 4 kg • Diabetes • Dystocia/augmentation <p>NOTE: Clinical assessment to confirm vertex presentation and an adequate Bishop score must be performed. Disposition planning must be in place prior to initiation of cervical ripening and medical induction of labour. This should include a plan for transfer of patient to a facility capable of performing a Cesarean section if required. This should be included as part of the pre-induction assessment.</p>
Resources	
For Providers	<p>Refer to the Induction of Labor Clinical Knowledge Topic for more information: https://extranet.ahsnet.ca/teams/policydocuments/1/klink/et-klink-ckv-induction-of-labour-adult-inpatient.pdf</p> <p>MORE^{OB}: https://www.moreob.com/</p>
For Patients	<p>Healthy Parents, Healthy Children:</p> <p>https://myhealth.alberta.ca/health/pages/conditions.aspx?Hwid=hw194662#hw194662-sec</p> <p>http://www.healthyparentshealthychildren.ca/third-trimester-the-final-stretch/growing-together/if-you-go-past-your-due-date/</p> <p>MyHealth Alberta:</p> <p>https://myhealth.alberta.ca/Alberta/Pages/labour-induction-dinoprostone.aspx</p>

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Hypertensive Disorders

Gestational Hypertension

<p>Definitions: Mild hypertension: serial diastolic blood pressures 90–99 mmHg, systolic blood pressure 140–149 mmHg. Moderate hypertension: serial diastolic blood pressures 100–109 mmHg, systolic blood pressure 150–159 mmHg. Severe hypertension: serial diastolic blood pressures 110 mmHg or greater, systolic blood pressure 160 mmHg or greater.</p>	
<p>Perinatal Risks</p>	<p>Maternal morbidity (such as stroke, renal failure); Intrauterine growth restriction; Preterm birth; Preeclampsia, seizures and HELLP syndrome; Cesarean section</p>
<p>Identification</p>	
<p>Patient Risk Factors</p>	<p>Factors indicating moderate risk are: first pregnancy, age 40 years or older, pregnancy interval of more than 10 years, BMI of 35 kg/m² or more at first visit, family history of pre-eclampsia, multiple pregnancy.</p> <p>Women at high risk are those with any of the following: hypertensive disease during a previous pregnancy, chronic kidney disease, autoimmune disease such as systemic lupus erythematosus or antiphospholipid syndrome, type 1 or type 2 diabetes, chronic hypertension.</p> <p>Advise women with more than one moderate or high risk factor for pre-eclampsia to take 75- 162 mg of Aspirin daily from 12 weeks (or as early as possible) until the birth of the baby.</p> <p>In women with gestational hypertension, the following risk factors require additional assessment and follow-up: nulliparity, age 40 years or older, pregnancy interval of more than 10 years, family history of pre-eclampsia, multiple pregnancy, BMI of 35 kg/m² or more, gestational age at presentation, previous history of pre-eclampsia or gestational hypertension, pre-existing vascular disease, pre-existing kidney disease.</p>
<p>Screening & Diagnosis</p>	<p>All women with new onset hypertension after 20 weeks gestation should have the following investigations:</p> <ul style="list-style-type: none"> • Complete blood count (CBC) • Creatinine, electrolytes • Liver enzymes (AST, ALT) • Urinalysis, urine dipstick, or spot urine protein to creatinine ratio (UPCR) to screen for proteinuria

	<ul style="list-style-type: none"> • Ultrasound assessment of fetal growth and amniotic fluid volume, plus umbilical artery Doppler studies if those are abnormal <p>If thrombocytopenia (<150x109/l) or dropping hemoglobin, testing for DIC and hemolysis is indicated.</p>
Intervention	
Pregnancy	<p>Mild Hypertension:</p> <ul style="list-style-type: none"> • Measure blood pressure 1/week • Test urinary protein: creatinine level each visit. <p>Moderate Hypertension</p> <ul style="list-style-type: none"> • Measure blood pressure twice a week • Oral labetalol as first line treatment to keep diastolic BP between 80-100 and systolic less than 150 • Test urine protein: creatinine level each visit • Test kidney function, electrolytes, full blood count, transaminases, and bilirubin. <p>Severe Hypertension:</p> <ul style="list-style-type: none"> • Admit to hospital until BP is 159/109 or lower • Oral Labetalol as first line treatment to keep diastolic between 80-100 and systolic less than 150. • Measure BP QID • Daily urine protein/creatinine ratio • Weekly kidney function, electrolytes, full blood count, transaminases, bilirubin • ASA for prevention of pre-eclampsia. <p>Uncomplicated chronic hypertension</p> <ul style="list-style-type: none"> • aim to keep blood pressure lower than 150/100 mmHg: • Do not attempt to lower diastolic blood pressure below 80 mmHg. <p>Secondary chronic hypertension with target organ damage (e.g., Kidney disease):</p> <ul style="list-style-type: none"> • Aim to keep blood pressure lower than 140/90 mmHg. • Referral to a specialist in hypertensive disorders. • Offer treatment dependent on pre-existing treatment, side-effect profiles and teratogenicity. <p>Diet -Encourage women with chronic hypertension to keep their dietary sodium intake low</p>

	<div data-bbox="488 338 1370 579" style="border: 1px solid black; padding: 5px;"> <p>NOTE: Right upper quadrant (RUQ) pain, headache, hyperreflexia and visual disturbances are potentially ominous symptoms requiring immediate assessment. Headache, visual disturbances, and vomiting had significant sensitivity in predicting eclampsia, while epigastric pain was significantly sensitive for predicting HELLP syndrome.</p> </div> <p>Birth Plan: Do not offer birth before 37 weeks to women with chronic hypertension whose blood pressure is lower than 160/110 mmHg, with or without antihypertensive treatment. Timing of birth and maternal and fetal indications for birth should be agreed between the woman and the senior obstetrician.</p> <p>Provide an integrated package of care covering admission to hospital, treatment, measurement of blood pressure, testing for proteinuria and blood tests as indicated in the <u>table: management of pregnancy with gestational hypertension</u>.</p> <p>Only offer women with gestational hypertension antihypertensive treatment other than labetalol after considering side-effect profiles for the woman, fetus and newborn baby. Alternatives include methyldopa and nifedipine.</p>
<p>Postpartum</p>	<p>Encourage Breastfeeding. Breastfeeding is associated with decreased risk for hypertension and cardiovascular disease. This may be particularly important for women who suffer preeclampsia and gestational hypertension. When mothers do not breastfeed or breastfeeding is curtailed their risks for metabolic syndrome increase.</p> <p>Gestational hypertension and preeclampsia may initially present or worsen following delivery. The peak time for the appearance of hypertension postpartum is on days 3-6 when the mobilization of the extracellular fluid accumulated during pregnancy occurs.</p> <p>The timing of seizure occurrence is distributed as follows:</p> <ul style="list-style-type: none"> •50% first appear before labor •25% first occur during labor •25% begin in the early postpartum period •Rarely, a woman will have a seizure 2 days or more after delivery <p>Women requiring seizure prophylaxis (preeclampsia) should be treated with magnesium sulfate during labor and for the first 24 hours postpartum.</p>

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	All women at risk for hypertensive disorders of pregnancy must be monitored carefully in the postpartum period with ongoing attention to blood pressure, renal function, seizure risk, and any end-organ dysfunction. Laboratory investigations should be directed toward the particular end-organ that has been affected. ³
Resources	
For Providers	MORE ^{OB} - Hypertensive Disorders in Pregnancy https://www.moreob.com/2-english/9-login
For Patients	Healthy Parents, Healthy Children https://www.healthyparentshealthychildren.ca/im-pregnant/second-trimester/pregnancy-concerns-3#high-blood-pressure

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Management of pregnancy with gestational hypertension (NICE)

Degree of hypertension	Mild hypertension (140/90 to 149/99 mmHg)	Moderate hypertension (150/100 to 159/109 mmHg)	Severe hypertension (160/110 mmHg or higher)
Admit to hospital	No	No	Yes (until blood pressure is 159/109 mmHg or lower)
Treat	No	With oral labetalol [†] as first-line treatment to keep: <ul style="list-style-type: none"> • diastolic blood pressure between 80–100 mmHg • systolic blood pressure less than 150 mmHg 	With oral labetalol [†] as first-line treatment to keep: <ul style="list-style-type: none"> • diastolic blood pressure between 80–100 mmHg • systolic blood pressure less than 150 mmHg
Measure blood pressure	Not more than once a week.	At least twice a week.	At least four times a day.
Test for proteinuria	At each visit using automated reagent-strip reading device or urinary protein: creatinine ratio.	At each visit using automated reagent-strip reading device or urinary protein: creatinine ratio.	Daily using automated reagent-strip reading device or urinary protein: creatinine ratio.
Blood tests	Only those for routine antenatal care.	Test kidney function, electrolytes, full blood count, transaminases, and bilirubin.	Test at presentation and then monitor weekly: kidney function, electrolytes, full blood count, transaminases, and bilirubin.

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Preeclampsia

<p>Preeclampsia is a multi-system disorder unique to human pregnancy characterized by hypertension and involvement of one or more other organ systems and/or the fetus. Raised blood pressure is commonly but not always the first manifestation. Proteinuria is the most commonly recognized additional feature after hypertension but should not be considered mandatory to make the clinical diagnosis.</p>	
<p>Perinatal Risks</p>	<p>Maternal morbidity and mortality; Placental abruption; Stillbirth; Preterm birth; Intrauterine growth restriction; Neonatal morbidity; Neonatal mortality.</p>
<p>Identification</p>	
<p>Patient Risk Factors</p>	<ul style="list-style-type: none"> • Hypertension • Proteinuria • Symptoms: severe headache, problems with vision, such as blurring or flashing before the eyes, severe pain just below the ribs, vomiting, and sudden swelling of the face, hands or feet
<p>Screening & Diagnosis</p>	<p>A diagnosis of preeclampsia can be made when hypertension arises after 20 weeks gestation and is accompanied by one or more of the following:</p> <ul style="list-style-type: none"> • Renal involvement: <ul style="list-style-type: none"> ○ A urinary protein to creatinine ratio (UPCR) at a level ≥ 30 mg/mmol urinary creatinine in a spot (random) urine sample is suggestive of proteinuria. A UPCR level of < 30 mg/mmol rules out proteinuria. ○ Urine protein excretion of > 300 mg/day (0.3g/day) on a 24-hour urine collection is the gold standard for a diagnosis of proteinuria but if miss-collected can lead to delays in assessment and treatment. ○ Proteinuria of $\geq 2+$ on dipstick is highly suggestive of proteinuria in excess of 300 mg/24 hours and reliably establishes presence of proteinuria. ○ Proteinuria of 1+ on dipstick should be confirmed by a 24 hour urine collection because of significant false positive and false negative results. ○ Serum or plasma creatinine > 90 $\mu\text{mol/L}$. ○ Oliguria. • Hematological involvement <ul style="list-style-type: none"> ○ Thrombocytopenia ○ Hemolysis ○ Disseminated intravascular coagulation ○ Liver involvement ○ Raised serum transaminases ○ Severe epigastric or right upper quadrant pain. • Neurological involvement <ul style="list-style-type: none"> ○ Convulsions (eclampsia) ○ Hyperreflexia with sustained clonus

	<ul style="list-style-type: none"> ○ Severe headache ○ Persistent visual disturbances (photopia, scotomata, cortical blindness, retinal vasospasm) ○ Stroke <ul style="list-style-type: none"> • Pulmonary edema • Fetal growth restriction • Placental abruption
Intervention	
Pregnancy	<p>Pregnant women should be made aware of the need to seek immediate advice from a healthcare professional if they experience symptoms of pre-eclampsia.</p> <p>NOTE: Right upper quadrant (RUQ) pain, headache, and visual disturbances are potentially ominous symptoms requiring immediate assessment. Headache, visual disturbances, and vomiting had significant sensitivity in predicting eclampsia, while epigastric pain was significantly sensitive for predicting HELLP syndrome.</p>
Postpartum	<p>Gestational hypertension and preeclampsia may present initially or worsen following delivery. The peak time for the appearance of hypertension postpartum is on days 3-6 when the mobilization of the extracellular fluid accumulated during pregnancy occurs.</p> <p>The timing of seizure occurrence is distributed as follows:</p> <ul style="list-style-type: none"> • 50% first appear before labor • 25% first occur during labor • 25% begin in the early postpartum period • Rarely, a woman will have a seizure 2 days or more after delivery <p>Women requiring seizure prophylaxis (preeclampsia) should be treated with magnesium sulfate during labor and for the first 24 hours postpartum.</p> <p>All women at risk for hypertensive disorders of pregnancy must be monitored carefully in the postpartum period with ongoing attention to blood pressure, renal function, seizure risk, and any end-organ dysfunction. Laboratory investigations should be directed toward the particular end-organ that has been affected. ³</p>
Resources	
For Providers	MORE ^{OB} Hypertensive Disorders in Pregnancy: https://www.moreob.com/
For Patients	MyHealth Alberta: https://myhealth.alberta.ca/health/pages/conditions.aspx?Hwid=hw2834

	Healthy Parents, Healthy Children: https://www.healthyparentshealthychildren.ca/im-pregnant/second-trimester/pregnancy-concerns-3/ https://www.healthyparentshealthychildren.ca/im-pregnant/third-trimester/pregnancy-concerns-2/#high-blood-pressure
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Note re: Urine Protein testing

Although removal of this test is suggested within the Choosing Wisely recommendations, proper prospective trials to determine if indeed there is an impact have not been completed at this time. Urine protein is an excellent surrogate marker and red flag for preeclampsia. The Alberta Perinatal Quality Assurance committee has identified a number cases of missed diagnosis of preeclampsia over the years: BP recorded as normal or high on last office prenatal visit, urine protein not done, no action taken, with resulting fetal demise. The diagnosis of obvious preeclampsia is made on arrival to hospital, but too late to save the baby. Hospital local audits list death as “unexplained” or “not preventable”, so there is lack of insight into the miss. If the 2-3 + protein had been identified on the PNR for doctor to see, diagnosis becomes obvious and management initiated. This is an advantage of provincial auditing of adverse perinatal events - you see the true picture, and also the patterns of preventable misses and tragedies.

