Alberta Health Services

GUIDELINE

TITLE

CLINICAL ASSESSMENT OF 'AT RISK' OR ACTUAL PRETERM LABOR FOR TRIAGE

SCOPE
Provincial: Women's Health

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HCS-183-01

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Vice President, Strategic Clinical Network

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Not applicable

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NOTE: The first appearance of terms in bold in the body of this document (except titles) are defined terms – please refer to the Definitions section.

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OBJECTIVES

- To provide obstetrical opinion and guidance to **most responsible health practitioners** in the assessment, care and management of the pregnant **patient** (maternal-fetal pair) presenting with threatened preterm labour (TPL) or "at risk" for TPL (less than 20 millimetres (mm) by trans-vaginal ultrasound assessment) in the absence of available cervical/vaginal biochemical testing.
- This guideline will assist with the maternal patient triage (as identified above):
    - from Level I to the most appropriate Level II or III maternity – neonatal centre
    - when the transfer has been completed to the Level II or III centre, the standard protocols of care at that centre are utilized.
- To exercise clinical judgement when the patient's clinical presentation is deemed to be outside the parameters set out in this document. If for any reason this guideline is not deemed appropriate for the specific situation of the patient, documentation shall be included on the **health record** to identify the rationale.

APPLICABILITY

Compliance with this document is required by all Alberta Health Services employees, members of the medical and midwifery staffs, Students, Volunteers, and other persons acting on behalf of Alberta Health Services (including contracted service providers as necessary), working in Women's Health.

ELEMENTS

1. Points of Emphasis (Background)

1.1 Preterm labour ('at risk'; threatened; actual) is multi-factorial in the etiology and complex in the evaluation, management and treatment.

1.2 Collaborative multidisciplinary care, timely communication, appropriate transfer of responsibility, and at times, transfer of location is required for the best team-based and patient-focused management and outcome ensuring the 'at risk' maternal – fetal pair are cared for at the right location, with the right provider at the right time (pre-delivery) in the maternity care process.

1.3 Threatened non-labouring cervical shortening requires a different management protocol using both non-hospital and hospital based protocols.

1.4 Patients with a history of advanced cervical dilatation are at an increased risk of having recurrent preterm birth and cervical shortening in a subsequent pregnancy, compared with patients with prior preterm birth associated with preterm premature rupture of membranes (PPROM) or other etiology for preterm labour and delivery.

1.5 Threatened and/or actual preterm labour requires active and timely assessment and decision-making, as prophylactic treatments (corticosteroids) and management options (antibiotic; tocolytic; maternal transfer; neonatal transfer) may be required to reduce morbidity and mortality in the maternal – fetal pair.

1.6 Provider to provider communication regarding an estimated risk for intra-transfer delivery shall occur.

1.7 Once the transport is successfully completed to the appropriate level of care, the receiving Level II or Level III centre's standard of care or protocols will be utilized.

2. Emergency Assessment / Triage Process for Preterm Birth

2.1 Location of the obstetrical assessment area and **health care professionals** involved in the care is dependent on obstetrical level of care (level I, II, or III).

2.2 Clinical experience, maternal history (present and previous), observation, physical examination, laboratory testing, ultrasound imaging, uterine activity and fetal heart rate evaluation are part of the assessment for diagnosis, triage and care.

2.3 **Obstetrical Triage Acuity Scale (OTAS)** shall be used to 'at risk' or actual preterm birth patients (*see* AHS *Obstetrical Triage Acuity Scale (OTAS)* Guideline).

2.4 This OTAS process can then be used for the preterm labour triage considering the following assessment areas:

a) Patient Not in Labour with unexpected cervical shortening finding;

b) Preterm Premature Rupture of Membranes (PPROM);

c) Preterm Labour (threatened or actual) with an increased/possible subsequent risk of preterm birth; and

d) Preterm Labour with pre-viable gestational age fetus.

