Preterm Birth

Making a Difference

Clinical Practice Guidelines

A Collaborative Project of

Best Start: Maternal, Newborn & Early Child Development Resource Centre

The Perinatal Partnership Program of Eastern and Southeastern Ontario

The Society of Obstetricians and Gynaecologists of Canada

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Section 3: Clinical Practice Guidelines

Introduction

Peterm birth (less than 37 completed w eeks gestation) is an important perinatal health problem in Canada. Approximately 8% (almost 1 in 12 babies) are born preterm in Ontario. The rate of preterm birth increased slightly in the past few years due, in part, to an increase in the number of multiple births. As a result, there is renew ed interest in the recognition and management of preterm birth as w ell as in its related morbidity and mortality.

Depending on their gestational age and maturity, preterm babies may experience a variety of health concerns. Families w ith a preterm baby must cope w ith the emotional distress associated w ith the uncertainty of their baby's future in the period immediately follow ing birth. They may also have to cope w ith long-term health concerns as a consequence of the preterm birth. Preterm babies w ho survive w ith a disability may need many community resources to help them achieve optimal quality of life. Almost all babies w ho are born preterm require extra medical and nursing care as new borns. In addition, those born at less than 34 w eeks usually spend time in a neonatal intensive care unit for a few days or several w eeks. During the course of their lifetime, it is estimated that each preterm low birthw eight baby w ill use about $676,800 (1995 dollars) in health care. With the existing number of preterm low birthw eight babies the total lifetime health care costs are more than $8 billion dollars. (For a more detailed discussion about the extent and impact of preterm birth on families and the community please refer to the *Preterm Birth - FAQ's*, the first component in this manual.)

One of the more promising strategies for reducing morbidity and mortality associated w ith preterm birth involves promoting early detection and appropriate response to preterm labour (Meis et al., 1987; Moutquin et al., 1996; Papiernik et al., 1985; Stew art & Nimrod, 1993). Prompt recognition of the signs and symptoms of preterm labour (secondary prevention) is essential if treatment w ith corticosteroids (tertiary prevention) is to begin early enough to have an optimum effect. One full-course of corticosteroids (tw o doses, 24 hours apart) given to the mother antenatally is the one intervention know n to make a difference in neonatal morbidity and mortality for infants of 24-34 w eeks gestation (Crow ley, 1997; National Institutes of Health, 1994). Antenatal steroids accelerate the maturation of specific fetal organs, including the lungs (National Institutes of Health, 2000). Administration of steroids can reduce mortality, respiratory distress syndrome and intraventricular hemorrhage (National Institutes of Health, 1994).

Improving the early detection and appropriate response to preterm birth is a complex undertaking. It involves many health care providers, organizations and community groups and cannot be accomplished by one person alone. It needs the varied insights, energy and resources of a group that represents the community. Collaboration adds to the credibility of the project in the eyes of the community. For groups interested in developing and implementing a community-w ide program related to preterm birth, please refer to the *Program Planning and Implementation Guide* section of this manual.

Purpose of the Clinical Practice Guidelines

These guidelines offer an evidence-based approach to the early recognition, assessment and management of preterm labour. A detailed literature review was conducted and a formal rating system developed by the *Canadian Task Force on the Periodic Health Examination* was applied to grade the level of evidence for each recommendation.

The guidelines have been prepared for the following individuals/organizations:

- Physicians/Midwives/Nurse Practitioners or Registered Nurses in offices, clinics or hospitals;
- Health care providers in hospitals with no obstetric services, but with an emergency department or clinic, including nursing stations in remote areas;
- Health care providers in hospitals with obstetric services; and
- Health care providers in the community (prenatal class providers, Canada Prenatal Nutrition Program, Healthy Babies/Healthy Children, health departments).

Research studies suggest that implementing new guidelines into practice is not an easy undertaking. A multifaceted approach that uses the principles of adult education may facilitate implementation. The use of opinion leaders, individual visits (academic detailing), discussion groups, presentations/workshops and posters are some options to be considered (Jennet & Hogan, 1998).

An important additional step is to have polices and procedures that support the intended practice change. Each health care organization is encouraged to develop policies and procedures that reflect their individual setting and clientele. The "Best Practice Guidelines" presented in this section can form the basis for this work. Presented below are suggested headings for policy and procedure development:

- Recognition of preterm labour
- Response to preterm labour
- Treatment of preterm labour
- Supportive care for women and families faced with preterm labour

A formal process will help to translate new guidelines into practice. The following five steps provide a framework for organizing the process.

Step 1 ***Form a small group*** who will be the driving force to keep the process going.

Step 2 ***Find out what is happening*** in your hospital, clinical practice area or organization, what needs to be done and who could do it.

Step 3 ***Choose priority areas for action*** and ***set objectives*** based on an assessment of your hospital, clinical practice area or organizational needs, interests and resources.

Step 4 ***Create a detailed plan*** for the initiative - what needs to be done, by whom and with what resources.

Step 5 ***Implement the plan*** with attention to communication and ongoing sustainability of the project. You will ***evaluate your progress*** and ***modify the activities*** as needed.

The same principles apply within any setting. This document can be a valuable resource for a hospital-based initiative, clinical practice-based initiative or organization-based initiative.

It is essential to build evaluation into all aspects of the initiative. Most importantly, you want to know whether clinical practice (i.e., education of all women or antenatal steroid use) has changed, and whether there has been a difference in specific outcome measures (i.e., early recognition and response to preterm labour or health of preterm babies). Collecting baseline data at the start of your project and then at regular intervals will allow you to monitor the change process and modify your efforts as needed.