Michael Bow-Co-Chair of Alberta Perinatal Quality Assurance Committee (2017)

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Multiple Gestation

Multiple gestation refers to a pregnancy with more than one fetus (twins, triplets, or more).	
Perinatal Risks	<ol style="list-style-type: none"> Perinatal mortality: Monoamniotic twins (50-60%), diamniotic Monochorionic twins (4.4%) and Dichorionic twins (1.2%) Antenatal complications: Anemia, pre-eclampsia (10- 20%), gestational diabetes, prematurity (40-50%) discordant growth and Intrauterine growth restriction (IUGR) (15-25%), twin-to-twin transfusion syndrome (5-10%), congenital anomalies- higher than singleton pregnancies matched for maternal age. death of one fetus (2-5%), brain damage in surviving twin after death of one MC/DA twin (25%). cerebral palsy - increased risk, PROM Complications related to birth: cord accidents, Malpresentation, uterine atony, abruption, significant decrease in second twin's pH with birth interval of greater than 30 minutes, cesarean section. Postpartum complications: hemorrhage, postpartum depression, postnatal illness. Newborn risks: SIDS, IUGR, congenital anomalies, NICU admission. Increased "side effects of pregnancy"- heartburn, backache, nausea.
Identification	
Patient Risk Factors	<ul style="list-style-type: none"> Assisted conception, Family history, Maternal age and parity, Heredity, race, Nutrition, Elevated pituitary gonadotrophins.
Screening & Diagnosis	<p>Assessment</p> <ul style="list-style-type: none"> Symphysis fundal height (SFH) is consistently larger than expected. In the late second trimester the SFH in a twin pregnancy exceeds the gestational age by an average of five centimeters. The auscultation of a second fetal heart tone at any gestational age should also prompt the clinician to consider the diagnosis of twins Ultrasound <ul style="list-style-type: none"> First trimester ultrasound should diagnose multiples Monochorionic twins should have ultrasounds booked q2 weeks from diagnosis to delivery due to the risk of twin to twin transfusion syndrome which can start as early as 18 weeks. Some of these ultrasounds can be arranged prior to the patient being seen by the specialist.
Intervention	
Pregnancy	<ul style="list-style-type: none"> An early diagnosis of a twin pregnancy is important in establishing chorionicity (i.e., determining whether there is one versus two chorionic

	<p>membranes), establishing accurate dating, allowing for psychological preparation, and arrangement of postnatal support (e.g., financial, social).</p> <ul style="list-style-type: none"> • Patients with multiple gestation require increased monitoring and contact with healthcare professionals during their pregnancy compared to women with singleton pregnancies. Increase frequency of prenatal visits. • Request nutrition consult with a Registered Dietitian as indicated as nutritional needs for multiple gestation varies. See Nutrition with Twins, Triplets and more. • Refer to OB/Gyn • Planned delivery site to include consideration of gestational age, access to cesarean section and OB/NICU support. • Consideration of early epidural to facilitate possible extraction of Twin B, C etc.
Postpartum	<ul style="list-style-type: none"> • Increased risk for postpartum hemorrhage. • Whenever possible the woman and her babies should be kept together in the early and ongoing postpartum period. Breastfeeding twins can be challenging. Early initiation and assistance by someone with additional training in breastfeeding may benefit both mother and babies.
Resources	
For Providers	<p>MORE^{OB} Twins Chapter (2017) https://www.moreob.com/</p>
For Patients	<p>MyHealth Alberta: https://myhealth.alberta.ca/health/pages/conditions.aspx?Hwid=hw236272 Healthy Parents, Healthy Children: https://www.healthyparentshealthychildren.ca/im-pregnant/overview-of-pregnancy/growing-together-5/#twins-triplets-and-more Nutrition with twins triplets or more: https://www.albertahealthservices.ca/assets/info/nutrition/if-nfs-nutrition-pregnant-w-twins-triplets-or-more.pdf</p>

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VBAC – Trial of Labour after Cesarean Section (TOLAC)

<p>The SOGC recommends that a TOLAC be offered to women with one previous transverse low-segment C/S following appropriate discussion of maternal and perinatal risks and benefits. Women with more than one previous CS delivery may be evaluated on a case by case basis as candidates for TOLAC. Benefits of TOLAC resulting in vaginal birth include: shorter hospitalization, shorter recovery time for the woman, decrease in the incidence of postpartum fever and blood transfusion, improved maternal satisfaction, reduced healthcare costs</p>	
Perinatal Risks	<p>Uterine Rupture; Chorioamnionitis; Postpartum hemorrhage; Blood transfusion; Hysterectomy; Fetal complications.</p> <p>Factors that may increase the risk of uterine rupture include: Single layer closure of the previous uterine incision, Macrosomic fetus, Short interval from previous Cesarean section (< 18 months), More than two previous Cesarean sections, Previous Cesarean for Dystocia in the Second Stage of labor, Locked Single-layer closure of the previous uterine incision.</p>
Identification	
Minimization of Risk	<p>Success of TOLAC is increased in situations where:</p> <ul style="list-style-type: none"> • mother has previously given birth vaginally, either before or after their Cesarean birth; • the reason for previous Cesarean birth isn't a factor this time; • the mother is younger than 40 years old; • labor begins on its own and progresses normally. <p>Failure of TOLAC is increased in situations where:</p> <ul style="list-style-type: none"> • mother had more than one previous Cesarean birth; • pregnancy extends beyond expected due date; • labor doesn't start on its own and needs to be induced; • mother is significantly overweight; • baby is estimated to weigh more than 4000 grams. <p>Prerequisites for a trial of labor after previous Cesarean birth</p> <ul style="list-style-type: none"> • Cephalic Presentation • Previous operative report (if available; to confirm transverse uterine incision in previous delivery), • If operative report not available: TOLAC is acceptable if clinical circumstances surrounding prior Cesarean section suggest uncomplicated lower segment incision, • No contraindications to vaginal birth, • Birthing facility offers 24 hour Cesarean section availability. <p>Contraindications to a TOLAC :</p> <ul style="list-style-type: none"> • Any contraindications to labor,

	<ul style="list-style-type: none"> • Previous or suspected Classical Cesarean section (vertical uterine incision) or inverted T uterine incision, • Previous uterine rupture, • Previous major uterine reconstruction (e.g., full thickness repair for Myomectomy , repair of Müllerian anomaly , Corneal resection), • Inability of the facility to perform a Cesarean section, • Woman requests an elective Cesarean section rather than a TOLAC.
Intervention	
Pregnancy	<p>Provide Patient counseling</p> <ul style="list-style-type: none"> • Discuss the risks and benefits of both a TOLAC and Elective repeat Cesarean section (ERCS), including possible effects on future pregnancies, • If considering induction of labor, carefully review the risks associated with each of the available induction options and consider referral to OB/Gyn, • Offer written information (e.g. published guidelines from professional organizations, decision aids), • Encourage the woman and her partner to participate in decision-making, • Respect the woman’s autonomy, • Document the counseling and informed choice process including the woman’s decision and a plan of care. <p>Birth Place Plan</p> <ul style="list-style-type: none"> • Plan for birth/delivery in a facility that provides Cesarean section support.
Resources	
For Providers	MORE ^{OB} Chapter - Trial of Labor after Cesarean Section (Sept 2017) https://www.moreob.com/
For Patients	Women need to understand the evidence in order to make informed decisions about planning a TOLAC versus a planned repeat Cesarean. MyHealth Alberta: What is a VBAC? https://myhealth.alberta.ca/health/pages/conditions.aspx?Hwid=hw200557 Should I try a vaginal birth after a previous Cesarean section? https://myhealth.alberta.ca/health/pages/conditions.aspx?Hwid=aa37799

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Risk of preterm birth

Preterm birth is any birth of less than 37 weeks gestation.	
Perinatal Risks	Intraventricular hemorrhage; Necrotizing enterocolitis; Temperature instability; Hypoglycemia; Bronchopulmonary Dysplasia; Developmental disorders (e.g., cerebral palsy) and delays; Neonatal death
Identification	
Patient Risk Factors	<ul style="list-style-type: none"> • Reproductive history: Previous preterm birth, • Assisted reproductive technologies (ART), • Preterm pre-labor rupture of membranes (PPROM) in current pregnancy, • Antepartum bleeding, • Cervical/uterine factors: Cervical insufficiency (incompetence) /Uterine malformation and fibroids ,excisional cervical treatment for cervical intraepithelial neoplasia, • Fetal/intrauterine factors: Fetal anomaly, • Multiple pregnancy, • Polyhydramnios (uterine over distension), • Infection: Chorioaminionitis, Bacteriuria, Periodontal disease, Current bacterial vaginosis with a prior preterm birth, Malaria (particularly common in developing countries), • Demographic factors: Low socioeconomic status, Single women, Low level of education, Maternal age < 18 and > 35 years, • Lifestyle issues: Illicit drugs, Smoking (>10 cigarettes/day), Physical abuse, • Inadequate prenatal care, • Low pre-pregnancy weight (< 55 kilograms), Poor weight gain in pregnancy, • Anxiety/Depression • Obesity.
Screening & Diagnosis	<p>Signs and symptoms associated with preterm birth include:</p> <ul style="list-style-type: none"> • increased temperature; • contractions present on palpation; • uterine tenderness; • vaginal fluid pooling; • cervix greater than three (3) centimeters dilated; • Increased serum white blood cell count. <p>The diagnosis of pre-term labor is made with the following:</p> <ul style="list-style-type: none"> • Regular painful uterine contraction lasting 50-60 seconds, occurring q two to four (2 to 4) minutes; • show or fluid; progressive effacement of cervix; and/or • Progressive dilation of cervix (one [1] cm/hour).

	<p>If uncertain of diagnosis of labor:</p> <ul style="list-style-type: none"> • provide analgesia and re-evaluate cervical effacement in one hour; • if no clinical change in one hour continue to monitor for an additional six (6) hours; and/or • If still no change, discharge with follow-up in 24 hours.
Intervention	
Pregnancy	<ul style="list-style-type: none"> • Monitor more frequently than women with average risk • Recommend smoking cessation • Screen for bacterial vaginosis • Consider referral to OB/Gyn for medical/surgical management <ul style="list-style-type: none"> • Cervical length assessment • Vaginal progesterone <p>Refer to the following decision trees:</p> <ol style="list-style-type: none"> 1. <u>PROM but NOT in Labour</u> 2. <u>Shortened Cervix but NOT in Labour</u> 3. <u>Preterm Labour</u>
Postpartum	<p>Community follow-up Lactation support Baby may require referral to and management by pediatrician and specialized team to support optimal child development.</p>
Resources	
For Providers	<p>Refer to Risk of Preterm Birth Clinical Practice guideline (located on the AHS Policy and Procedure web page)</p> <p>MORE^{OB} Preterm Labor and Birth Chapter (Sept 2017) https://www.moreob.com/</p> <p>Contemporary topics in Early Antenatal Care (2019) https://maternitylearning.cfpc.ca</p>
For Patients	<p>Healthy Parents, Healthy Children: https://www.healthyparentshealthychildren.ca/im-pregnant/third-trimester/pregnancy-concerns-2#preterm-labour</p> <p>MyHealth Alberta: Preterm Labor https://myhealth.alberta.ca/health/pages/conditions.aspx?Hwid=hw222237 Premature Infant https://myhealth.alberta.ca/health/pages/conditions.aspx?hwid=tn5684&#tn5687</p>

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Risk of Postpartum Hemorrhage (PPH)

Post-Partum Hemorrhage (PPH) is the leading cause of maternal death world-wide, with an estimated mortality rate of 140,000 per year. The majority of these deaths occur within 4 hours after delivery, an indication they are a consequence of the third stage of labour. In Canada, PPH increased by 22% from 5.1% in 2003 to 6.2% in 2010.

The traditional definition of primary PPH is the loss of 500 ml or more of blood from the genital tract for a vaginal birth and greater than 1000 mls for a Cesarean section. Any blood loss that has the potential to produce hemodynamic instability should be considered a postpartum hemorrhage.