3. Patient in Preterm Labour Gestational Age Greater Than or Equal to 22 Weeks (Appendix A)

3.1 The following history and obstetrical findings are used to assist with the management plan and/or decision making for telephone consultation and /or maternal transfer:

a) History (maternal/obstetrical/gynaecological) associated with increased risk for preterm birth:

(i) uterine contractions;

(ii) abdominal pain;

(iii) PPROM;

(iv) vaginal bleeding;

(v) abnormal vaginal discharge;

(vi) previous ultrasound indicating shortened cervical length; and

(vii) risk factors:

- previous preterm birth;
- gynaecological cervical surgery / cone biopsy;
- cervical cerclage in-situ (due to past history of preterm birth);
- multiple gestation; and
- pyelonephritis.

b) Signs and symptoms associated with preterm birth include:

(i) increased temperature;

(ii) contractions present on palpation;

(iii) uterine tenderness;

(iv) vaginal fluid pooling;

(v) cervix greater than three (3) centimeters dilated; and

(vi) increased serum white blood cell count.

c) The diagnosis of preterm labor is made with the following:

(i) regular painful uterine contraction lasting 50 to 60 seconds, occurring every two (2) to four (4) minutes;

(ii) passing of mucus plug (bloody show);

(iii) water breaks;

(iv) progressive effacement of cervix; and/or

(v) progressive dilation of cervix (one [1] centimeter [cm]/hour).

d) If uncertain of diagnosis of labor:

(i) provide analgesia and re-evaluate cervical effacement in one (1) hour;

(ii) if no clinical change in one (1) hour continue to monitor for an additional six (6) hours; and/or

(iii) if still no change, discharge with follow-up in 24 hours or sooner if patient shows additional signs and symptoms of labor.

3.2 Management and Decision Planning for Maternal Transfer:

a) Appropriate assessment and investigations are required.

(i) Monitor and determine uterine contractions frequency, duration and strength to assess the extent/severity of labour.

(ii) Ultrasound assessment for presentation and amniotic fluid volume if recent imaging is not available.

b) Discuss findings, decision and management options with the patient.

c) Call Referral, Access, Advice, Placement, Information & Destination (RAAPID) / Emergency Medical Services (EMS) for maternal transfer coordination (obstetrics and neonatology) and implement air or ground transfer protocols.

d) Discuss findings and management plan with obstetrics consultant.

(i) Consider maternal intramuscular (IM) corticosteroids;

- Initial 12 mg betamethasone dose (if less than 34 weeks gestation for fetal lung maturation benefit) prior to transfer or as ordered by Physician.

- Alternatively, consider dexamethasone six (6) mg every12 hours, four (4) repeat doses, when betamethasone not available or as ordered by Physician.

(ii) Consider maternal tocolysis (for transfer) depending on gestational age, cause, and contraindications, including infection;

- B-sympathomimetic agents; or

- calcium channel blockers:

  Start with nifedipine 20 mg oral dose (chewed or crushed) if contractions persist, give second nifedipine 20 mg dose to a maximum of 40 mg in the first hour or as ordered by Physician. No further nifedipine doses until three (3) hours after second dose, to a maximum dose of 160 mg of nifedipine in 24 hours or as ordered by Physician.

(iii) Consider maternal antibiotics:

- Intravenous (IV) penicillin for positive Group B Streptococcus colonization or PPROM; or

- other antibiotics as appropriate to treat diagnosed maternal infections.

(iv) Consider neuroprotection.

- Discuss with the receiving hospital provider the use of magnesium sulphate for fetal neuroprotection with a gestation age of greater than or equal to 23 weeks up to 32 0/7 weeks.

- IV magnesium sulphate loading dose of 4 grams infused over 30 minutes; followed with an infusion of one (1) gram per hour with a maximum duration of 24 hours or as ordered by Physician.

e) Frequent medical assessment with the provision of 'one to one' nurse to patient care at the primary/sending site, until the RAAPID/EMS transfer team arrives and completes transfer of care and accepts responsibility for the patient.

f) Provider to provider communication regarding the estimated risk of an intra-transfer delivery is required, as an additional maternity provider

may needed to accompany the RAAPID/EMS transfer team in anticipation of a possible intra-transfer delivery. Additional equipment and communication may be required for the transfer.