Preterm Labour: What Can Health Care Providers Do?

These guidelines are modelled on the concepts of a program called ***REACH, REACT, RESPOND,*** developed in Ottawa as part of a community-wide initiative. The aim of the program is to promote collaboration between pregnant women, their partners, their families and health care providers in the hospital and in the community, for early recognition and appropriate management of preterm labour.

The concepts are as follows:

REACH Promotes universal counselling of all pregnant women/partners about preterm birth at the 18-20 week prenatal visit so that women know the signs and symptoms of early preterm labour.

REACT Encourages pregnant women/partners to recognize the early signs and symptoms of preterm labour and to seek appropriate help immediately.

RESPOND Guides health care providers on best practices for the appropriate response to the assessment, diagnosis and management of preterm labour.

All health care providers have a critical role to *REACH* women/partners, encourage them to *REACT*, and to *RESPOND* appropriately when preterm labour occurs. Table 1 outlines the role of health care providers in various hospital and community settings.

Table 1 Role of health care providers in various settings to *REACH* women/partners, encourage them to *REACT*, and to *RESPOND* appropriately when preterm labour occurs.

Health Care Provider Role	Setting					
	Community Services/ Resources & Prenatal Classes♥	**Prenatal Care Providers; Offices & Clinics**	**Nursing Stations & Hospitals without OBS Department**	**Hosp-itals: Level 1**	**Hosp-itals: Level 2**	**Hosp-itals: Level 3**
REACH ALL WOMEN						
Universal Counselling of Women/Partners about Signs & Symptoms	Y	Y	Y	Y	Y	Y
REACT – ENCOURAGE WOMEN TO GO TO THE HOSPITAL						
Taking calls about possible preterm labour & give message to "Go to the Hospital"	Y	Y	Y	Y	Y	Y
RESPOND USING BEST PRACTICE GUIDELINES						
Assessment/Diagnosis						
➢ History	--	Y	Y	Y	Y	Y
➢ Uterine activity assessment	--	Y	Y	Y	Y	Y
➢ Screening for infection	--	--	--	Y	Y	Y
➢ Ultrasound for cervical length	--	--	--	Y[ρ]	Y	Y
➢ Biochemical screening	--	--	--	--	Y	Y
Transport to Appropriate Facility	--	Y	Y	Y	Y	--
Treatment						
➢ Activity	--	--	Y [ρρ]	Y [ρρ]	Y	Y
➢ Hydration	--	--	X	X	X	X
➢ Medications	--	--	Y	Y	Y	Y
➢ Supportive Interventions	Y	Y	Y	Y	Y	Y
Referral to Community Support	Y	Y	Y	Y	Y	Y

♥ Includes Community Health Services, Public Health Units, Canada Prenatal Nutrition Programs, Healthy Babies/Healthy Children programs

ρ Ultrasound may be done if it does not delay maternal-fetal transport

ρρ These institutions may wish to initiate treatment while arranging for maternal-fetal transport

X Practice is not recommended

Rating of the Evidence

The Best Practice Guidelines in this Manual are based on the following Health Canada criteria for rating the research/evidence and the recommendations:

Quality of the Evidence

I Evidence obtained from at least one properly designed randomized controlled trial.

II-1 Evidence obtained from well-designed controlled trials without randomization.

II-2 Evidence obtained from well-designed cohort or case-control analytic studies preferably from more than one center or research group.

II-3 Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments (such as the results of the introduction of penicillin treatment in the 1940's) could also be regarded as this type of evidence.

III Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees.

Strength of the Recommendation

A There is good evidence to support use.

B There is fair evidence to support use.

C There is inadequate evidence to argue for or against use.

D There is fair evidence to avoid use.

E There is good evidence to avoid use.

Health Canada (1994); The Canadian guide to clinical preventive health care: The Canadian Task Force on Periodic Health Examination, Ottawa.

REACH

Universal Counselling of Women/Partners about Preterm Labour

While we cannot always change the circumstances leading to preterm labour and birth, we can make a difference in the outcome for those babies born preterm. Secondary (early identification) and tertiary (corticosteroids and transfer) prevention strategies are dependent upon a woman arriving at the hospital early. There is strong evidence to support the efficacy of corticosteroids for fetal lung maturation (Crowley, 2000; National Institutes of Health, 1994) but the medication can only be given if the woman arrives before labour is well established. In order for this to happen a woman must recognize and react to the signs and symptoms of preterm labour. Therefore, educating all women on the signs and symptoms of preterm labour is reasonable and justified. Yet, Davies et al. (1998) found that most women were not being educated about

preterm birth by anyone in the health care system..

A discussion of preterm labour and birth should occur early in pregnancy. This will allow women who develop preterm labour at an early gestational age (22 or 23 weeks) to benefit from the information. Counselling should occur at the 18-20 week visit. Because lifestyle factors have an important role in the risk of preterm labour, reinforcement of previous lifestyle counselling can also occur at this time. If lifestyle assessment and counselling have not been addressed before this visit, it is an opportune time to identify the modifiable risk factors, develop a plan for change, and make referrals to community support agencies.

The following signs and symptoms of preterm labour have been documented in the literature:

> Contractions; menstrual-like cramps; low dull backache or a change in backache; pelvic pressure or a change in pelvic pressure; change in vaginal discharge (amount or consistency); abdominal cramps with or without diarrhea; and thigh pain (Iams et al., 1990; Katz et al., 1990; Moore, 1998; Patterson et al., 1992).