Perinatal Risks	Maternal mortality; Blood transfusion; Hysterectomy
Identification	
Patient Risk Factors	<p>Low Risk: No previous uterine incision, singleton pregnancy, parity < 4, no known bleeding disorder, no history of PPH, precipitous delivery, incomplete placenta/retained products, operative delivery.</p> <p>Moderate Risk: Prior cesarean birth(s) or uterine surgery, multiple gestation (>4), history of previous PPH, large uterine fibroids, maternal age equal to or greater than 35 years of age, obesity, over distended uterus, polyhydramnios, gestational hypertension, preeclampsia, amnionitis, instrumental vaginal delivery, prolonged second stage of labor, infection, fever, sepsis, medications to induce and/or augment labour, assisted reproductive technology use, anesthetic, MgSO₄ in labour.</p> <p>High Risk: A history of PPH, placenta previa, low lying placenta , suspected placenta accreta or percreta, Hematocrit < 30 AND Platelets < 100,000, known coagulopathy, active bleeding on admission, severe preeclampsia.</p> <p>Women with pre-existing bleeding disorders and women taking therapeutic anticoagulants are at increased risk of PPH.</p>
Screening & Diagnosis	PPH can be minor (500–1000 ml) or major (more than 1000 ml). Major could be divided to moderate (1000–2000 ml) or severe (more than 2000 ml).
Intervention	
Pregnancy	<ul style="list-style-type: none"> • Be aware of risk factors for PPH and take these into account when counselling women about place of delivery. • Women with known risk factors for PPH should be delivered in a hospital with a blood bank on site or quick access to blood/blood products

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	<ul style="list-style-type: none">• Antenatal anemia should be investigated and treated appropriately as this may reduce the morbidity associated with PPH.
Post-Partum	<p>Pads should be weighed to more accurately estimate blood loss. The following may help in the diagnosis of mild, moderate and severe PPH:</p> <ul style="list-style-type: none">• Stage 1 (mild): >500 mL for vaginal birth >1000 mL for C/S• Stage 2 (moderate): 1000-1500 mL• Stage 3 (severe): >1500 mL
HCP Resource	CKCM Topic- Postpartum Hemorrhage

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Venous Thromboembolism

ACUTE VENOUS THROMBOEMBOLISM IN PREGNANCY

Due to hormonal influences on vascular tone and compressive effects on veins by the enlarging uterus, DVT in pregnancy generally presents in the lower extremities, with a predisposition for the left leg (70 to 80%). In contrast to their presentation in non-pregnant patients, DVTs are often isolated to the iliac and/or femoral vein during pregnancy (61%). Consequently diagnostic approaches advocated for use in non-pregnant patients require modification in pregnancy.

Perinatal Risks

- VTE is a leading cause of severe maternal morbidity and mortality.
- Pulmonary embolism accounts for approximately 15% of maternal deaths in developed countries worldwide according to the World Health Organization.
- During the antepartum period, risk is highest in the first and third trimesters.
- The clear majority of postpartum VTE occurs during the first six weeks after delivery.

Identification

Patient Risk Factors

Patients with any one of the following risk factors

- Previous history of VTE,
- Thrombophilia: antiphospholipid syndrome, antithrombin, deficiency, factor V Leiden (homozygous) or prothrombin gene mutation or combined thrombophilia,
- Patients who are on bed rest > 7d before delivery,
- Peripartum or postpartum infection,
- Peripartum or postpartum blood loss and surgery.

Patients who have any two of the following risk factors are at risk for development of VTE:

- BMI > 30 at first antepartum visit,
- Smoking > 10 cig/day,
- Pre-eclampsia,
- IUGR,
- Placenta previa,
- Emergency Cesarean section,
- PPH Peripartum or postpartum > 1L,
- Low risk thrombophilia: PC or PS deficiency, factor V Leiden heterozygous, or prothrombin gene mutation,
- Maternal cardiac disease, SLE, sickle cell disease, inflammatory bowel disease,
- Gestational diabetes,
- Varicose veins,
- Preterm delivery,

	<ul style="list-style-type: none"> • Stillbirth. <p>Patients with any three of the following risk factors are at risk for VTE development:</p> <ul style="list-style-type: none"> • Age >35, • Parity >2, • Assisted reproduction, • Multiple pregnancy, • Placental abruption, • PROM, • Maternal cancer, • Planned elective Cesarean section.
<p>Screening & Diagnosis</p>	<p>Standardized VTE risk assessment should occur throughout pregnancy and minimally at these four points</p> <ul style="list-style-type: none"> • Frist antenatal visit • At any antepartum hospitalization • At Delivery / hospitalization • Post Discharge.
<p>Intervention</p>	
<p>Pregnancy</p>	<ul style="list-style-type: none"> • Objective testing is required following clinical suspicion of deep vein thrombosis or pulmonary embolism. (II-2A) • For the diagnosis of deep vein thrombosis, ultrasonography is recommended, and should be repeated at least once over 7 days if the initial study is negative. For each examination, the entire length of the venous system from the external iliac to the popliteal vein must be visualized and compression maneuvers performed from the femoral to the popliteal vein. (II-2B) • For the diagnosis of pulmonary embolism, either ventilation-perfusion scan or computed tomographic angiography can be used. (II-2A) In pregnant women, a ventilation-perfusion scan is the preferred test. (III-B) • Neither D-dimer alone nor clinical prediction rules should be used to rule out venous thromboembolism in pregnant women without objective testing. (III-D) • Pregnant women diagnosed with acute venous thromboembolism should be hospitalized or followed closely as outpatients for the first 2 weeks after the initial diagnosis. (III-C) • Low molecular weight heparin is the preferred pharmacologic agent over unfractionated heparin for the treatment of venous thromboembolism in pregnancy. (II-2A) • Heparin-induced thrombocytopenia in pregnant women is extremely rare. Consultation with a hematologist or thrombosis specialist is recommended to consider the use of heparinoids for treatment of venous thromboembolism if it occurs. (II-3B)

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Postpartum	AHS Clinical Knowledge Topic and order sets- Deep Vein Thrombosis https://extranet.ahsnet.ca/teams/policydocuments/1/klink/et-klink-ckv-deep-vein-thrombosis-adult.pdf
Resources	
For Providers For Patients	MORE ^{OB} VTE and Pulmonary Embolism https://www.moreob.com/ http://www.jogc.com/article/S1701-2163(15)30569-7/pdf
	Healthy Parents, Healthy Children https://www.healthyparentshealthychildren.ca/im-pregnant/postpartum/caring-for-yourself

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Demographics

Young Maternal Age

Patient's age at delivery is 18 years of age or younger.	
Perinatal Risks	Low birth weight; Preterm birth; Neonatal mortality
Patient Risk Factors	Lack of prenatal care; Poor nutritional status and impact on fetal development, lack of social support, psychosocial risk factors such as adverse childhood experiences, sexual risk behaviors, smoking, alcohol consumption, and mental health problems such as depression.
Intervention	
Pregnancy	<ul style="list-style-type: none"> • Offer age-appropriate services. • Be aware that the young woman may be dealing with other social problems. • Offer information about help with transportation to and from appointments. • Provide opportunities for the partner/father of the baby to be involved in the young woman's antenatal care, with her agreement. • Testing for sexually transmitted infections (STI) (II-2A) and bacterial vaginosis (III-B) should be performed routinely upon presentation for pregnancy care and again in the third trimester. • Because pregnant adolescents are inherently at increased risk for preterm labour, preterm birth, and preterm pre-labour rupture of membranes- screening and management of bacterial vaginosis is recommended. (III-B). • After treatment for a positive test of bacterial vaginosis, a test of cure is needed 3 to 4 weeks after completion of treatment for a sexually transmitted infection. Refer partner for screening and treatment. • Take the opportunity to discuss condom use. (III-A) • U/S in 3rd trimester is recommended because of the risk of IUGR and low birth weight. • Consider dietitian referral for all teenage pregnancies. • Birth control should be discussed in pregnancy and postpartum. <p>If the patient is 15 years or less or it has been less than 3 years since start of menses, nutritional consult with a registered dietitian is recommended.</p> <p>Consider need for referral to social work or community supports.</p>

Postpartum	<ul style="list-style-type: none"> • STI testing should also be performed postpartum and when needed symptomatically. • Discuss parenting support options. • Discuss birth control options.
Resources	
For Providers	<p>AHS Sexual Health website- list of sexual health clinics for teens https://www.albertahealthservices.ca/services/page13737.aspx</p>
For Patients	<p>The Alex Youth Health Centre (Calgary) https://www.thealex.ca/prenatal-program/</p> <p>Helpful sites on birth control, sexuality and pregnancy https://www.centreforsexuality.ca/ https://www.sexualhealthandrights.ca/</p> <p>Alberta Society for the Promotion of Sexual Health https://www.aspsh.ca/ An SOGC initiative: https://www.sexandu.ca/</p> <p>Healthy Parents Healthy Children for all topics: https://www.healthyparentshealthychildren.ca/</p> <p>Alberta Canada Prenatal Nutrition Program: https://www.capccpnpalberta.com/</p>

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Advanced Maternal Age

<p>Maternal age is the most important determinant of fertility, and obstetric and perinatal risks increase with maternal age. Many women are unaware of the success rates or limitations of Assisted reproductive technology and of the increased medical risks of delayed child-bearing, including multiple births, preterm delivery, stillbirth, and Caesarean section. Complications appear to be related to the aging process alone, while others are related to coexisting factors such as multiple gestation, higher parity, and underlying chronic medical conditions (hypertension, diabetes mellitus and other chronic diseases) that become more prevalent with age. 11% of first births occur in women aged ≥ 35 years (SOGC)</p>	
Perinatal Risks	<p>Spontaneous abortion; Ectopic pregnancy; Placental abnormalities; Hypertensive disorders of pregnancy; Gestational diabetes; Stillbirth; Neonatal mortality; Cesarean section; Labour induction; Preterm birth; Low birth weight</p> <p>Women over 40 years: Severe maternal morbidity (e.g., renal failure, shock)</p>
Intervention	
Pregnancy	<ul style="list-style-type: none"> • Care providers need to be aware of above risks and complications and adjust obstetrical management protocols to ensure optimal maternal and perinatal outcomes. • Women ≥ 35 years of age should be offered screening for fetal aneuploidy and undergo a detailed second trimester ultrasound examination to look for significant fetal birth defects (particularly cardiac defects). • Strive for early identification and management of risk factors. • Monitor more closely than average risk obstetrical patients. • Discuss obstetrical and perinatal risks of advanced maternal age with patient informed decisions about the timing and place of birth can be made.
Postpartum	Consider need for Lactation support
Resources for patients	<p>Breastfeeding Your Baby in HPHC: https://www.healthyparentshealthychildren.ca/im-a-parent/feeding-your-baby/breastfeeding-basics</p>

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Recent Immigrant

Recent Immigration is defined by the person who has immigrated to Canada within the past 5 years. Canada's growing population and its commitment to multiculturalism would mean that health care providers need to be better equipped and be able to provide tailored services unique to each population.	
Perinatal Risks	Cesarean section, Postpartum depression, Gestational Diabetes, Anemia Preterm birth; Low birth weight infant, Perinatal and infant mortality, Genetic anomalies.
Identification	
Patient Risk Factors	The new immigrant to Canada is often faced with the following barriers to accessing or navigating obstetrical care: communication difficulties, lack of information, lack of social support (isolation), access, beliefs about health care, and cost of medicine/services. <ul style="list-style-type: none"> • Lack of prenatal care • Lack of prenatal education • Self-perception • Cultural differences, beliefs and practices • Socio-economic status – financial, housing, food insecurity • Social isolation • Anxiety/depression • late presentation for prenatal care • language barriers (consider offering patients information about language classes, refer to new immigrant societies)
Screening & Diagnosis	As per above risk factors and risks Hepatitis C screening for at risk populations.
Intervention	
Pregnancy	<ul style="list-style-type: none"> ▪ Collect accurate information about current address and contact details by working with local agencies that provide housing and other services for recent migrants, asylum seekers and refugees, such as asylum centres. • Clarify type of immigration and if patient has Alberta Health Care <ul style="list-style-type: none"> ○ Economic or Family Class immigrant - ABHC ○ Conventional Refugees (government sponsored or privately sponsored) - ABHC and IFH ○ **IFH - interim federal health provides basic coverage for healthcare and prescription medications ○ Refugee Claimant - no ABHC but they have IFH and should not be refused services, very vulnerable as they do not know whether they will be staying in Canada.