4. Risk of Preterm Birth with Suspected Preterm Cervical Length Shortening but Not in Labour (Appendix B)

4.1 Key Points for Transvaginal Cervical Length (CL) Measurement:

a) CL screening is currently performed upon the request of the most responsible health practitioner, when features of cervical change are incidentally found during a fetal ultrasound assessment or when risk factors identified by the Maternal-Fetal Medicine (MFM) Specialist are felt sufficient to recommend this test.

b) CL screening, if performed, is usually between 18 0/7 weeks to 24 0/7 weeks gestation.

c) CL screening is not routinely recommended beyond 24 0/7 weeks gestation, but may be performed at the request of the referring Physician or when the appropriate clinical scenario is identified by the MFM Specialist.

d) If a shortened cervix is suspected on an abdominal ultrasound the 'real' CL is confirmed by a transvaginal cervical scan.

e) Repeat CL screening is not generally recommended if a CL screen has been performed and is within the normal range.

f) A CL of less than or equal to 20 millimeters (mm) is defined as 'shortened'. The finding of internal cervical os funnelling or intra-amniotic sludge is not sufficient to alter the clinical recommendations based on the CL screen.

g) In an asymptomatic low risk or a 'preterm birth at risk' patient, if there is any evidence of CL being less than 10 mm, the patient should be seen by the most responsible health practitioner within 24 hours or at the discretion of a primary obstetrician involved in the case.

h) For a CL less than 10 mm, this finding should be followed up by a digital cervical examination by the most responsible health practitioner or Obstetrician to rule out an asymptomatic dilatation and determine if alternate management is appropriate.

i) This CL measurement exam may be performed by a trained MFM or DI Specialist (imaging) if the patient is at one of their clinics or it is deemed to be clinically appropriate evaluation for the management of the patient.

j) During this examination, CL monitoring and treatment options should be discussed.

k) If the CL shortening is identified at a community general ultrasound clinic, the expectation is the Radiologist Specialist shall alert the most responsible health practitioner of the CL finding in a timely fashion.

l) After contact with the Radiologist or MFM Specialists, the most responsible health practitioner (or on-call Physician or designate) shall take responsibility to manage the patient. This management may involve consulting the Obstetrician on-call at the intended site of delivery.

m) If the most responsible health practitioner is unavailable, the Imaging Physician responsible for the patient imaging shall call the Obstetrician on-call at the maternity site of intended delivery for notification and consultation.

n) If the CL measurement is 10 mm to 20 mm, the patient should be seen by the most responsible health practitioner within 72 hours with possible intervention started prior to this time, at the discretion of the primary Obstetrician involved in the case.

4.2 Available Clinical Treatment Options for Shortened CL Management:

a) Cervical cerclage is not recommended in low risk patients with asymptomatic cervical shortening although this management may be considered at the discretion of the most responsible health practitioner. If the cervix is found to be dilated the use of a 'rescue cervical cerclage' may be of some benefit. However, there is no evidence/clinical trial to support this management.

b) There are a number of different progesterone preparations available for use in patients with documented cervical shortening. These preparations have been shown to reduce the incidence of preterm delivery. However, there is still insufficient data available to suggest that one preparation is superior. The choice of progesterone is at the discretion of the most responsible health practitioner.

c) Crinone 8% progesterone gel (90 milligrams [mg]): applied vaginally daily. This treatment was shown to have overall efficacy. However, this benefit was not seen in North American sites, prompting the Federal Drug Administration (FDA) to not approve its use in the USA.

d) Prometrium 200 mg per vagina (pv) at bedtime. Most responsible health practitioners should be aware that the efficacy of this treatment is uncertain given conflicting results from large clinical trials.

e) The use of a cervical pessary for the shortened cervix is left to the most responsible health practitioner's discretion or if after **informed consent** the patient refuses medical / progesterone management.

f) Routine Acute Care admission to a tertiary centre with Level III NICU for the patient with the shortened cervix is not recommended when a suitable outpatient follow-up/appointment is available. For those patients that reside outside the tertiary centre location, Acute Care admission should be considered or discussed.

g) Routine use of corticosteroids is not recommended in the pre-viable (less than 23 0/7weeks of gestation) pregnancy.

h) Use of corticosteroids beyond greater than or equal to 23 0/7 weeks gestation should be guided by the anticipated preterm birth risk based on the serial digital cervical examinations.