See "Rating of the Evidence" (p 40) for Fact Sheet for Women about Preterm Labour

Best Practice Guideline – REACH

- ☐ Universal counselling and education to take place at the 18-20 week primary care prenatal visit to ensure that all women receive the information. The information can be reinforced at community prenatal support programs such as prenatal classes, Canada Prenatal Nutrition Program or Healthy Babies/Healthy Children visits.

  Quality of Evidence: III Strength of Recommendation: A

The process of *REACH* can be augmented with written materials. See Appendices for a list of resources.

REACT

Phone Calls from Women in Suspected Preterm Labour

As previously noted, the signs and symptoms of preterm labour are diverse (subtle and varied) and because of this, a diagnosis is difficult to make without a physical assessment.

It is important for health care providers and anyone providing services to pregnant women to have a *consistent message* and to encourage a *rapid response* to suspected preterm labour.

Best Practice Guideline – REACT

- ☐ Encourage the woman experiencing signs and symptoms of preterm labour to ***GO TO THE HOSPITAL*** (OR NURSING STATION IN REMOTE AREAS) because:
  - The only way to diagnose preterm labour is by a physical assessment and this is not possible over the phone.
  - Early assessment and treatment can make a difference in the outcome for the baby.
  - **Timing is critical.**
  - It is better for the woman and her baby to be assessed and sent home rather than wait too long to start appropriate treatment.

Quality of Evidence: III Strength of Recommendation: A

RESPOND

Assessment and Diagnosis

Early assessment, transfer to a facility equipped to deal with the complex needs of preterm newborns, and evidence-based treatment are critical components of the *appropriate response* to preterm labour.

The ***RESPOND*** protocol consists of:

- the assessment of women with any signs or symptoms of preterm labour
- the provision of the most appropriate care based on best practice evidence
- communication of the information to parents

Complete History

A thorough history is an important part of the assessment of preterm labour. Major areas of assessment include risk factors (physiologic, behavioural and psychosocial), problems in the current pregnancy, medical problems of note, and fetal status. The information gained from a thorough history provides the basis for an appropriate management plan.

Risk Factors for Preterm Birth

Preterm birth is more common among the following women:

- Age <20 and >35 years
- Uterine or cervical anomalies
- Previous preterm birth
- Primiparous
- Women living in poverty
- Single women
- Height less than 62" (157.5 cm.)
- Women with serious medical problems
- Multiple pregnancy

Probable association between preterm birth and:

- Cigarette smoking
- Genital tract infections
- High perceived stress
- Illicit drug use
- Asymptomatic bacteriuria

Possible association between preterm birth and:

- Body mass index < 20 (prepregnancy)
- Low gestational weight gain
- Low daily folate intake
- Lack of micronutrients
- Work activity
  - standing for long periods (4 – 6 hours)
  - lifting heavy weights

(Stewart, 1998)

Uterine Activity Assessment

The assessment of uterine activity will provide an indication of contraction frequency, duration and intensity. Preterm labour contractions will often not show up on the electronic fetal monitor tocodynamometer. Palpation of uterine activity is the most accurate means of assessment (Simpson, 2001).

Best Practice Guideline

☐ Assess uterine activity by palpation in all women with any sign of preterm labour.

Quality of Evidence: III Strength of Recommendation: A

Screening for Infection

- Current evidence ***does not support screening and treating all pregnant women*** for bacterial vaginosis to prevent preterm birth and its consequences (Brocklehurst et al., 2000). The Centers for Disease Control and Prevention in Atlanta recommends treating women with symptomatic bacterial vaginosis (Lamont, 2000). Diagnosis of bacterial vaginosis is confirmed by fulfilling three of the following 4 criteria: vaginal pH <4.7;

presence of clue cells on a gram stain or wet mount; presence of a thin homogeneous discharge; and release of a fishy odour when potassium hydroxide is added.

- For women with a history of a previous preterm birth, there is some suggestion that detection and treatment of bacterial vaginosis early in pregnancy may prevent a proportion of these women from having a further preterm birth (Brocklehurst et al., 2000).
- Asymptomatic bacteriuria is harmful in pregnant women and adverse outcomes can be prevented with antimicrobial therapy (Nicolle, 2000; Smaill, 1998).

Best Practice Guidelines

- ☐ Screen every pregnant woman for asymptomatic bacteriuria and treat as appropriate (quantitative culture of a midstream or clean catch urine specimen is the method of choice). All women with clinical evidence (i.e. positive culture) of urinary tract infection should be treated.

  Quality of Evidence: I Strength of Recommendation: A

- ☐ There is no evidence to support routine screening for bacterial vaginosis in women at **low risk** for preterm birth.

  Quality of Evidence: I Strength of Recommendation: D

- ☐ **High-risk** women (i.e. previous preterm delivery) should be screened for bacterial vaginosis and treated as appropriate.

  Quality of Evidence: I Strength of Recommendation: B

Ultrasound for Cervical Length

- Cervical length, measured by transvaginal ultrasound has been shown to be a reliable predictor of preterm delivery in women ***at increased risk***. The predictive value of transvaginal ultrasound in ***low risk*** obstetrical populations is poor (Armson & Moutquin, 1998).
- Armson and Moutquin (1998) conclude that the role of transvaginal ultrasound in measuring cervical length remains unclear.
- Digital assessment of the cervix should be avoided, when possible, if membranes have ruptured. Sterile speculum examination can be used to visualize the cervix.

Best Practice Guideline

- ☐ Ultrasound assessment of cervical length may be used as an adjunct in the assessment of a woman with presumed preterm labour. Maternal-fetal transport should not be delayed while waiting for an ultrasound assessment to be completed as it can be done at the referral centre. The predictive value of a shortened cervix on ultrasound assessment is increased in women experiencing signs and symptoms of preterm labour (Leitich et al., 1999).