	<ul style="list-style-type: none"> • Discuss birthing attendance particularly if you may not be the clinician who will be available at the time of birth or if a consult to a specialist may be required. • Communicate opportunity for spouse to be present during birth if desired. • Consider cultural or religious concerns related to birthing process or preference for attendants at birth and communicate same to birthing facility. • Allow sufficient time for interpretation, engage commissioners. • Offer flexibility in the number and length of antenatal appointments when interpreting services are used. • Social isolation is a key issue faced by immigrant patients, and assistance connecting with appropriate perinatal community supports may be beneficial. • Where opportunity exists refer to peer-support services, group prenatal care models of care, and public health home visiting programs. Call 811 or if in Calgary, Edmonton, Red Deer call 211 • Consider needs for nutritional, housing and other security needs and refer to community specific resources. • Female genital cutting (FGC) is illegal in Canada but is practiced elsewhere in the world. Women with FGC can still have uncomplicated vaginal births and this should be discussed with the prenatal provider.
Postpartum	Community follow-up
Resources	
For Providers For Patients	<p>Refer to Canadian Collaboration for Immigrant and Refugee Health guidelines published in CMAJ and the Alberta Health Services guide for health professionals for detailed discussions about pregnancy in immigrant patients.</p> <p>Government of Canada- Health care- refugees: https://www.canada.ca/en/immigration-refugees-citizenship/services/refugees/help-within-canada/health-care/professionals.html</p>

	<p>Primary Care Network- Refugee Health Services: http://mosaicpcn.ca/services/Pages/Refugee-Health-Services.aspx</p> <p>An ENRICH video on experiences of migrant women pregnancy: https://enrich.ualberta.ca/2018/02/06/learn-more-about-the-experiences-of-migrant-women-settling-in-to-canada/</p> <p>Multi-cultural health brokers: http://mchb.org/</p> <p>Collective Action and Effective Partnerships for Healthy Babies, Children and their Families: https://www.capccnpalberta.com/</p> <p>Healthy Parents, Healthy Children https://www.healthyparentshealthychildren.ca/</p>
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Indigenous Pregnancy

<p>There is a significant gap in healthy birth outcomes between Indigenous and Non-Indigenous populations. The perinatal mortality rate in Alberta’s First Nations populations compared to the non-Indigenous population in 2017 was 8.4 vs. 5.5 per1000 births (AHS analytics). Early prenatal care which involves education, access to culturally safe care close to home, identification of risk factors and strategies to mitigate risk is one intervention that has been shown to influence neonatal outcomes and is the national standard of care set by the Society of Obstetricians and Gynecologists of Canada. In 2013, 72% of Indigenous women in Alberta did not access prenatal care in the first trimester. This is of critical importance and can contribute to high risk pregnancy, and impact mother and newborn throughout the lifespan. (Statistics Canada)</p>	
<p>Perinatal Risks</p>	<ul style="list-style-type: none"> • Maternal: Gestational diabetes, hypertensive disorders of pregnancy, Group A Strep, postpartum hemorrhage, operative delivery, low breastfeeding success, mortality, anxiety, depression, suicide. • Neonatal: Preterm birth, mortality, stillbirth, miscarriage, neonatal abstinence syndrome, fetal alcohol spectrum disorder.

Identification	
Patient Risk Factors	<ul style="list-style-type: none"> • Socio-Economic status: access to social determinants of health- acquisition of healthy food, water, shelter, safety, financial concerns, history of abuse, partner violence. • Lifestyle factors: BM>25, weight gain during pregnancy, physical activity, substance use, STIs. • Psychosocial factors: Mental Health- depression, anxiety. • Late Access to Health Care attributed to: services not readily available in the woman's home community, lack of transportation, child care accessibility, rigidity of appointment times and limited physician availability, fear of culturally insensitive health care by health care clinicians, socio economic barriers, fear and mistrust of the health care system, fear of being judged, language and literacy issues, unsafe living conditions, addictions and mental health issues, difficulty navigating the system.
Screening & Diagnosis	<ul style="list-style-type: none"> • Careful history taking for purpose of dating. Facilitate dating ultrasound ASAP. • Chronic disease, Diabetes, Hypertensive disorders, Anxiety, Depression
Intervention	
Pregnancy	<ul style="list-style-type: none"> • Begin prenatal care ASAP following positive pregnancy test to identify women with added risks and establish proactive plan for specialty consultation as needed, management of risks and birth. • Provide flexibility in scheduling of appointments- consider opportunity for virtual appointments if travel difficult • Provide a prescription for prenatal vitamins at first prenatal visit so that is a covered benefit that supports women obtaining and initiating early vitamin use- or alternately have prenatal vitamins on hand and provide at initial visit. • Provide education on safe behaviours, risk of exposure to toxic substances on the baby's development, identification and management of hyperemesis, significance of bleeding in first trimester. • Screen for chronic diseases – particularly diabetes and initiate referral/consultative and management strategies

	<ul style="list-style-type: none"> • Discuss risks of unplanned birth spacing on mother and baby and plan related to future births and contraception options • Emphasize importance of daily walking and good food choices. • Encourage connections with Elders and Knowledge keepers within First Nations Communities to support positive journey from pregnancy to parenthood. • If important to patient- welcome and support pertinent family members/cultural mentors, doulas etc. to participate in appointments and information sharing. • Provide a strengths based approach to care. • If able, provide support with 24/7 texting help
Postpartum	<ul style="list-style-type: none"> • Follow-up visit within 2 weeks of discharge from hospital • Assess for postpartum depression • Discuss plans for future births- safe spacing, contraception options • Support involvement with community cultural knowledge keepers
Resources	
<p>For Providers</p> <p>For Patients</p>	<p>Encourage patients and families to view “The Creators Gift” : https://www.youtube.com/watch?v=rkaxLGI5WBw</p> <p>Aboriginal Peoples of Alberta- Yesterday, Today and Tomorrow – Alberta Government https://open.alberta.ca/publications/9781460113080</p> <p>https://www.canada.ca/en/indigenous-services-canada/services/first-nations-inuit-health/family-health/healthy-pregnancy-babies.html;</p> <p>https://www.albertahealthservices.ca/findhealth/service.aspx?id=4838</p> <p>Non-Insured Health Benefits (NIHB) https://www.canada.ca/en/indigenous-services-canada/services/first-nations-inuit-health/non-insured-health-benefits/benefits-information.html</p> <p>Ministry of Indigenous relations https://www.alberta.ca/ministry-indigenous-relations.aspx?utm_source=redirector</p>

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Lifestyle

Healthy Weight Gain & Pre-Pregnancy Weight

According to Jarman et al. (2016) in a study of ~2200 pregnant women in Alberta, ~70% of those who start pregnancy with a BMI >25 kg/m² will gain in excess of recommendations, and approximately 50% of all women will exceed gestational weight gain (GWG) recommendations. Most women whose pre-pregnancy BMI is >30 kg/m² will exceed gestational-age specific weight gain recommendations by about 18 weeks gestation while women whose pre-pregnancy BMI is > 25 and < 30 kg/m² will exceed recommendations by ~22 weeks gestation. This indicates that discussions about appropriate GWG should be as early in pregnancy as possible and that referrals to health professionals who can support or influence appropriate lifestyle changes should begin prior to women exceeding GWG recommendations.

Excessive GWG is not the only concern. In the same study of ~2200 pregnant women in Alberta 18% gained *below* the GWG guidelines, which is also associated with increased risk of adverse pregnancy outcomes. Gaining below the GWG guidelines or weight loss during pregnancy is associated with risks independent of a woman's pre-pregnancy BMI and therefore GWG should be monitored in all pregnant women.

<p>A Pre-pregnancy BMI of >30 kg is associated with significant obstetrical risk Healthy Weight Gain- Inadequate or excessive weight gain during pregnancy increases risk of adverse outcomes for mother and baby.</p>	
<p>Perinatal Risks</p>	<p>Pre-pregnancy BMI of >30 kg: gestational diabetes; hypertensive disorders of pregnancy; Preterm birth; Stillbirth; Cesarean section; Large for gestational age; Shoulder dystocia; Congenital anomalies</p> <p>Inadequate weight gain: Neonatal mortality; Preterm birth; Small for gestational age; NICU admission.</p> <p>Excessive weight gain: Preterm birth; stillbirth; cerebral palsy; neonatal mortality; Cesarean delivery; gestational hypertension; large for gestational age.</p>
<p>Identification</p>	
<p>Patient Risk Factors</p>	<ul style="list-style-type: none"> • Pre-pregnancy BMI > 30 or < 18.5 kg/m² • Social factors • Food, housing insecurity
<p>Screening & Diagnosis</p>	<p>The <u>Healthy Weight Gain Table</u> shows the recommended amounts of total and weekly rates of gestational weight gain (GWG) for women starting with different pre-pregnancy BMI.</p>

Intervention	
Preconception	All women of child-bearing age with a BMI ≥ 25 kg/m ² should be engaged in discussions about healthy nutrition and physical activity behaviours and the impact of BMI on pregnancy outcomes as identified above.
Pregnancy	<p>See <u>Healthy Weight Gain Decision Tree</u></p> <ul style="list-style-type: none"> • Weight should be measured at each visit and compared with total GWG recommendations. Weekly rate of gain should be calculated and extrapolated to total GWG. • Discuss GWG results with women at each visit and re-establish goals. • In women who have inadequate or excessive GWG, weekly rate of gain recommendations should be adjusted and discussions about healthy nutrition and physical activity behaviours continued. • If women continue to not reach or exceed their GWG recommendations- referral to a Registered Dietician or other appropriate HCP may be necessary. • Recommendations for the implementation of GWG guidelines have been published which provide guidance to Healthcare Professionals for implementing the GWG guidelines with patients. • In summary, pre-pregnancy BMI should be recorded, GWG weight gain should be charted regularly for all pregnant women and the results should be shared with the woman. Studies have shown that when Healthcare Providers have discussions with women about GWG there is an increased likelihood of women gaining within the GWG guidelines. <p>Refer to Registered Dietitian for diet counselling and support</p> <p>Fetal anomalies less likely to be detected by routine U/S as well as a higher failure rate of prenatal genetic diagnosis.</p>
Postpartum	Discuss postpartum weight loss plans with women towards the end of pregnancy and at around 6 weeks postpartum.
Resources	
For Providers	<p>CME eLearning module: Healthy Pregnancy Weight Gain http://ecme.ucalgary.ca/programs/hpwg/</p> <p>Pregnancy Weight Gain Calculator https://www.healthyparentshealthychildren.ca/resources/tools/weight-gain-calculator</p>

	<p>Nutrition Guideline - Pregnancy: https://cumming.ucalgary.ca/cme/healthy-pregnancy-weight-gain</p> <p>AHS Healthy Pregnancy Weight Gain Resources https://www.albertahealthservices.ca/info/Page14356.aspx</p> <p>Government of Canada Prenatal nutrition: https://www.canada.ca/en/health-canada/services/food-nutrition/healthy-eating/prenatal-nutrition.html</p> <ul style="list-style-type: none"> • Nutrition Guideline: Pregnancy • Nutrition Guideline: Pregnancy: Multiples • Nutrition Guideline: Nutrition for the Breastfeeding Mother (e.g., Page 45 Lactation support) • Nutrition Guideline: Healthy Infants and Young Children: Vitamin D
For Patients	<p>Heathy Parents; Healthy Children: https://www.healthyparentshealthychildren.ca/im-pregnant/overview-of-pregnancy/growing-together/#healthy-weight-gain</p> <p>Track your weight tool: https://www.healthyparentshealthychildren.ca/resources/tools/weight-gain-calculator</p> <p>Government of Canada – Guide to healthy pregnancy https://www.canada.ca/en/public-health/services/pregnancy/guide-healthy-pregnancy.html</p>

Recommendations for Gestational Weight Gain by Pre-Pregnancy BMI

Weight Category	Pre-Pregnant BMI (kg/m ²)	Total Weight Gain for Pregnancy*	Weight Gain Rate in 2 nd and 3 rd Trimesters*
Underweight	< 18.5	28 – 40 lbs 12.5 – 18 kg	1 lb/week 0.5 kg/week
Healthy Weight	18.5 – 24.9	25 – 35 lbs 11.5 – 16 kg	1 lb/week 0.4 kg/week
Overweight	25.0 – 29.9	15 – 25 lbs 7 – 11.5 kg	0.6 lb/week 0.3 kg/week
Obese	> 30	11 – 20 lbs 5 – 9 kg	0.5 lb/week 0.2 kg/week

*Health Canada 2010 Gestational Weight Gain Guidelines adapted from Institute of Medicine guidelines