5. Risk of Preterm Birth with Premature Rupture of Membranes but Not in Labour - (Appendix C)

5.1 Management: in conjunction with the evidenced –based recommendations in Section 4.2:

a) Late Preterm (32 0/7 to 36 6/7 weeks of gestation) - Transfer to Level II Maternity and NICU Centre as indicated:

(i) Level II providers will use clinical judgement regarding expectant management or proceed to delivery based on the gestational age, clinical situation and evidenced –based decision and discussion;

(ii) Group B Streptococcus (GBS) prophylaxis as indicated.

(iii) Level II / III centres may have access to 'out of hospital' ambulatory care services for stable PPROM patients.

b) Preterm (23 0/7 to 31 6/7weeks of gestation) - Transfer to Level III Maternity and NICU Centre:

(i) Expectant management.

(ii) Antibiotics are recommended to prolong latency if there are no contraindications. (See 5 c [iii]).

(iii) Single-course corticosteroids.

(iv) GBS prophylaxis as indicated.

Note: Magnesium sulphate for fetal neuro-protection with not in labour PROM requires consideration and discussion with the receiving hospital provider (see 3.2 [g] for dosage information).

c) Less than 23 weeks gestation - Discussion regarding pre-viable transfer to Level III Maternity and NICU Centre:

(i) Patient counselling.

(ii) Expectant management or induction of labour.

(iii) Initial monitoring for infection, labour, abruption;

- antibiotics may be considered as early as 20 0/7 weeks of gestation;
- consider broad spectrum antibiotics for latency (current evidence is insufficient to guide either the use or timing of antibiotics in the setting of PROM near the limits of viability):

  IV ampicillin two (2) g every six (6) hours; or

  IV ampicillin two (2) g every six (6) hours and IV erythromycin 250 mg every six (6) hours for 48 hours.
- GBS prophylaxis is not recommended before viability.

(iv) Corticosteroids are not recommended before viability.

(v) Tocolysis is not recommended before viability.

(vi) Magnesium sulphate for fetal neuro-protection is not recommended before viability.

5.2 Summary of recommendations and conclusions:

a) The following recommendations are based on good and consistent scientific evidence (Level A):

(i) Patients with PPROM before 34 0/7 weeks of gestation should be managed expectantly if no maternal or fetal contraindications exist.

(ii) To reduce maternal and neonatal infections and gestational-age dependent morbidity, a seven (7) day course of therapy with a combination of erythromycin and ampicillin or amoxicillin is recommended during expectant management of patients with PPROM who are less than 34 0/7weeks of gestation.

(iii) Patients with PPROM and a viable fetus who are candidates for intra-partum GBS prophylaxis should receive intra-partum GBS prophylaxis to prevent vertical transmission regardless of earlier treatments.

(iv) A single course of corticosteroids is recommended for patients between 24 0/7 weeks and 34 0/7 weeks of gestation, and may be considered for patients as early as 23 0/7 weeks of gestation who are at risk of preterm delivery.

(v) Patients with PPROM before 32 0/7 weeks of gestation who are thought to be at risk of imminent delivery should be considered candidates for fetal neuro-protective treatment with intravenous magnesium sulphate. (See 3.2 [g] for dose information).

b) The following recommendations and conclusions are based on limited and inconsistent scientific evidence (Level B):

(i) For patients with PPROM at 37 0/7 weeks of gestation or more, if spontaneous labour does not occur near the time of presentation in those who do not have contraindications to labour, labour should be induced.

(ii) At 34 0/7 weeks or greater gestation, delivery is recommended for all patients with ruptured membranes. In the setting of ruptured membranes with active labour, therapeutic tocolysis has not been shown to prolong latency or improve neonatal outcomes. Therefore, therapeutic tocolysis is not recommended.

c) The following conclusion is based primarily on consensus and expert opinion (Level C):

(i) The outpatient management of preterm PPROM with a viable fetus has not been sufficiently studied to establish safety and, therefore, is not recommended.

6. Preterm Labour with Pre-Viable Gestational Age Fetus – Practice Considerations

6.1 Pregnant patients making obstetrical and neonatal management decisions at extremely preterm gestations should be counselled by an interdisciplinary team.