  Quality of Evidence: II-2 Strength of Recommendation: A

Biochemical Screening

Fetal Fibronectin

- Fetal fibronectin is a protein found in membranes, decidua and amniotic fluid. It is thought to function as an adhesive between the products of conception and the interior surface of the uterus. If found in the cervix or vagina, it may indicate a disruption of the attachment of the membranes to the decidua, and therefore a higher risk of preterm labour (Armson & Moutquin, 1998).
- Fetal fibronectin screening shows evidence of effectiveness when used as a diagnostic tool to assess risk of preterm birth in women at higher risk of preterm labour (ACOG, 1995; Goldenberg et al., 1996; Goldenberg et al., 2000; Watson et al., 1998). ***High-risk*** women include women with symptoms of preterm labour, women with multiple gestation or a previous preterm birth. Fetal fibronectin is a ***less useful*** predictor for preterm birth in ***low-risk populations.***
- Its usefulness may lie in its high negative predictive value, (if it isn't present, the woman is less likely to have preterm labour). Therefore, absence of fetal fibronectin can prevent unnecessary treatment (Vause & Johnston, 2000).
- Fetal fibronectin testing is not widely used. Efforts are evolving to situate fetal fibronectin testing at the "point-of-care" with a rapid-testing-to-results interval. This holds the potential to limit unnecessary hospitalization and treatment.

Salivary Estriol

- Fetal stress-related preterm deliveries might be associated with elevated maternal serum estriol levels. A surge has been noted approximately 3 weeks before the onset of labour in women who delivered prematurely or at term (McGregor et al., 1995).
- Detection of an early estriol surge may be clinically helpful in identifying women at increased risk for preterm labour and preterm birth (McGregor et al., 1995), and is under investigation at present.

Best Practice Guideline

☐ Biochemical screening (fetal fibronectin and salivary estriol) is still under investigation and not routinely used outside of clinical trials. Fetal fibronectin has been identified as an important diagnostic tool and efforts are underway to establish "point-of-care" testing and results.

Quality of Evidence: II-3 Strength of Recommendation: B

In the Future… Studies are exploring the roles of cervical alpha-fetoprotein, cytokines, corticotropin-releasing hormone (CRH) and interleukin-6 (IL-6) as indicators of preterm labour and birth.

Transport to an Appropriate Facility

- The risk of death for preterm babies is ***much higher*** when born outside an appropriate centre. For example, at 26 weeks, survival rates are ***halved*** for babies not born at a Level III centre. Transport and management guidelines are developed based on knowledge of survival at different gestational ages.

Gestational Age (completed weeks)	**Recommendations*** * Decisions about transport should be made in collaboration with your local tertiary care centre.(SOGC & CPS Joint Statement, 2000)
≤22 weeks	• Current survival rate at this gestational age is 0%, • Compassionate palliative care is recommended • If birth is not inevitable, aggressively treat the precipitating factor • Present the woman and her partner with realistic options
23-24 weeks	• Survival ranges from 10–50% • Morbidity ranges from 20–35% with 10% of survivors being severely handicapped • Give parents information on survival and handicap, estimates of length of stay and potential problems
25-26 weeks	• Range of survival is about 50–80% with 60% at 25 weeks and 70% at 26 weeks

	• Morbidity ranges from 10–25%
27-32 weeks	• Survival rate at 27 weeks is at least 80% or better • Disability rate is no more than 10-15% (and perhaps less)
32-33 weeks	• Survival is better than 95% at 33 weeks • Disability risk of no more than 5%
34-36 weeks	• Survival rates are about 99% with a disability risk similar to the full-term population • Even though the respiratory system is likely to be mature, these infants may spend longer time in hospital due to immaturity of other organ systems

RECOMMENDATIONS FOR PLACE OF BIRTH

Generally agreed upon criteria for care at hospitals:

No OBS unit - emergency births only

Level I - babies ≥34 – 36 completed weeks gestation**

Level II - babies 32 – 34 completed weeks gestation

Level III - all babies < 32 completed weeks gestation

- any baby diagnosed with congenital anomalies (birth defects)

- any baby with a surgical/cardiac problem

If preterm delivery is anticipated for maternal or fetal indications, *it is always preferable to arrange for transport of the mother (with baby in utero)* rather than a neonatal transport.

CritiCall Ontario will assist the referral hospital to locate a centre that is accepting transfers and will arrange for transportation. They can be reached at **1-800-668-HELP (4357).**

If a preterm birth is likely, the first dose of corticosteroids for fetal lung maturation should be given prior to the transport.

IMPORTANT CONSIDERATION

****** A facility's ability to care for a baby between 34–36 weeks gestation is based upon a myriad of factors. In consultation with tertiary centre specialists (obstetrics, neonatalogy and/or pediatrics) an institution may opt either to care for or to transfer the infant in question.

For information on the various hospital levels (I, II or III) please refer to Family-Centred Maternity and Newborn Care: National Guidelines (Health Canada, 2000).

Treatment

Two of the most common treatment modalities associated with preterm labour are activity restriction and hydration. They are widely used, despite little evidence of efficacy. More research is required.

Activity Restriction

- There is a lack of evidence supporting the commonly prescribed practice of bedrest to prevent birth. If bedrest is prescribed, careful attention to side effects is necessary (Maloni, 1996).

Hydration

- There is no proven benefit to the use of hydration to prevent preterm labour (Comerford-Freda & DeVore, 1996; Freda & DeVore, 1996) and the practice is **not** recommended.

Best Practice Guidelines

- ☐ There is a lack of evidence supporting activity restriction to prevent preterm birth.