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Physical Activity

<p>Physical activity during pregnancy can take various forms, including sports, outdoor activities, fitness training, dance, or simply walking. Other kinds of physical activity such as yoga and tai chi can also provide benefits to health and well-being. Similarly, active transportation (e.g., walking or bicycling) and several types of work in and around the house can also provide the benefits associated with a physically active lifestyle. Physical fitness supports an easier labor and birth and return to pre-pregnancy weight and activities following birth.</p>	
Perinatal Risks	Insufficient/no exercise: Gestational diabetes; Hypertensive disorders of pregnancy; Prenatal depression; Instrumental delivery.
Identification	
Patient Risk Factors	<p>Approximately one woman out of four is physically active enough during her leisure time to derive the full health benefits of physical activity (see Table 1). Moreover, nearly one out of four is moderately active, providing her with substantial benefits for her health and that of her unborn child.</p> <p>Conversely, about half of all pregnant women do not achieve the recommended minimum level of physical activity.</p> <p>Refer to the SOGC guideline for contraindications and a detailed discussion about physical activity during pregnancy.</p>
Screening & Diagnosis	Low Physical Activity: On average, the patient does not accumulate the recommended 150 minutes of moderate- to vigorous-intensity aerobic physical activity per week, in bouts of 10 minutes or more.
Intervention	
Pregnancy	<p>All women without contraindication should be physically active throughout pregnancy.</p> <p>Pregnant women should accumulate at least 150 min of moderate-intensity physical activity each week to achieve clinically meaningful health benefits and reductions in pregnancy complications.</p> <p>Physical activity should be accumulated over a minimum of 3 days per week; however, being active every day is encouraged.</p> <p>Pregnant women should incorporate a variety of aerobic and resistance training activities to achieve greater benefits. Adding yoga and/or gentle stretching may also be beneficial.</p> <p>The following are contraindications to exercise: ruptured membranes, premature labour, unexplained persistent vaginal bleeding, placenta praevia after 28 weeks' gestation, pre-eclampsia, incompetent cervix, Intrauterine growth restriction, high-order multiple pregnancy (e.g.,</p>

	<p>triplets), uncontrolled type I diabetes, uncontrolled hypertension, uncontrolled thyroid disease, other serious cardiovascular, respiratory or systemic disorder.</p> <p>The following are relative contraindications to exercise: recurrent pregnancy loss, gestational hypertension, a history of spontaneous preterm birth, mild/moderate cardiovascular or respiratory disease, symptomatic anaemia, malnutrition, eating disorder, twin pregnancy after the 28th week, other significant medical conditions.</p> <p>There are potential dangers of certain activities during pregnancy, for example, contact sports, high-impact sports and vigorous racquet sports that may involve the risk of abdominal trauma, falls or excessive joint stress, and scuba diving, which may result in fetal birth defects and fetal decompression disease.</p> <p>Very strenuous effort during physical activity should be avoided during pregnancy. The purpose of physical activity during pregnancy is to maintain good physical condition throughout the pregnancy, not to perform as an athlete.</p> <p>Reasonable goals of aerobic conditioning in pregnancy should be to maintain a good fitness level throughout pregnancy without trying to reach peak fitness or train for an athletic competition.</p>
Resources	
<p>For Providers For Patients</p>	<ul style="list-style-type: none"> • Physical activities during pregnancy are encouraged. Physical activity shouldn't be a hassle! Choose activities that are satisfying and enjoyable. • Listen to your body so you know when to stop. Excessive fatigue and exertion during physical activity are not advised during pregnancy. • Pelvic floor exercises should be performed during pregnancy or after childbirth to reduce the risk of urinary incontinence. <p>Many more key messages and guidance at: Healthy Parents; Healthy Children https://www.healthyparentshealthychildren.ca/im-pregnant/overview-of-pregnancy/physical-activity/</p>

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Substance Use

Substance use refers to the use of illicit and prescribed drugs such as nicotine products, alcohol, Cannabis, opioids, cocaine, amphetamines, etc.

Pregnancy often motivates women to seek treatment for substance abuse.

Opioids are often prescribed for moderate to severe pain and include drugs such as morphine, codeine, oxycodone, fentanyl, buprenorphine, methadone and others. 90% of women who use illicit substances are within child-bearing years and 80% of patients who are dependent on opioids started with a prescribed opioid. The percent of pregnant women filling prescription opioids increased from 18.5% to 22.8% (2000 to 2007).

Cannabis: The higher levels of use of cannabis among women of younger age and lower socioeconomic status suggests that guidance and messaging should be incorporated into prenatal and primary care. Screening of pregnant women at risk for cannabis dependency should be linked to counselling options and should include the assessment of other maternal risk factors such as other substance use and physical, mental, emotional and financial stressors.

Key messages from Health Canada related to Cannabis:

- Pregnant, postpartum or lactating patient's use of cannabis can impact the reproductive system, the fetus or newborn.
- Toxins in cannabis are carried through the mother's blood to her fetus during pregnancy and in the breast milk following birth.
- Heavy cannabis use during pregnancy can lead to lower birth weight (LBW) and reduced motor development of the baby.

The relationship between prenatal cannabis use and LBW underscores the need for clinical management of cannabis use during pregnancy and lactation. Patients should be asked about cannabis use, and advised to discontinue cannabis use during pregnancy and lactation. Obstetric providers should refrain from prescribing or recommending cannabis for medical purposes during preconception, pregnancy, and lactation.

Substance use refers to the use of illicit and prescribed drugs such as nicotine products, alcohol, Cannabis, opioids, cocaine, amphetamines, etc.	
Perinatal Risks	Nicotine: Congenital anomalies; Stillbirth; Preeclampsia; Abnormal placentation; Small for gestational age; Neonatal mortality. Cocaine: Intrauterine growth restriction; Low birth weight; Abnormal placentation Alcohol: Fetal Alcohol Syndrome; Stillbirth; Intrauterine growth restriction

	<p>Cannabis: Low birth weight; Neurocognitive effects</p> <p>Opioid: Preterm Birth; Stillbirth; Neonatal mortality; Neonatal abstinence syndrome (NAS); Intrauterine growth restriction; Neurocognitive effects</p>
Identification	
Patient Risk Factors	<ul style="list-style-type: none"> • Partner who uses alcohol or drugs (*one of the greatest risk factors*) • Social environments (e.g., friends, homelessness) with drug use • Low level of education or family income • Intimate partner violence • Family history of substance abuse (particularly alcohol) • Adverse childhood experiences (ACE) or assault (particularly sexual assault) • Personal history of mental disorder (e.g., depression, anxiety disorders, personality disorders) • Personal history of drug abuse or dependence • Multiple forms of substance use: use of one substance is frequently linked to the patient using multiple substances including- nicotine products, alcohol, cannabis, illicit drugs, prescribed opioids
Screening & Diagnosis	<ul style="list-style-type: none"> • Ask your patient about tobacco, nicotine product, cannabis, alcohol, opioid or other substance use and discuss the risks to fetal development and long term harm to the baby. • Refer to the Alcohol Screening Tool (TWEAK) to help the patient to recognize the significance of the amount of alcohol being consumed as a concern that requires help. The TWEAK is a validated tool to assess problem drinking during pregnancy, and can indicate a need for referral and/or additional counselling for alcohol abuse. • Hepatitis C Screening • My consider increased HIV/Hep B screening if risky behavior/high usage
Intervention	
Pregnancy	<p>Recommend supports through Alberta Quits, Addiction Helpline, and Alcohol Anonymous or referral to Addictions and Mental Health.</p> <p>Opioid Use:</p> <ul style="list-style-type: none"> • Abrupt discontinuation of opioids in pregnancy is not recommended due to negative effects of stress and withdrawal on the fetus.

	<ul style="list-style-type: none"> • It is strongly recommended that every pregnant woman using opioids be offered comprehensive care including obstetrical care, opioid replacement therapy, psychosocial counselling and community support. Referral to an obstetrical care provider who is more conversant in this area may be considered. • Currently, methadone maintenance therapy is 'standard of care' for the management of opioid misuse in pregnancy in Canada. <ul style="list-style-type: none"> ○ Methadone has been used in pregnancy for more than 30 years ○ Not associated with any birth defects, ○ Many women require higher doses in T3 due to increased blood volume and drug metabolism ○ Benefits: <ul style="list-style-type: none"> ✓ Methadone is inexpensive ✓ Some sites offer combination perinatal & substance use programs ✓ Compared to women using illicit opioids alone, methadone has been shown to increase adherence with prenatal care, reduce risk for HIV infection, and reduce fetal death and increase birth weight and decrease in prematurity. <p>'Suboxone' is another alternative for opioid replacement therapy that is being increasingly used in pregnancy for opioid dependence'.</p> <p>Consider referral to Opioid Recovery Alberta program: https://opioidrecoveryalberta.ca/rodp</p> <p>Alcohol</p> <ul style="list-style-type: none"> • Abrupt discontinuation of long term alcohol use should not be attempted outside the setting of a hospital given the risk of seizures.
<p>Postpartum</p>	<p>Breastfeeding may cause transfer of drugs to the neonate resulting in physical and neurodevelopmental concerns. Methadone or Suboxone should be continued while lactating to decrease withdrawal in the neonates.</p> <p>Parents/caregivers using illicit substances may be subject to impaired judgement and secondary behavioural changes which can adversely affect parenting.</p> <p>Illicit drug use in the home may create an unsafe environment. Exposure to illicit drugs can cause serious illness and/or death of an infant. Advise the parent/caregiver to keep all illicit drugs out of sight and out of reach of children.</p>

Resources	
For Providers	<p>Opioid Recovery- Alberta Program- https://opioidrecoveryalberta.ca/rodp</p>
For Patients	<p>Healthy Parents, Healthy Children: https://www.healthyparentshealthychildren.ca/im-pregnant/overview-of-pregnancy/alcohol-tobacco-cannabis-and-other-drugs/#cannabis</p> <p>https://www.healthyparentshealthychildren.ca/im-a-parent/overview-of-parenting/taking-care-of-yourself#alcohol-tobacco-and-tobacco-like-products-cannabis-and-other-drugs</p> <p>Nicotine/Tobacco For support with smoking or nicotine cessation- recommend AlbertaQuits Helpline at 1-866-710-7848 or visit: https://www.albertaquits.ca.</p> <p>To find addictions services in your area</p> <ul style="list-style-type: none"> • https://www.albertahealthservices.ca/findhealth/search.aspx?type=service • Addiction Helpline: 1-866-332-2322 • Narcotics Anonymous; 1-877-463-3537 www.canaacna.org • AAA-www.area78.org <p>For more information on cannabis visit: https://www.albertahealthservices.ca/info/page12491.aspx</p> <p>Enhanced Support: Patients or care providers can dial 2-1-1 or search an online community resource directory for: Addiction services. 211 Alberta assists individuals to find social services in their area. http://www.ab.211.ca/</p> <p>211 Alberta provides an enhanced level of services to those of child-bearing years and their families with substance use concerns, who face multiple barriers, such as poverty, children in care, trauma, mental health and sexual exploitation.</p> <ol style="list-style-type: none"> 1. Action 22: Women ages 12 to 24 2. Enhanced Services for Women: Women of child-bearing years 3. Enhanced Services for Men: Men of child-bearing years

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Alcohol Screening Tool

Alcohol Screening Tool (TWEAK)		
1 drink is equal to: •12 oz. beer •12 oz. cooler •5 oz. wine •1.5 oz. hard liquor		
How many drinks does it take to make you feel high?	< 2 <input type="checkbox"/> =0	≥ 3 <input type="checkbox"/> =1
Have close friends or relatives worried or complained about your drinking in the past year?	No <input type="checkbox"/> =0	Yes <input type="checkbox"/> =2
Do you sometimes have a drink in the morning when you first get up?	No <input type="checkbox"/> =0	Yes <input type="checkbox"/> =1
Has a friend or family member ever told you about things you said or did while you were drinking that you could not remember?	No <input type="checkbox"/> =0	Yes <input type="checkbox"/> =1
Do you sometimes feel the need to cut down on your drinking?	No <input type="checkbox"/> =0	Yes <input type="checkbox"/> =1
Total Score (≥2 indicates at-risk drinking)		

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Psychosocial Concerns

Identification	
Patient Risk Factors	Family History, Adverse childhood experiences, new immigrants, financial insecurity, addictions/mental health concerns, stress, isolation, abusive relationships
Screening & Diagnosis	<p>Psychosocial assessment refers to the assessment of psychosocial risk factors (e.g., psychological, social, emotional, cultural and spiritual aspects of psychological wellbeing) known to be associated with the onset of perinatal mood disorders (e.g., perinatal depression and anxiety) and include items addressing past mental health history, past history of physical, sexual or emotional abuse, current level of supports, relationship with mother and partner, and stressors in the past year. In contrast to screening (which may be repeated), psychosocial assessment is usually only undertaken once because the risk factors are typically stable across time.</p> <p>Psychosocial Screening establishes the presence of current or recent symptoms of common mental health conditions (depression & anxiety disorder), while psychosocial assessment ascertains the longitudinal or contextual risk factors associated with possible worsening of (existing) symptoms or onset of a new episode. Screening and psychosocial assessment are complementary and neither should be undertaken alone.</p>
Intervention	
Pregnancy	<p>Manage for identified perinatal risks.</p> <p>Mental health and psychosocial assessment (using brief self-report questionnaires) followed by exploration of key issues thus identified should be a component of the first consult with all pregnant women. In order to allow for this, the duration of the first maternity consult may need to be extended by 15-30 minutes. Such routine assessment needs to be embedded in an integrated program that provides:</p> <ul style="list-style-type: none"> • basic training to providers in the use of the questionnaires and further exploration mental health as needed; • adequate referral pathways for women needing mental health or social work services; • ongoing support from, and availability of a mental health clinician associated with the maternity service providers; • integration into existing structures (e.g., antenatal record).

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Psychosocial Needs – Referral Tips

Understanding a woman’s circumstances is important when making referrals. Lack of access to childcare, transportation and even telephones may present barriers to establishing contact with a referral agency. Previous negative experiences with institutions may have eroded a woman’s trust in health and community agencies.