6.2 Parents facing the birth of an extremely preterm infant should have the opportunity to meet with the most responsible health practitioners from both the obstetrical and paediatric/ neonatal care to receive accurate information about their infant's prognosis. This information should be provided with clarity and compassion.

6.3 Outcome data on neonatal survival should be interpreted with care and the knowledge that peri-natal management has a role to play in these outcomes.

6.4 Pregnant patients at greater than or equal to 23 0/7 and up to 32 0/7 weeks gestation should be transferred to a tertiary centre with Level III NICU, despite the perceived intentions for neonatal management. The decision to transfer should be patient-specific and factor in gestational age, estimated fetal weight, and parental preferences.

6.5 The survival of infants born before or at 22 6/7 completed weeks of gestation remains uncommon. A non-interventional approach is recommended.

6.6 All extremely preterm infants who are not resuscitated, or for whom resuscitation is not successful, shall receive compassionate palliative care.

6.7 Community practitioners should be educated about the management options for extreme prematurity and should have the option to call specialist practitioners for advice in managing these cases.

6.8 Practitioners shall be aware of their local referral pathway systems for peri-natal complications, and should remain alert to new research in this area.

6.9 Infants born between greater than or equal to 23 0/7 weeks and 24 6/7 weeks of gestation with a birth weight of 500 to 599 grams (threshold of viability) present the greatest uncertainty surrounding infant survival and outcome.

a) The line between patient autonomy and medical futility is blurred.

b) If the birth weight is less than 500 grams, resuscitation should only be performed after most careful consideration.

c) A consistent obstetric and neonatal approach is important, as consistency has been shown to improve neonatal outcome. Disagreement between Obstetricians and Neonatologists may result in lack of appropriate treatment and interventions, including: medications, fetal health surveillance, and caesarean section versus vaginal delivery.

7. Counselling for Recurrence of Preterm Birth in a Subsequent Pregnancy

7.1 First trimester ultrasound should be performed in all pregnancies, especially when risk factors for preterm birth are present.

7.2 Ultrasound measured estimated fetal weight, with a good understanding of its limitations, may help in decision-making around pregnancy monitoring and obstetric interventions.

7.3 Serial transvaginal ultrasound CL measurements with specified gestational age directed surveillance may be used in patients at increased risk for preterm birth based on the expert MFM Specialist recommendations.

DEFINITIONS

Health care professional means an individual who is a member of a regulated health discipline, as defined by the *Health Disciplines Act* (Alberta) or the *Health Professions Act* (Alberta), and who practises within scope and role.

Health record means the Alberta Health Services legal record of the patient's diagnostic, treatment and care information.

Informed consent means the agreement of a patient to the patient undergoing a treatment/procedure after being provided with the relevant information about the treatment/procedure(s), its risks and alternatives and the consequences of refusal.

Most responsible health practitioner means the health practitioner who has responsibility and accountability for the specific treatment/procedure(s) provided to a patient and who is authorized by Alberta Health Services to perform the duties required to fulfill the delivery of such a treatment/procedure(s) within the scope of his/her practice.

Obstetrical Triage Acuity Scale (OTAS), for the purposes of this document only, means the first obstetrical triage scale with established reliability and validity. OTAS is a primary nursing assessment, triage, and communication of acuity to physician and other obstetrical provider tool.

Patient means an adult or child who receives or has requested health care or services from Alberta Health Services and its health care providers or individuals authorized to act on behalf of Alberta Health Services. This term is inclusive of residents, clients and outpatients.