  Quality of Evidence: I Strength of Recommendation: D

- ☐ Hydration is not recommended as a treatment to prevent preterm labour and birth.

  Quality of Evidence: I Strength of Recommendation: D

Medications

Antibiotics

- Antibiotics are **not recommended** as a routine adjunct therapy for women in preterm labour ***with intact membranes*** and no infectious etiology (Egarter et al., 1996a; King & Flenady, 2000; Vause & Johnston, 2000).
- While antibiotic treatment is effective for the cure of urinary tract infection, there is insufficient data to recommend any specific treatment regimen for symptomatic urinary tract infection during pregnancy (Vazquez & Villar, 2001). There is insufficient evidence to evaluate whether a single dose or longer duration doses are more effective in treating asymptomatic bacteriuria in pregnant women (Villar et al., 2001).
- Meta-analysis showed improvement in neonatal morbidity when women with preterm premature rupture of membranes were treated with antibiotics, regardless of differing regimes (Egarter et al., 1996b; Kenyon et al., 2000; Mercer et al., 1997; Vause & Johnston, 2000).
- Women who present in preterm labour with unknown Group B streptococcal status, or who are known to be Group B streptococcal positive, need treatment. Standard treatment protocols are available in hospitals.

BestPractice Guidelines

- ☐ Treat all women in preterm labour who are Group B streptococcal positive or with unknown Group B streptococcal status.

  Quality of Evidence: I Strength of Recommendation: A

- ☐ Treat women with ***preterm*** premature rupture of membranes with antibiotics.

  Quality of Evidence: I Strength of Recommendation: A

- ☐ Antibiotics are not recommended for women in preterm labour with intact membranes, unless there is an infectious etiology (i.e. positive culture) or one of the above conditions has been met.

  Quality of Evidence: I Strength of Recommendation: E

Corticosteroids

- Antenatal administration of corticosteroids is associated with a significant decrease in neonatal mortality, respiratory distress syndrome, intraventricular hemorrhage and periventricular hemorrhage in premature infants (Canterino et al., 2001, Crowley, 2000; Smith et al., 2000; Vause & Johnston, 2000).
- The benefits of corticosteroid administration vastly outweigh the potential risks (Gardner et al., 1997; Bernstein, 2001).
- Potential risks of corticosteroids include increased incidence of neonatal infection, increased uterine activity, lower birth weight and decreased head circumference (Bernstein, 2001; Gardner et al., 1997; National Institutes of Health, 2000). ***These risks appear to be compounded for babies who receive more than one complete course*** (National Institutes of Health, 2000).

Best Practice Guidelines

- ☐ In light of the lack of evidence of effectiveness and potential harm associated with multiple courses of steroids, the National Institutes of Health (2000) has recommended ***a single course*** (2 doses, 24 hours apart, and 24 hours prior to birth) of antenatal corticosteroids for fetuses between 24 – 34 weeks gestation.

  Quality of Evidence: I Strength of Recommendation: A

- ☐ With preterm premature rupture of membranes at less than 30-32 weeks gestation, in the absence of clinical chorioamnionitis, antenatal corticosteroid use is recommended. Clinical chorioamnionitis is defined as maternal temperature ≥ 37.8 and two or more of the following conditions:
  - *maternal tachycardia (100 bpm)*
  - *fetal tachycardia (> 160 bpm)*
  - *uterine tenderness*
  - *foul odour of the amniotic fluid*
  - *maternal leukocytocis (>15 x 10^9/L)* (Newton, 1993)

  Quality of Evidence: I Strength of Recommendation: A

Administration of Corticosteroids

Usual treatment is **Betamethasone – 12 mg IM q24h x 2 doses**. However, **Dexamethasone – 6 mg IM q12h x 4 doses** - may also be used.

Tocolysis

Tocolysis has traditionally been used to prolong pregnancy in cases of preterm labour. However, research evidence has shown that prolonging pregnancy may not improve neonatal outcomes (ACOG, 1995; Society of Obstetricians and Gynaecologists of Canada, 1995). The current recommendation states that tocolytic agents be used to prolong the pregnancy only long enough to administer a complete course of antenatal steroids and to transfer (if applicable) to a centre equipped to deal with the complex needs of a preterm infant. Judicious use of tocolytics is imperative as these drugs may lead to significant maternal side effects (Simpson, 1997).

NOTE:

In the past, Ritodrine (Yutopar) was one of the most widely utilized tocolytics. In 2000, the manufacturer ***stopped production*** of this medication. Other tocolytic medications currently in use or under investigation are outlined on page 52.

Best Practice Guidelines

- ☐ Only use tocolytics for the ***48 hours*** required to administer corticosteroids. If using tocolytics, review the evidence provided in the table on the next page.

  Quality of Evidence: I Strength of Recommendation: A

- ☐ If ***maternal-fetal transfer*** is planned, ***indomethacin*** may be the most appropriate drug (dependent upon gestational age and/or time expected for transfer). Consult the tertiary referral centre.

  Quality of Evidence: III Strength of Recommendation: B

- ☐ Magnesium sulfate has not been proven effective as a tocolytic.

  Quality of Evidence: I Strength of Recommendation: E

- ☐ When planning care for a patient in preterm labour, contact your local tertiary care centre for advice on management and transfer.