- Make phone calls to agencies together at the visit to initiate/expedite the referral process. It also presents an opportunity for modeling how such calls are made.
- With the woman’s consent, arrange to give her name and phone number to the agency and have the agency reach out to her.
- Give the patient the name of an individual at the agency so that she is able to ask for a specific person.
- Assist with transportation by giving bus tickets if necessary.
- Arrange a support person to make it more comfortable for the woman to follow up on the referral. For example arrange for a peer to go to prenatal classes with the mother.
- Give a clear explanation of the agency to which you are referring. For example, if you are referring to an obstetrician, explain the difference in service, that the service is free and how it will benefit her health and the health of her baby.
- Follow up on referrals to insure the family’s needs have been met.

Prenatal Anxiety or Depression

A large body of evidence over the past two decades consistently shows the negative impact of prenatal and postpartum depression and anxiety on child development and mental health. A growing body of evidence from longitudinal birth cohorts also demonstrates that up to 40% of women with prenatal depression and anxiety have persisting symptoms 4-5 years after delivery, and that these persistent symptoms at both the clinical and sub-clinical levels are associated with significant increase in risk of sub-optimal child development and mental and physical health. Mental health screening and care during the perinatal period, and particularly during pregnancy, provides opportunity for early detection and intervention that early evidence suggests may ameliorate poor child outcomes.

Prenatal anxiety and depression affect more than 1 in 10 pregnant women and often continue into the postpartum period without diagnosis and treatment.	
Perinatal Risks	Prenatal substance use; preterm birth; low birth weight; preeclampsia; suboptimal child development
Identification	
Patient Risk Factors	<ul style="list-style-type: none"> • 13-29% of women experience significant clinical stress, depression, or anxiety during the perinatal period (conception to 1 year postpartum), • Suicide is the leading cause of maternal death occurring within a year of childbirth in Alberta, except for external causes (e.g. cancer, motor vehicle accidents).

	<ul style="list-style-type: none"> The most predictive psycho-social factors for prenatal mood disorders are no partner, partner conflict, low social support, previous mental health problem, and high stress.
<p>Screening & Diagnosis</p>	<ul style="list-style-type: none"> Universal perinatal mental health screening is recommended on the basis of its high benefit and low harm. A growing body of evidence supports universal mental health screening during pregnancy and postpartum on the basis that it: is acceptable to the majority of women; improves detection and increases appropriate access to mental health services; reduces severity of depression symptoms and improves infant outcomes. During the perinatal period, the risk associated with onset or relapse of mental illness is higher than other times in a mother's life. It is estimated without routine, standardized screening, up to three-quarters of mothers with depression or anxiety disorders are not identified and only one in 10 mothers requiring health care receives it. Mode of screening Recent evidence supports the viability of web-based depression and anxiety screening. Paper-based and web-based screening tools for prenatal depression and anxiety show comparable results on acceptability, disclosure, perceived benefits and harms, and detection rates. Recent studies suggest that paper-based and web-based screening are preferred by pregnant women over telephone-based screening and women hold strong preferences for self-report compared to face-to-face screening.
Intervention	
<p>Pregnancy</p>	<p>Manage for identified perinatal risks. Complete the <u>mini screen for prenatal anxiety or depression</u> within the 1st, 2nd and 3rd trimesters, to assess risk and need for referral to mental health assessment program.</p> <p>Provide the patient with the e-mental health assessment and referral link as part of your routine care. You will receive a faxed report of the results of the assessment, referral and therapy provided. * future state</p> <p>Recommended interventions based on comprehensive e-mental health assessment will result in the following:</p> <ul style="list-style-type: none"> for mild-moderate cases: healthy diet, psychoeducation; peer support or self-help programs; and structured psychological treatments, including cognitive behavioural and interpersonal therapy (online, group or individual); and exercise programs; for moderate to severe cases: medical or psychiatric consultation around antidepressant use and ongoing risk (of suicide or self-harm assessment) plus, when able, cognitive behaviour or interpersonal therapy (online, group or individual).

Post-Partum	Without early screening and treatment, 50 to 70% of women with prenatal anxiety or depression symptoms will continue to experience symptoms through the postpartum period, and up to 40% will still have symptoms 4-5 years post-delivery. Provide mother-infant interventions for those mothers with mother-infant difficulties
Resources	
For Providers	<p>To find mental health services in your area</p> <ul style="list-style-type: none"> • www.ahs.ca/ppd • www.ahs.ca/hpppd • https://www.albertahealthservices.ca/amh/amh.aspx • Health Link 408-LINK (5465) • Mental Health Help Line 1-877-303-2642211 assists individuals to find social services in their area. • 811 or 211 Alberta (For Calgary, Edmonton and Red Deer) assists individuals to find social services in their area. http://www.ab.211.ca/ • Patients or care providers can dial 2-1-1 or search an online community resource directory for: Mental health support, etc. <p>Healthy Parents, Healthy Children: https://www.healthyparentshealthychildren.ca/im-pregnant/postpartum/mental-health-2/#postpartum-depression-anxiety-and-psychosis</p>
For Patients	

Mini screen for depression or anxiety

Perinatal Screening for Depression or Anxiety						
Over the last 2 weeks, have you been bothered by the following problems						
	1st Trimester		2nd Trimester		3rd Trimester	
Prenatal depression						
Little interest or pleasure in doing things	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes
Feeling down, depressed or hopeless	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes
Prenatal anxiety						
Feeling nervous, anxious or on edge	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes
Not able to stop or control worrying	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes

If the patient scores yes on this mini- screen, refer patient to perinatal mental health e-referral mental health assessment program.

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Socio Economic Status

Food Insecurity

Food insecurity is defined as inadequate or uncertain access to nutritionally adequate and safe food.	
Perinatal Risks	Low birth weight; Excess gestational weight gain; Gestational diabetes; Perinatal depression or anxiety
Identification	
Patient Risk Factors	Women experiencing food insecurity are more likely to receive inadequate nutrition (poor micronutrient intake and low consumption of fruits and vegetables), be overweight, have high life stress, and report poor mental health.
Screening & Diagnosis	Food insecurity can be screened for using the following question: “In the past 12 months, were there times when the food for you and your family just did not last and there was no money to buy more?”
Intervention	
Pregnancy	<p>Manage as per identified perinatal risks. Be aware of food bank services in your community Food Banks in Alberta http://foodbanksalberta.ca/food-banks/foodbankmembers/</p> <p>Refer women to Public Health as they can link women to community services such as Canadian Prenatal Nutrition programs, community kitchens, garden projects, and food co-op programs.</p> <p>The Canada Prenatal Nutrition Program (CPNP) is a community-based program that provides support to improve the health and well-being of pregnant women, new mothers and babies facing challenging life circumstances.</p> <p>Alberta CPNP Location Search: https://www.capccpnpalberta.com/</p>
Resources	
For Providers For Patients	<p>811 Alberta assists individuals to find social services, as well as food assistance and meal programs in their area. 211 Alberta for Calgary, Edmonton and Red Deer http://www.ab.211.ca/</p> <p>Healthy Parents, Healthy Children https://www.healthyparentshealthychildren.ca/im-pregnant/overview-of-pregnancy/growing-together/#prenatal-care</p>

	<p>Income Support-Contact Centre Financial help for Albertans who don't have the resources to meet their basic needs (e.g., food, clothing, shelter). 1-866-644-5135 Available 24/7</p> <p>Call Health Link at 811 as you may qualify for resources and programs in your area.</p>
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Housing Instability/Financial Concerns

<p>Housing instability is defined as: poor housing quality (unclean or unsafe), overcrowding, frequent moves, or homelessness. Financial concerns are defined as: the individual is unable to manage family expenses or has unstable income.</p>	
Perinatal Risks	<p>Perinatal depression or anxiety; Prenatal substance use; Preterm birth; Low birth weight; Small for gestational age.</p>
Identification	
Patient Risk Factors	<ul style="list-style-type: none"> • Unemployed • Single • Education level • Indigenous population • New immigrant/refugee • Addiction/Mental Health Issues • Homeless • Incarcerated • Abusive relationships
Screening & Diagnosis	<p>Financial/housing instability can be screened for using the following question: "Do you ever have difficulty making ends meet at the end of the month?"</p> <p>For individuals with English as a second language who do not understand the colloquialism "making ends meet", the alternative "paying your bills" may be more accessible.</p> <p>As per identified perinatal risks.</p> <p>See: Poverty: A clinical tool for primary care providers (AB) https://www.cfpc.ca/uploadedFiles/CPD/PDFs/Poverty_flowAB%202016%20Oct%2028.pdf</p> <p>Monitor for diabetes, anxiety, depression, hypertension, gestational weight gain, congenital anomalies, fetal wellbeing and risk for preterm birth.</p>

Intervention	
Pregnancy	Manage as per identified perinatal risks
Postpartum	Identify safety concerns for mother or fetus Referral to community supports, women’s shelters, YWCA
Resources	
For Providers	<p>www.informalberta.ca- to find information about community, health, social and government services across province</p> <p>811 Alberta assists individuals to find social services in their area</p> <p>211 Alberta for Calgary, Edmonton and Red Deer.</p> <p>http://www.ab.211.ca/</p> <p>Patients or care providers can dial 2-1-1 or search an online community resource directory for:</p> <ul style="list-style-type: none"> • Housing & utility help <p>Each community and housing support agency has their own eligibility criteria and application process. Please refer to tips at the beginning of the document as the application process can be daunting.</p> <p>Alberta Works – Emergency Needs Allowance Service – Provides financial assistance for emergency situations.</p> <p>http://www.humanservices.alberta.ca/services-near-you/2929.html</p> <p>Benefits are provided in emergency situations that:</p> <ul style="list-style-type: none"> • are beyond the client's control • present a severe health or safety risk • cannot wait until the next payment date. <p>Benefits may be provided for the following:</p> <ul style="list-style-type: none"> • food • damage deposit • eviction • accommodation (such as a hotel) • replacement clothing • childcare • transportation to safety • essential appliances and home repairs • utility arrears if utilities are about to be disconnected. <p>Emergency Income Support - Ministry of Community and Social Services 24 hour emergency financial assistance to eligible individuals or families who do not have the resources to meet their emergent needs.</p> <p>Benefits are provided in unexpected emergency situations that:</p> <ul style="list-style-type: none"> • are beyond the client's control
For Patients	

	<ul style="list-style-type: none"> • present a severe health or safety risk • and cannot wait until the next payment date. <p>Benefits are limited to:</p> <ul style="list-style-type: none"> • basic needs (food, clothing, household items, basic transportation) • emergency medical needs • temporary shelter. <p>811 Alberta Assists individuals to find social services in their area. 211 Alberta is used for Edmonton, Calgary and Red Deer services http://www.ab.211.ca/</p>
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Limited Social Support

Limited social support is defined as limited availability of practical/emotional resources or assistance from one's social network.	
Perinatal Risks	Perinatal anxiety, depression, and post-traumatic stress disorder.
Identification	
Patient Risk Factors	Individuals who are immigrants, refugees, new to community, homeless, isolated, have mental health issues, are in abusive relationships, have minimal social contacts.
Screening & Diagnosis	<p>Limited social support can be screened for using the following questions:</p> <ul style="list-style-type: none"> ▪ “Do you have someone you can depend on to help you if a problem comes up (e.g., to loan money, to help if you were confined to bed, to talk about problems with and offer advice)?” ▪ “How does your partner/family feel about your pregnancy?” ▪ “Who will be helping with the baby following birth?” <p>Screen for mental wellness- anxiety/depression Provide e-mental health assessment link to patient</p>
Intervention	
Pregnancy Postpartum	<p>Encourage patient to develop or build their social network (i.e., family and/or friends).</p> <p>Support groups Recommend a support group that a woman can identify with. For example:</p> <ul style="list-style-type: none"> • Bent Arrow Traditional Healing Society Edmonton http://bentarrow.ca/ • Bissell Centre – inner Edmonton support https://bissellcentre.org/

	<ul style="list-style-type: none"> Elizabeth Fry Society for women who are or may be at risk of becoming criminalized https://elizabethfrycalgary.ca/ http://www.efryedmonton.ab.ca/ Youth support programs Newcomers groups <p>These groups provide family support, lunch programs, child care, baby layettes, emergency formula programs employment program, advocacy, parenting programs, outreach and drop-in, counselling, housing registry.</p>
Resources	
<p>For Providers For Patients</p>	<p>Home Visitation https://www.ahvna.org/</p> <ul style="list-style-type: none"> A long-term program for first time parents who want extra support with day to day challenges and would like information on parenting and child development. Begins prenatally, or up to 3 months after the baby's birth, and may continue for up to 5 years. Home visitors work with new families in their homes and help parents develop their strengths. <p>Parent Link Centres http://humanservices.alberta.ca/family-community/15576.html</p> <ul style="list-style-type: none"> Provide parent and family support, based on the needs of each community. Qualified staff are available to offer parenting programs and help with parenting and family issues. Offers programs such as: <ul style="list-style-type: none"> Parenting Program Activities with children like Mom and Baby Time Connecting with resources Learning about growth and development How to deal with behavioural concerns. <p>Best Beginning Program (Calgary) A free supportive health services program for pregnant women and teens who need information to make healthy choices during pregnancy, feel alone and isolated, face language or cultural barriers or are living on low income. http://www.birthandbabies.com/best-beginning-program/</p> <p>Early Head Start</p> <ul style="list-style-type: none"> Early Head Start is an early childhood parent support program for low income families with children between birth and 3 ½ years old.