REFERENCES

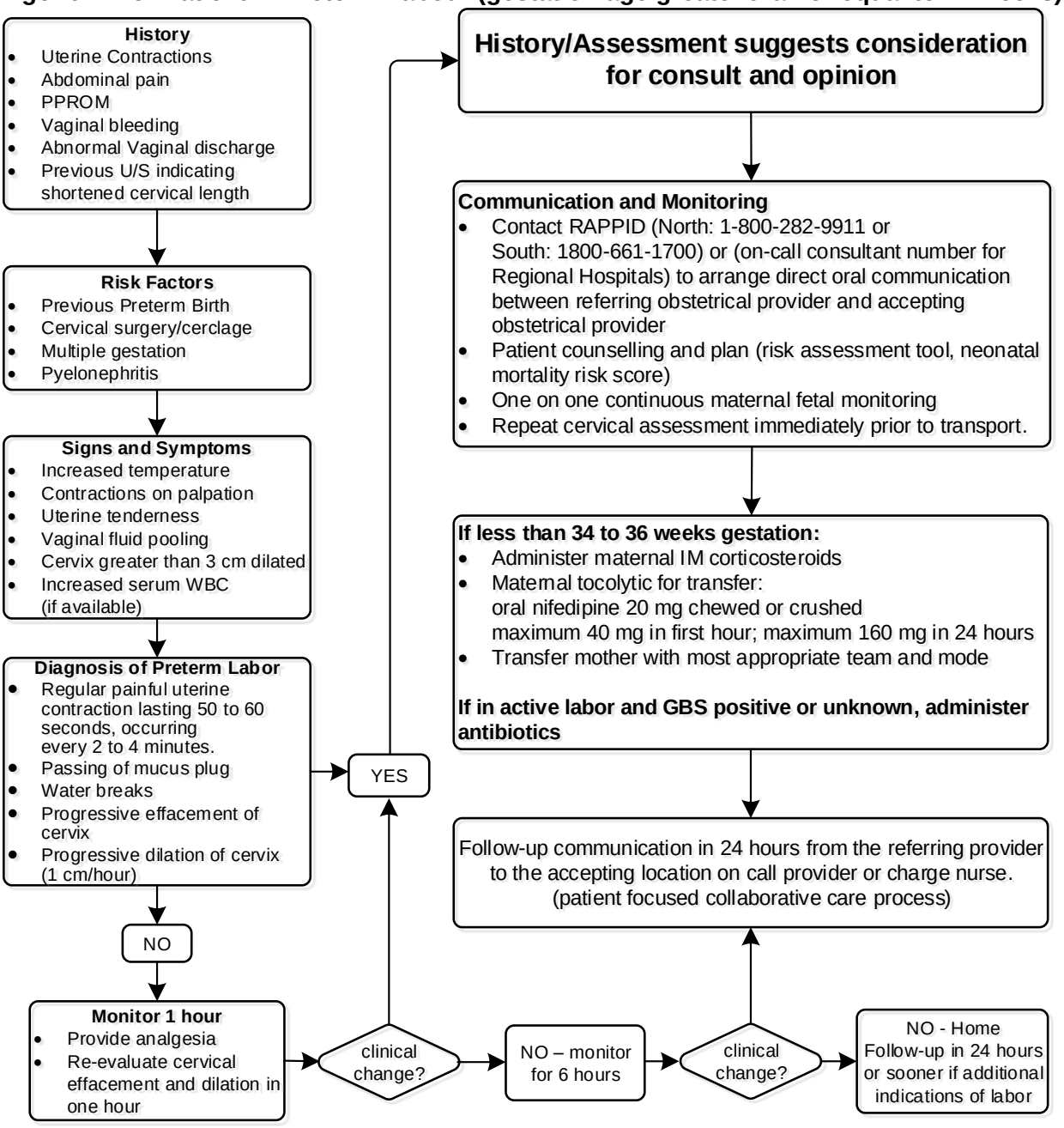
- Appendix A: *Algorithm for Patient in Pre-Term Labour (gestation age greater than or equal to 22 weeks)*
- Appendix B: Algorithm for: *RISK of Preterm birth with suspected Preterm Cervical Length Shortening but NOT IN LABOUR*
- Appendix C: *Algorithm for: RISK of Preterm birth with Premature Rupture of Membranes but NOT IN LABOUR*
- Appendix D: *Assessment of Preterm Labour Guideline Bibliography*
- Alberta Health Services Governance Documents:
  - *Obstetrical Triage Acuity Scale (OTAS)* Guideline (#HCS-207-01)
- Alberta Health References
  - *OBCU Obstetrical Triage Acuity Scale (OTAS)*

VERSION HISTORY

Date	Action Taken
October 17, 2016	Revision
October 20, 2016	Non-substantive change
March 6, 2018	Revision