  Quality of Evidence: III Strength of Recommendation: A

Tocolytic Agents

Tocolytic	Quantity of Evidence	Quality of Evidence	Evidence for/against Use	Contra-Indications	Precautions	Method of Administration/Dose
Magnesium Sulfate ($MgSO_4$) **No clear evidence of benefit as a tocolytic**	++	++	• ***No clear tocolytic effect*** • Unknown effect on perinatal/neo-natal outcome • Unknown risk of maternal side effects	• Myasthenia Gravis • Myotonic Dystrophy	• Restriction of IV fluids • Monitoring of deep tendon reflexes • Monitoring of serum magnesium levels • Monitor FHR	• 4g bolus followed by 2 to 6g/hr IV to a maximum of 2 to 3.5 mmol/l (not based on evidence of efficacy)* • **Follow your hospital policy for increment rates and times**
Indomethacin **Good choice for use in transfer**	+	++	• Prolongs pregnancy by 7-10 days • Unknown effect on perinatal/neonatal outcome • Low risk of maternal side effects	• ASA sensitivity • Preterm PROM (relative) • Gestational age > 32 weeks (relative) • Fetal ductal dependent cardiac disease (relative) • Renal toxic medication	• Monitor fetal ductal patency and amniotic fluid volume	• Oral or rectal: 50mg load followed by 25mg q 4-6 hours to a maximum of 150mg/day (not based on evidence of efficacy)
Atosiban **Similar outcomes to ritodrine**	+	+	• Tocolytic effect similar to ritodrine • Unknown effect on perinatal/neonatal outcome • Maternal cardiovascular effect < ritodrine	• Unknown	• Unknown	• IV infusion of atosiban 300 µg/min x ? duration (not based on evidence of efficacy)
Nifedipine **Limited evidence available**	++	+	• Unknown tocolytic effect • Unknown effect on perinatal/neonatal outcome • Unknown risk of maternal side effects	• Unknown	• Unknown	• Nifedipine 20mg po q4-8 hrs; or • 10mg s/l q20min to a maximum of 40mg/hr (not based on evidence of efficacy)
Glyceryl Trinitrate **Large multi-centred trial underway**	+	+	• Unknown tocolytic effect • Unknown effect on perinatal and neonatal outcome • Unknown risk of maternal side effects	• Unknown	• Unknown	• Transdermal patches 10mg/24hrs, (not based on evidence of efficacy)

Sulindac is not available in Canada. It has unknown tocolytic effect. It is being used within research protocols. See Society of Obstetricians and Gynaecologists of Canada (1995) for further information.

Adapted from Society of Obstetricians and Gynaecologists of Canada *(1995)*

Supportive Interventions

If, after a thorough assessment, active preterm labour is ruled out, women can be either discharged or admitted to hospital or to antepartum home care programs for further observation. Health care providers are afforded an additional opportunity to address and reinforce healthy behaviours. A change in unhealthy behaviour, even at later gestational ages, can contribute to a better outcome for the baby.

A Template for the "Teachable" Moment

- ☐ Ask about the presence of the risk factors (using a non-judgmental attitude), and the woman's readiness for a change in behaviour.
- ☐ Advise about the availability and accessibility of appropriate resources.
- ☐ Assist with collaborative planning to facilitate successful behaviour change.

(Adapted from the Council for a Tobacco Free Ontario, 1995)

With respect to any of the health issues discussed below, a collaborative approach to change is recommended.

Smoking

Smoking is a potentially preventable factor associated with low birth weight, very preterm birth and perinatal death. Attention to smoking behaviour and readiness for change together with support for smoking cessation and relapse prevention needs to be a ***routine*** part of antenatal care (Lumley et al., 2000). Relapse rates are high in the postpartum period. Strategies to prevent relapse should be discussed in the prenatal period and reinforced in the early postpartum period.

ASK

- ✓ if she or her partner smokes (include quantity, frequency and triggers)
- ✓ if she or her partner is ready to reduce or quit smoking
- ✓ about her attitudes and concerns about quitting
- ✓ about previous experience with smoking reduction

ADVISE

- ✓ provide information about health risks of smoking to the woman and fetus
- ✓ about community resources including smoking reduction or cessation programs, public health units/departments and Healthy Babies/Healthy Children programs
- ✓ about the effect of environmental tobacco smoke on the fetus/infant

ASSIST

- ✓ the woman/partner to identify personal resources
- ✓ in developing a reduction or cessation plan
- ✓ by providing ongoing support

Stress

Stress has been associated with spontaneous preterm birth and low birth weight (Copper et al., 1996; Gennaro & Fehder, 1996). It is important to examine the factors that contribute to stress in a woman's life and to counsel on strategies to reduce stress.

ASK

- ✓ the woman to identify areas in her life that she finds stressful and the amount of stress she experiences
- ✓ about previous experience with stress and coping strategies

ADVISE

- ✓ about the relationship of intensity, duration and impact of stress on the woman and the pregnancy
- ✓ about the benefits of stress reduction
- ✓ about community programs available through health units/departments, Healthy Babies/Healthy Children programs and Canada Prenatal Nutrition Programs

ASSIST

- ✓ the woman to identify personal resources
- ✓ in referral to appropriate programs or health care professionals
- ✓ by providing ongoing support for stress reduction

Employment

Preterm birth appears to be related to hours worked per day or week and to adverse working conditions (Luke et al., 1995). Jobs that involve prolonged standing (4-6 hours or more) and require a high level of physical exertion are of particular concern. While more research is needed on the relationship between work and preterm birth, it is reasonable to inform all women about potential employment-related risk factors.