	<ul style="list-style-type: none">• Offers parent groups, playgroups, and visits with a family support worker. <p>Healthy Families, Healthy Children https://www.healthyparentshealthychildren.ca/im-a-parent/overview-of-parenting</p> <p>Alberta 811 or 211 (Edmonton, Calgary and Red Deer) Assists individuals to find social services in their area. http://www.ab.211.ca/ Patients or care providers can dial 2-1-1 or search an online community resource directory for:</p> <ul style="list-style-type: none">• Parenting & family programs• Newcomer services <p>https://www.healthyparentshealthychildren.ca/resources/printables-pregnancy-labour-and-postpartum</p>
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Intimate Partner Violence

<p>Intimate partner violence is defined as: Violence or abuse (psychological, physical, sexual, financial or emotional) between adults who are or have been intimate partners or family members, regardless of gender or sexuality. Asking patients about IPV is not a screening intervention: victims are not asymptomatic; disclosure is not a test result, it is a voluntary act, and the presence of violence is not under the patient's control.</p>	
<p>Perinatal Risks</p>	<p>Preterm birth; Low birth weight; Perinatal mood disorders.</p> <p>Physical violence: Prenatal hemorrhage; Intrauterine growth restriction; Fetal/neonatal mortality.</p>
<p>Identification</p>	
<p>Patient Risk Factors</p>	<p>All/any patient is at risk. Increased risk associated with history of childhood trauma/abuse, substance use, addictions, and mental illness.</p> <p>Pregnancy is often the first time IPV happens, or escalates.</p>
<p>Screening & Diagnosis</p>	<p>The presence of IPV can be queried using the following statements/questions:</p> <ul style="list-style-type: none"> • “I talk to all my patients about intimate partner violence because it is common in many patients’ lives and there is help available.” • “Has your partner ever threatened to hurt you or physically harmed you in some way?” • “Has your partner ever humiliated you, bullied you, or made you feel afraid?” • “Do you feel safe in your current relationship?” • “Does your partner control the money?” <p>The nature of the clinician-patient relationship (e.g., trust, non-judgmental) and level of safety within the clinic environment (e.g., confidential) are important factors for facilitating disclosure.</p>
<p>Intervention</p>	
<p>Pregnancy</p>	<ul style="list-style-type: none"> • Provide a private place to ask questions • Begin by normalizing, showing concern, showing interest and ability to help • Convey to the client that she is believed and that no one has the right to abuse another • Respect her decision regardless of what it is • Application of the Stages of Change Model – where is the woman in her journey? • When a client discloses, the following components are essential to include in the visit: • Assessment of risk • Discussion regarding safety considerations

	<ul style="list-style-type: none"> • Provision of appropriate referrals and follow-up • Interventions on behalf of children and adolescents <ul style="list-style-type: none"> ○ It is important to ensure the client is aware that the HCP has an obligation to report to Children and Family Services Authorities if there are reasonable and probable grounds to believe that a child’s safety is jeopardized. ○ If safety is a concern and a report to the appropriate authorities is required, it should be done in the most supportive way. E.g. Complete the call with the client in the room • Documentation of the history, physical findings, interventions and any referrals <p>Some women may choose not to disclose even when there are strong indicators that they are experiencing abuse. It is important that the HCP respect the client’s decision to disclose or not to disclose. Let the woman know you are available should her situation ever change, where resources may be found, etc.</p>
Postpartum	Intimate partner violence may escalate following birth of baby
Resources	
For Providers	811 or 211 Alberta (Calgary, Edmonton and Red Deer) assists individuals to find social services in their area.
For Patients	<ul style="list-style-type: none"> • http://211edmonton.com/resources.html <ul style="list-style-type: none"> ○ Information to raise awareness ○ Online websites (with safety escapes) ask questions such as “Am I being abused?” e.g. Alberta Council of Women’s Shelters https://www.acws.ca/shelters ○ Counselling ○ Support ○ Outreach support ○ Group programs ○ Crisis intervention and shelters ○ Legal protection <p>Family Violence Info Line - 310-1818 Talk to trained staff over the phone 24 hours a day, seven days a week, in more than 170 languages (enhanced) Government of Alberta Website: www.familyviolence.alberta.ca Phone: 310-1818 (Family Violence Info Line) Alberta Council of Women’s Shelters Website: www.acws.ca Phone: 1-866-331-3933 Healthy Parents, Healthy Children: https://www.healthyparentshealthychildren.ca/im-a-parent/overview-of-parenting/taking-care-of-your-relationships/</p>

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Evaluation – Benchmarking Metrics

Perinatal Indicators- Activity, Risk, Intervention, Outcomes

Birth Activity- Alberta	2016		2017	
	Count	Percent	Count	Percent
Number births overall	56825		54569	
Number Live Births	56427		54197	
Number and % preterm births/live births <37 weeks gestation weeks	4876	8.60%	4700	8.7%
Number of births at each gestational age category: 2016			2017	
<23 weeks	99	0.20%	89	0.2%
23-25 weeks	130	0.20%	116	0.2%
26-28 weeks	170	0.30%	191	0.4%
29-31 weeks	324	0.60%	305	0.6%
32-33 weeks	567	1%	1119	2.1%
34-36 weeks	3586	6.40%	2880	5.3%
37	45151	80%	4771	8.4%
38-40			44914	82.9%
41+ weeks	6382	11.30%		
Number and % of multiples (twins/triplets)/births	1935	3.5%	1759	3.2%
Total # of mothers delivering	55814		53667	
Distance of travel from home community to hospital	28.9 mins average		28.9 mins average	
Distance from home community to site mom transferred to	114 mins average		97.5 mins average	
Maternal Risk Factor metrics			2017	
<i>Wt>91 kg pre-pregnancy</i>	5221	9.4%	5163	9.7%
Women with pre-existing hypertension	621	1.1%	596	1.1%
Women with gestational hypertension	3105	5.6%	3126	5.9%
Women with pre-existing diabetes	850	1.5%	753	1.4%
Women with gestational diabetes	4304	7.7%	4631	8.7%
Women who smoke	5670	10.2%	5309	9.9%
Women using substances	1522	2.7%	634	1.2%
Women with Obstetrical risk score 0-2	33113	59.3%	31433	58.6%
Women with obstetrical risk score 3-6	17787	31.9%	17600	32.8%
Women with obstetrical risk score > 6	4412	7.9%	4288	8.0%

MNCY SCN
Antenatal Pathway

Medical Intervention metrics	2016		2017	
Number and % spontaneous vaginal deliveries/births	33339	59.7%	32374	60.3%
Number and % inductions	17734	31.8%	17589	32.8%
Number and % inductions less than 39 weeks	6324	11.3%	6307	11.7%
Number and % inductions without medical indication	540	1.0%	675	1.3%
Number and % inductions resulting in c/s	3899	7.0%	3755	7.0%
Number and % labor augmentation	22269	39.9%	20912	39.0%
Number and % augmentations resulting in C/S	3026	5.4%	3755	7.0%
Number and % Assisted vaginal births (Forceps/ Vacuum)	5958	10.7%	5456	10.3%
Number and % cesarean section	16257	29.1%	15589	29%
Number and % booked cesarean section <39 weeks	3395	44.8%	3196	43.6%
Number of women with previous C/S	8919	16%	8820	16.4%
Number and % Trial of Labor attempts for women with previous C/S	2482	27.8%	2411	27.6%
Number and % successful VBAC	1852	74.6%	1809	75%
Maternal Newborn Outcome Metrics	2016		2017	
Newborn APGARS <7 at 5 minutes of age	1682	3.0%	1634	3/0%
SGA (Defined by Kramer et al, 2001 article so accounting for gender, gestational age and weight)	5909	10.5%	5639	10.4%
NB weight <2700gms	6669	11.8%	6420	12%
LGA (defined by Kramer et al., 2001 too)	4665	8.3%	4558	8.4%
NB weight > 4100 gms	3334	5.9%	3168	5.9%
Post-partum hemorrhage from DAD data (coded as O72 on ICD10 data)	2981	5.30%	1873	3.5%
Episiotomies (Vaginal births only)	3639	9.20%	3479	9.1%
Lacerations 3 or 4 th degree tears (for Women with Vaginal births only)	1768	4.5%	1692	4.4%
Newborn congenital anomalies -- based on ICD10 codes starting with Q for congenital anomalies from DAD data	5158	9.10%	4246	7.8%
Live births admitted to NICU (defined as being admitted for more than 2 hours to NICU at birth)	5109	9.1%	5738	10.6%

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Acknowledgements

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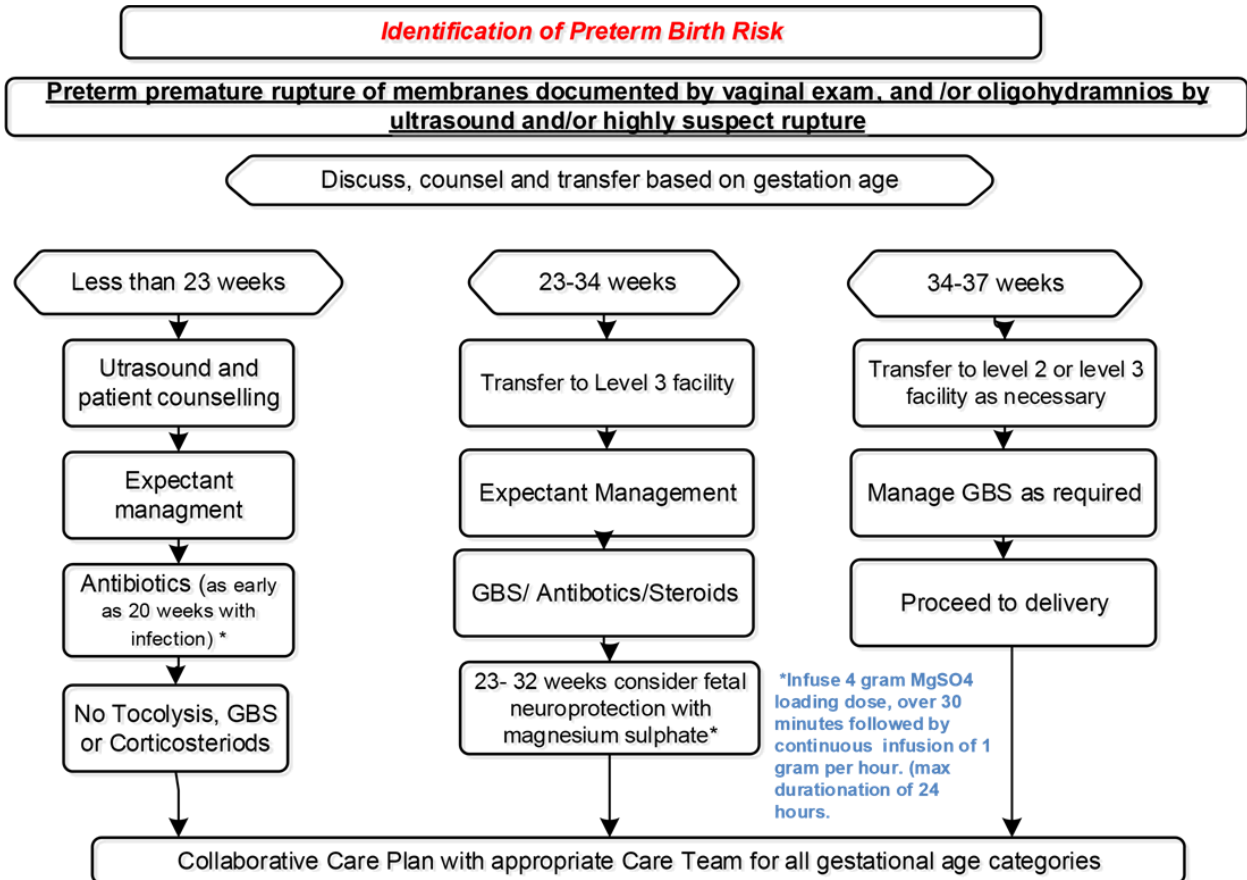
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Appendices