Appendix A

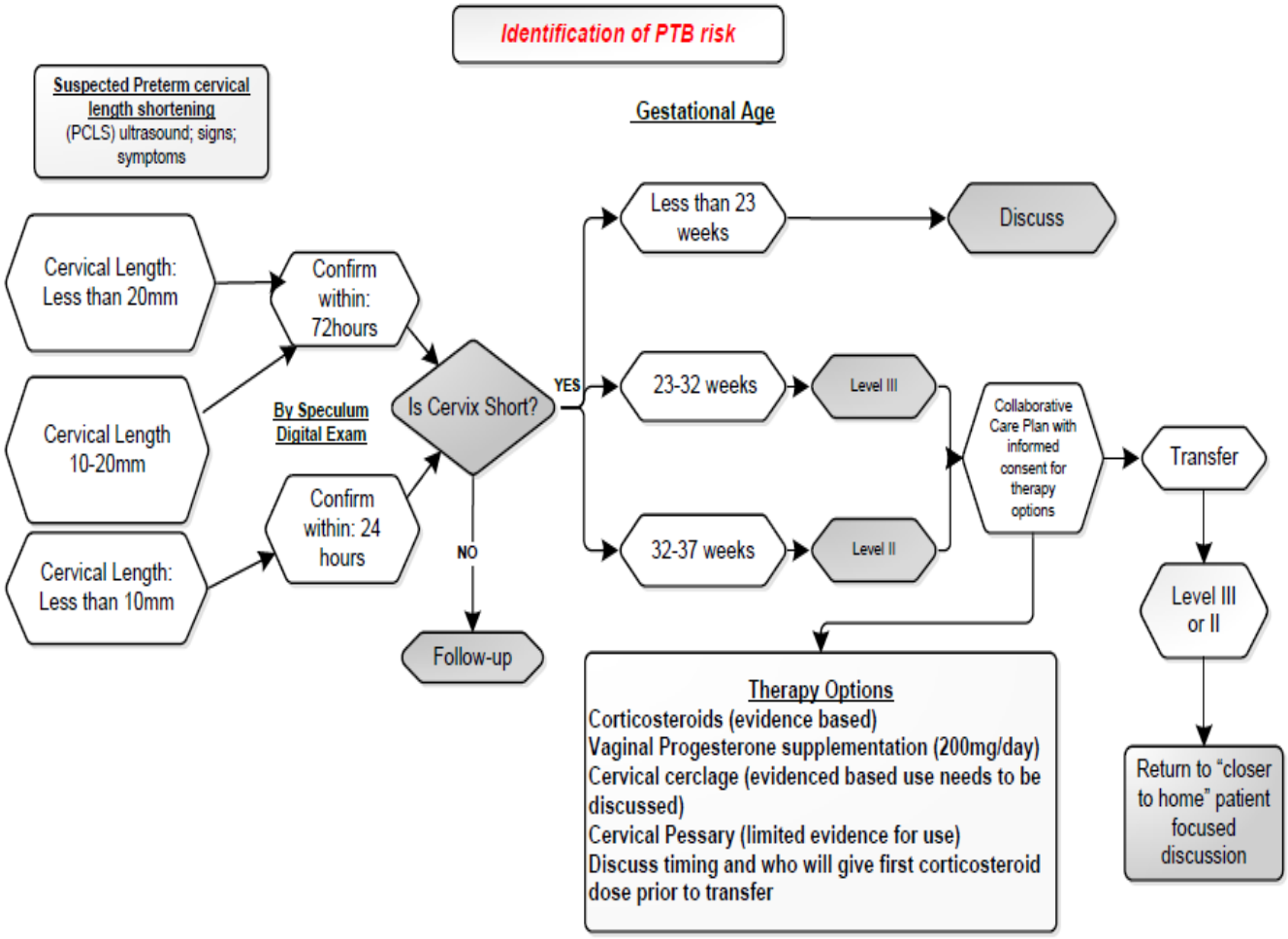
Algorithm for Patient in Preterm Labour (gestation age greater than or equal to 22 weeks)



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.