ASK

- ✓ about employment status, job related activities, exposure to hazardous substances
- ✓ about protective reassignment during pregnancy (if available)

ADVISE

- ✓ the woman to access available resources (i.e. occupational health nurse)
- ✓ to seek out information on potentially hazardous substances

ASSIST

- ✓ the woman to identify strategies to reduce the impact of employment-related risk factors (job sharing, work modification, reduction or change in work hours, flexible scheduling to allow for prenatal care, place to rest during the day)

Nutrition and Weight

Low pre-pregnancy weight and low weight gain during pregnancy have usually been associated with low birthweight rather that preterm birth. Recently, Schieve et al. (2000) found that women with low pregnancy weight gain are at increased risk of preterm delivery, particularly if the women were underweight or of average weight before pregnancy.

ASK

- ✓ about the woman's nutritional status (diet preferences, access to food)
- ✓ about previous weight gain and loss, particularly during pregnancy
- ✓ about a history of eating disorders

ADVISE

- ✓ about relationship between poor weight gain and low birth weight and preterm birth
- ✓ the woman to identify personal resources to help with nutrition and weight issues
- ✓ about community nutrition support programs (i.e. Canada Prenatal Nutrition Program) and dieticians as appropriate
- ✓ about Canada's Food Guide for Healthy Eating

ASSIST

- ✓ in developing a plan for healthy eating
- ✓ by providing ongoing support

Illicit Drug Use

Illicit drug use has been linked to preterm birth (Senay, 2000). Practitioners should inquire about drug use as a routine part of prenatal assessment and care. Although there is limited evidence about the success of drug cessation programs during pregnancy it is always appropriate to refer for treatment.

ASK

- ✓ if the woman or her partner uses any type of illicit drugs (ask about frequency, quantity, triggers)
- ✓ about her readiness to reduce or quit
- ✓ about her attitudes and concerns about quitting
- ✓ about previous experience with drug use during pregnancy

ADVISE

- ✓ the woman and partner to identify personal resources
- ✓ about community resources including public health units/departments, Healthy Babies/Healthy Children programs and Canada Prenatal Nutrition Programs

ASSIST

- ✓ in developing a reduction or cessation plan
- ✓ by providing ongoing support
- ✓ in referral to a drug treatment program if required

Abuse

Physical violence is associated with preterm labour (Cokkinides et al., 1999; Webster et al., 1996). Physical abuse can begin or escalate in pregnancy. Health care providers need to question every woman about abuse as a routine part of prenatal care.

ASK (without the partner present)

- ✓ if there is a history of abuse the type (physical, emotional). Screening tools are available (Health Canada, 1999)
- ✓ about associated behaviours (delayed prenatal care, frequent visits to hospitals/clinics)
- ✓ if she feels safe
- ✓ about readiness for change (recognize the barriers to her leaving)
- ✓ about her willingness to seek counselling and assistance

OBSERVE

- ✓ partner behaviour and couple interaction at visits/appointments
- ✓ the woman's manner and interaction in answering questions

ADVISE

- ✓ about risk to her own safety and safety of fetus or other children
- ✓ the woman to identify personal resources
- ✓ about community programs available (i.e. shelters, counselling)

ASSIST

- ✓ the woman to access community resources including counselling and social work
- ✓ the woman arrange for an alternate place to live (when required)

Referral to Community Support

There are a variety of community agencies that provide support for women (and their partners) who have experienced either preterm labour or the birth of a premature infant or who may be at risk for preterm birth. Prompt referral to accessible and consistent information is an integral part of the education about and the management of preterm labour and birth.

The Canada Prenatal Nutrition Program, Healthy Babies/Healthy Children and public health units/departments all have resources of interest to pregnant women and their partners. Women, their partners and health care providers are encouraged to contact such agencies.

See Appendices for a list of preterm resources.

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Appendix D: Data Collection Tools

PRETERM BIRTH PREVENTION PROJECT – CHART REVIEW
and
QUESTIONNAIRE (PRETERM & TERM BIRTHS)

This appendix contains a table used to review hospital charts for local preterm data and a table used to interview women about their delivery. The data collected from hospital charts and patient interviews will help your group define local issues and concerns and will help you plan your preterm initiatives.

PRETERM BIRTH PREVENTION PROJECT – CHART REVIEW

Dates reviewed:

Eligible only if the baby was born alive at < 37 weeks gestation

Hospital # _____

Date admitted to the hospital (d/m/y) _____

Time admitted to the hospital _____

1. Was this woman transferred in from another hospital in the region
   _____Yes (name the hospital) _____
   _____ No
2. Gestational age at admission was: _____ wks _____ days

3. Was this pregnancy a multiple gestation? _____Yes _____ No
   If yes, # of babies _____

4. Was this woman admitted specifically because of signs and symptoms of preterm labour or preterm ROM?
   _____ Yes (identify from list or add other) _____ No
   _____ contractions
   _____ ruptured membranes
   _____ cervical changes
   _____ other _____

5. Were there any other indications for admission of this patient other than the signs and symptoms of preterm labour or preterm ROM (see physicians progress note)

_____ Yes (specify from the list below) _____ No (skip to the next question)

Medical or Pregnancy Problem (specify) (check as many as apply)

_____ Insulin-dependent diabetes prior to pregnancy
_____ Gestational diabetes
_____ Heart problems
_____ Renal system problems (UTI or pyelonephritis or kidney failure)
_____ Chronic hypertension (that started before pregnancy)
_____ Pregnancy-induced hypertension (PIH, high BP, HELLP syndrome, toxemia)
_____ Bleeding (placenta previa, placental abruption or unknown cause)
_____ Infection
_____ Incompetent cervix
_____ Other (specify)

_____

Fetal Problems

_____ IUGR (also known as small for gestational age or growth problems)
_____ Decreased fetal movement
_____ Poor fetal assessment scores
_____ Fetal anomaly
_____ Multiple pregnancy
_____ Malpresentation
_____ Non-reassuring FHR pattern or fetal status
_____ Fluid abnormalities
_____ Other (specify)