1. PROM but not in Labour
2. Shortened Cervix Not in Labour
3. Pre-Term Labour
4. Healthy Weight Gain Decision Tree

PROM but NOT in Labour

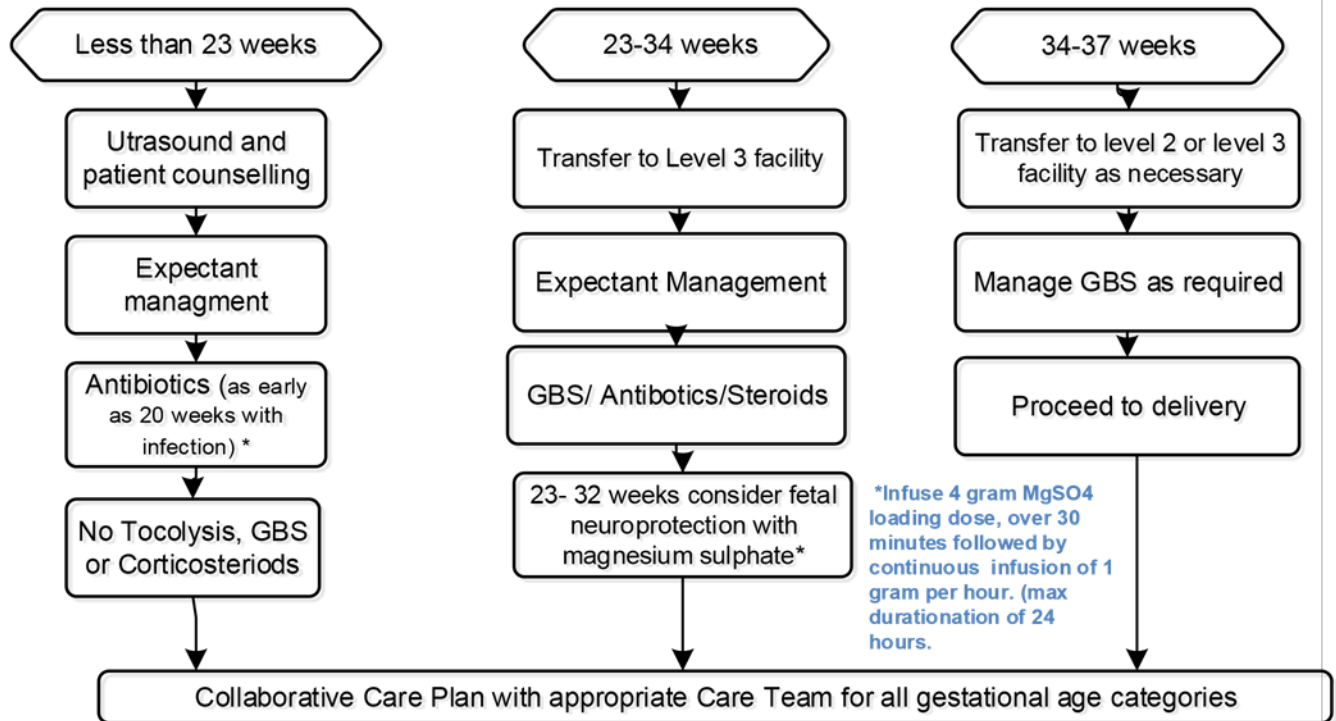


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Identification of Preterm Birth Risk

Preterm premature rupture of membranes documented by vaginal exam, and /or oligohydramnios by ultrasound and/or highly suspect rupture

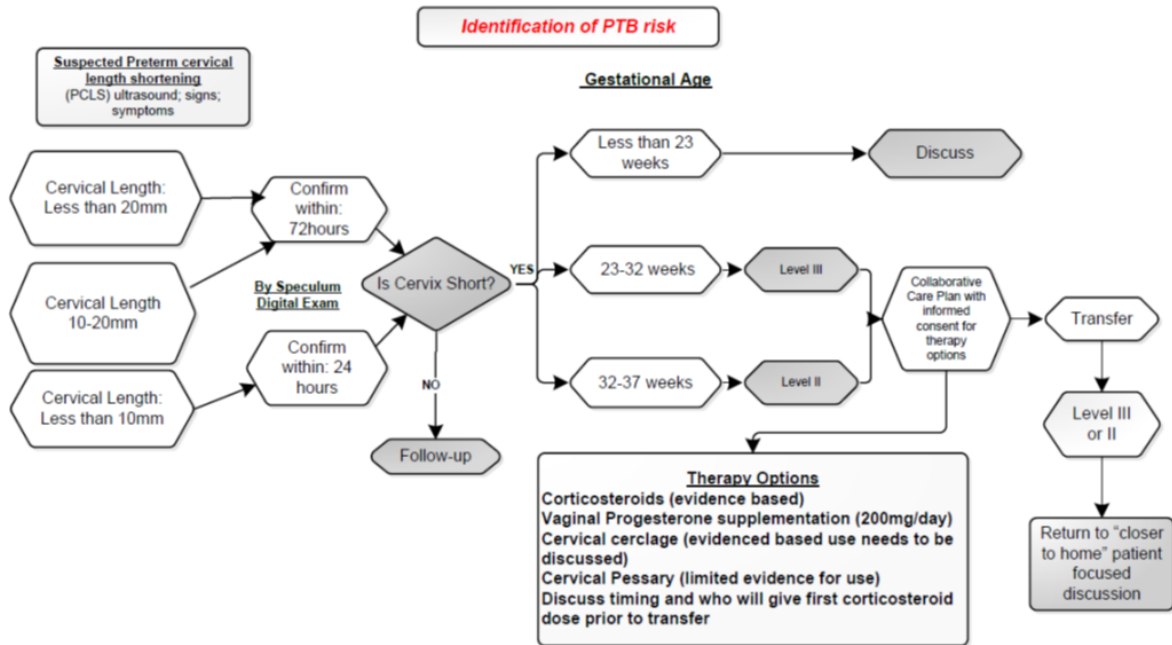
Discuss, counsel and transfer based on gestation age



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Shortened Cervix- NOT in Labour

Algorithm for: **RISK of Preterm birth with suspected Preterm Cervical Length Shortening but NOT IN LABOUR**



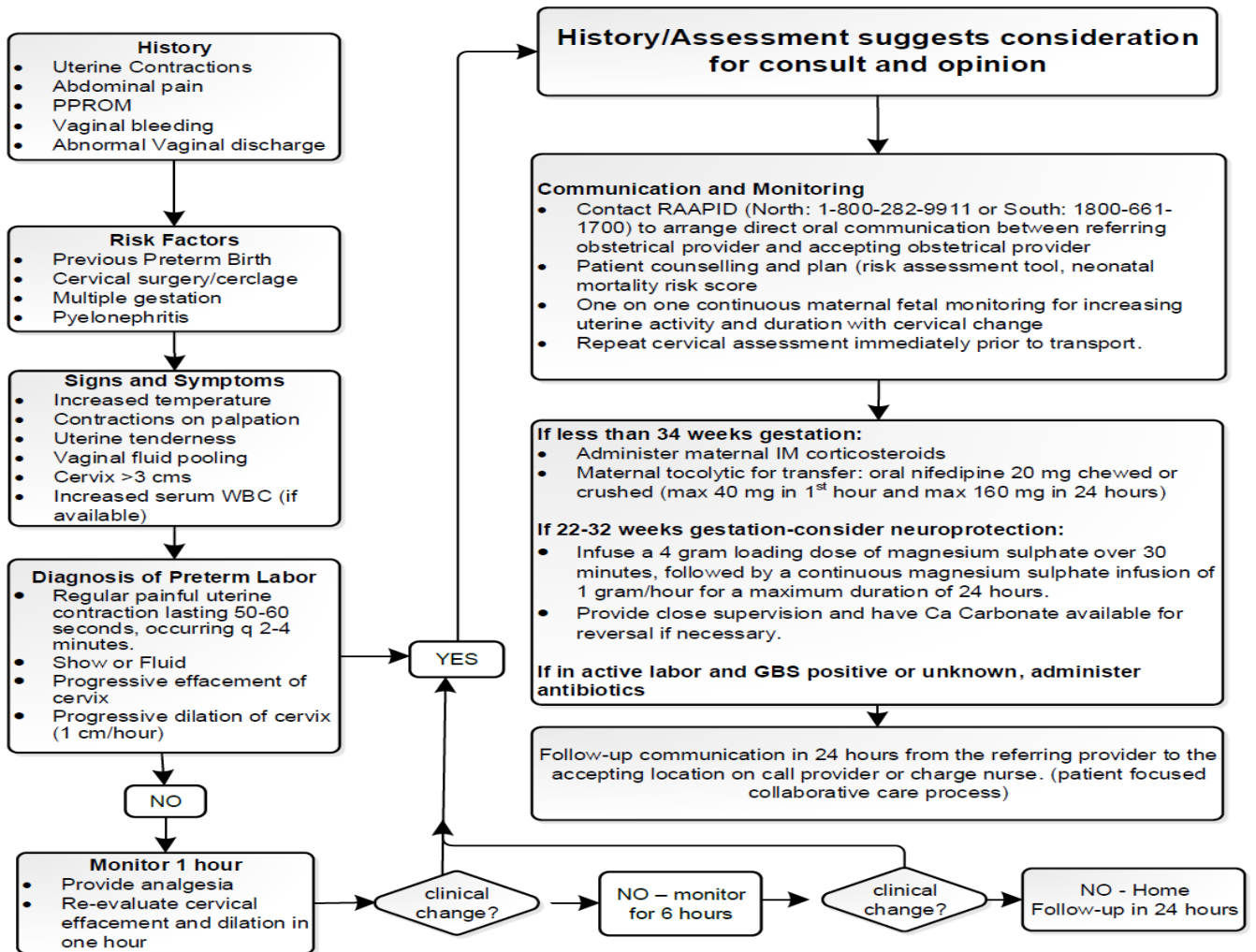
Clinical experience, the use of the Obstetrical Triage Acuity Scale (OTAS), maternal history, assessment, examination, uterine, fetal assessment, laboratory testing and imaging if available play a role in determining risk of PTB

July 8, 2016

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Pre-Term Labour

Algorithm for Patient in Preterm Labor (gestational age ≥ 22 weeks)

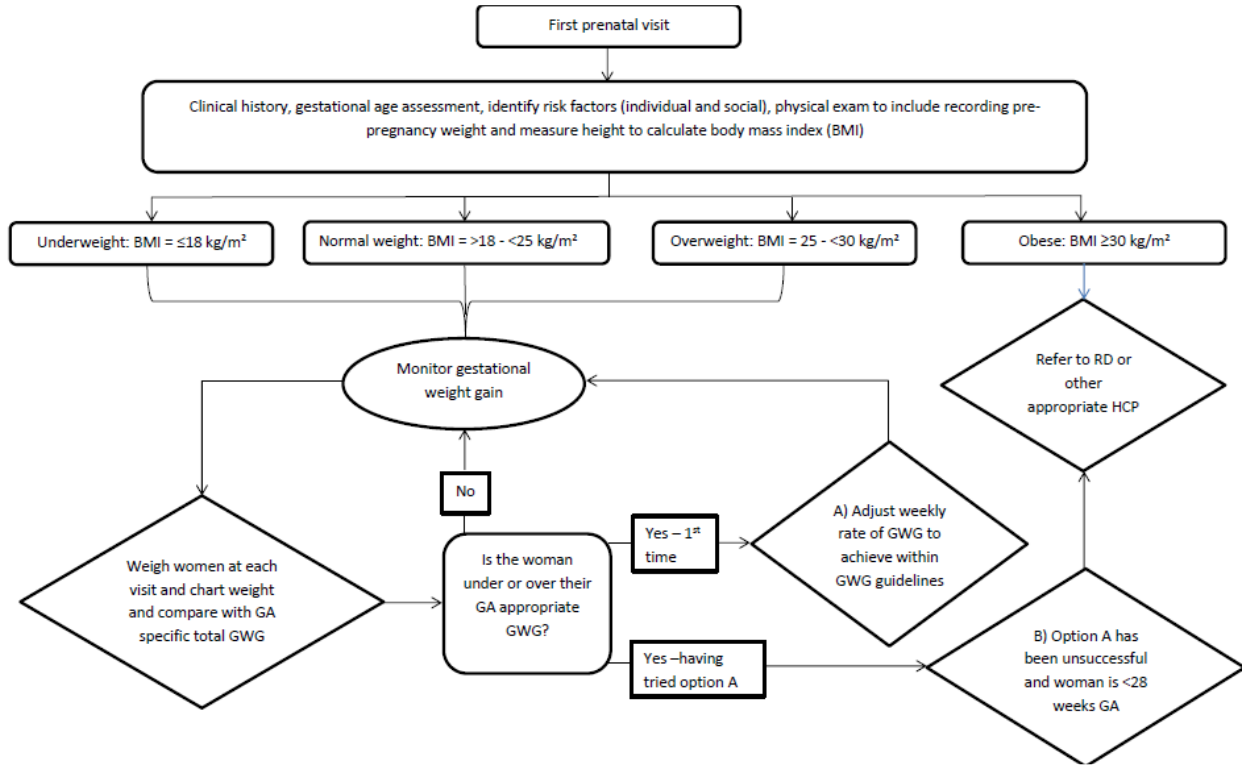


This algorithm is intended to support the health care provider with clinical decision making and will include many factors for consideration. These factors include: clinical experience, the use of the Obstetrical Triage Acuity Scale (OTAS), maternal history, assessment, examination, uterine, fetal assessment, laboratory testing and imaging if available play a role in determining risk of PTB.

March 28, 2018

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Health Weight Gain Decision Tree



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