Appendix B

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

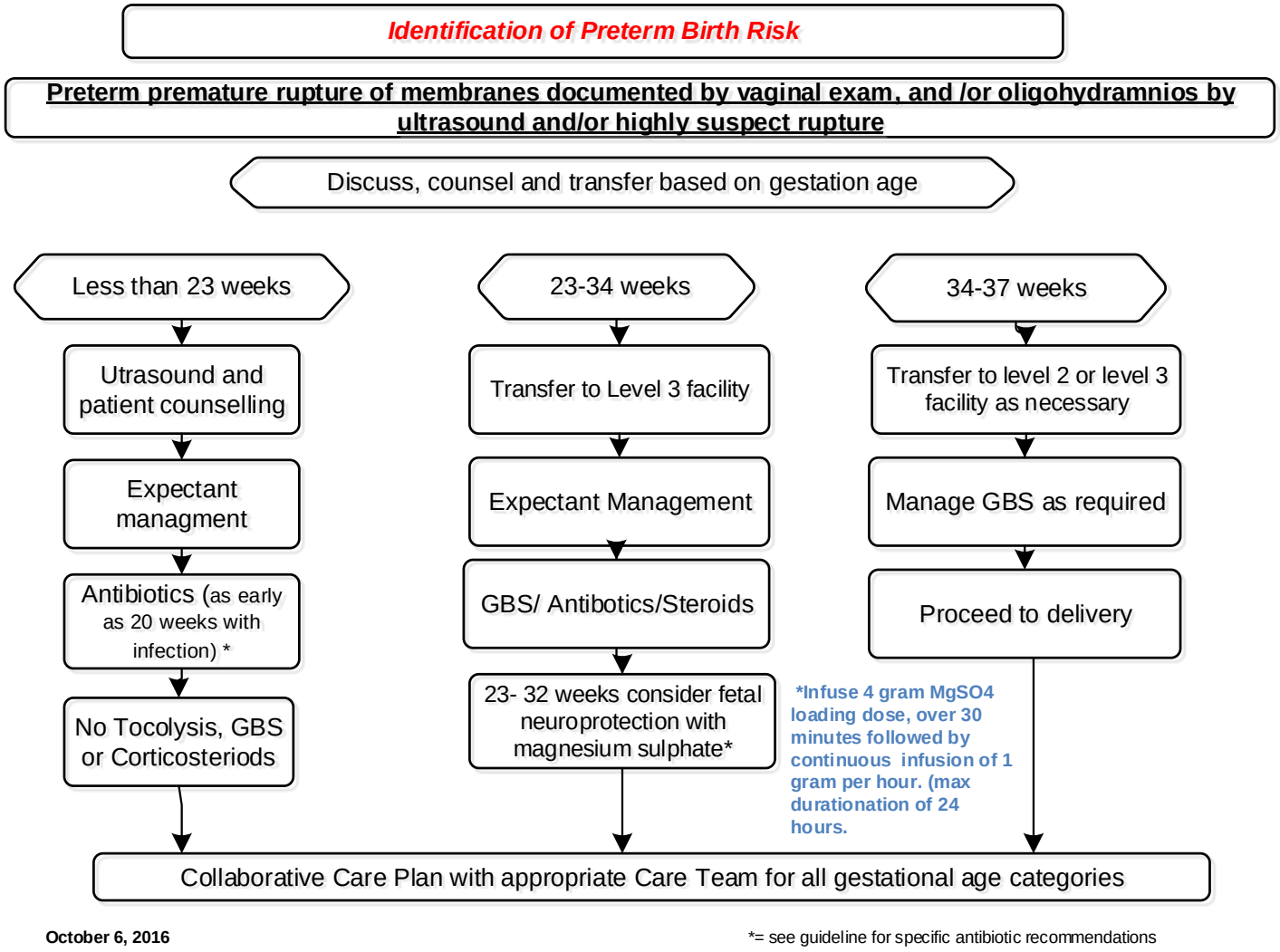


Clinical experience, the use of the Obstetrical Triage Acuity Scale (OTAS), maternal history, assessment, examination, uterine, fetal assessment, laboratory testing and imaging if available play a role in determining risk of PTB

July 8, 2016

Appendix C

Algorithm for: RISK of Preterm birth with Premature Rupture of Membranes but NOT IN LABOUR



October 6, 2016

*= see guideline for specific antibiotic recommendations

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

Appendix D

Assessment of Preterm Labour Guideline Bibliography

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