_____

6. Did this woman have orders for and receive any of the following treatments ***within 7 days of the birth?***

Record yes or no for each and the date and time it occurred, if applicable

	No	Yes	Date (d/m/y)	Given at R= referring hospital B= birth hospital	Time
Steroid Administration			Dose 1 Dose 2	Dose 1 Dose 2	Dose 1 Dose 2
Tocolysis with Ritodrine					
Tocolysis with MgSO4					
Tocolysis (other)					

7. Date of the birth (d/m/y): _____

8. Time of the birth (if multiple birth, include the time of birth of each baby)
   Baby # 1 _____
   Baby # 2 _____
   Baby # 3 _____

9. This woman underwent a:
   _____ vaginal birth
   _____ vaginal birth using a vacuum
   _____ vaginal birth using forceps
   _____ cesarean birth (pick an indication from the list below or specify other)
   _____ normal/elective indication: _____
   _____ urgent indication: _____
   _____ crash/emergency indication: _____

   a) decreased fluid volume
   b) unripe cervix
   c) breech or other malpresentation
   d) previous caesarean
   e) fetal indications
   f) multiple birth
   g) medical/pregnancy complication
   h) bleeding
   I) extreme prematurity
   j) unsatisfactory labour progress
   k) wanted tubal ligation
   l) cord presentation
   m) fibroids

10. The sex of this baby(ies) is/are:
    Baby # 1 _____female _____ male
    Baby # 2 _____female _____ male
    Baby # 3 _____female _____ male

11. The gestational age of this baby (these babies) at the time of birth is: _____ weeks & _____ days

12. The birthweight of this baby (these babies) is/are:
    Baby # 1 _____g Apgars ____ 1 min _____ 5 min _____ 10 min
    Baby # 2 _____g Apgars ____ 1 min _____ 5 min _____ 10 min
    Baby # 3 _____g Apgars ____ 1 min _____ 5 min _____ 10 min

QUESTIONNAIRE (PRETERM & TERM BIRTHS)

Hospital #: _____ Did this woman have a: _____ preterm birth

Code # _____ _____ term birth

R = read the answers to the woman and let her choose
NR = do not read the answers, let the woman answer spontaneously

We will start with a few general questions that we ask all women about preterm birth:

1. If a woman has her baby "preterm", that means she delivers before: **(R)**

   ____ 40 weeks
   ____ 37 weeks
   ____ 28 weeks
   ____ Not sure

2. Did you ever consider that your baby might be born too soon, that is before 37 weeks? **(NR)**

   _____ Yes
   _____ No **(skip to # 4)**
   _____ Never thought about it **(skip to # 4)**

3. Why did you think you might be at risk for having a preterm baby? (Check as many as apply or specify.) **(NR)**

   _____ My last baby was born preterm
   _____ I was carrying twins, triplets etc.
   _____ I had a family history of preterm birth
   _____ Tests (lab or diagnostic) indicated that there could be a problem
   _____ I had or my baby had medical complications before or during pregnancy
   _____ My age or lifestyle put me at higher risk (work situation, smoking, alcohol, stress, over or underweight, lack of exercise)
   _____ I had contractions early in the pregnancy
   _____ Because it can happen to anyone
   _____ Physician said the baby would be born early
   _____ Other (specify using the mother's own words)
   _____
   _____

4. Can you tell me what you think are the warning signs of preterm labour? (Check as many as the woman states.) **(NR)**

_____ Menstrual-like cramps
_____ Low dull backache
_____ Pelvic pressure (heavy feeling, pushing into vagina)
_____ Abdominal cramping with or without vaginal discharge
_____ Bleeding from the vagina
_____ Increase or change in vaginal discharge (mucousy, light, watery, bloody)
_____ Fluid leaking from the vagina (rupture of membranes)
_____ Uterine contractions (may be painless)
_____ General feeling that something is not right
_____ Unusual pain
_____ Nausea/diarrhea
_____ Change in fetal movement
_____ Feeling unwell
_____ I don't know / I can't remember (**skip to # 6)**
_____ Other (specify using the woman's exact words)

_____
_____

5. Can you tell me how you learned about the signs and symptoms of preterm labour? (Check as many as apply.) **(R)**

_____ Pamphlet, book, article, etc.
_____ Prenatal visits (Dr. or nurse)
_____ Prenatal classes
_____ Family/friends have had experience and I learned from them
_____ Heard/saw something about it on the radio/TV
_____ Picked up information in the doctor's office/drugstore/pharmacy
_____ Experience in this pregnancy
_____ Other (specify) _____

6. Who provided your prenatal health care? (We will now call this person your health care provider.)
(Check as many as apply.) **(R)**

_____ Family physician only
_____ Obstetrician only
_____ Midwife only
_____ Family physician and Obstetrician
_____ Nurse practitioner
_____ Other: (specify)_____
_____ No prenatal care **(skip to #17)**

7. How many weeks pregnant were you when you first saw someone for prenatal care? **(NR)**

_____ 4-6 weeks (about 1 month) after my last period
_____ 7-9 weeks (about 2 months) after my last period
_____ 10-13 weeks (about 3 months) after my last period
_____ 14-17 weeks (about 4 months) after my last period
_____ 18-21 weeks (about 5 months) after my last period
_____ more than 22 weeks (about 5 months) - specify _____ weeks **or** _____ months
_____ can't recall

8. Did your health care provider or anyone in the office discuss with you or give you information about preterm labour during your pregnancy?

_____ Yes _____ No **(skip to # 17)** _____ Don't recall **(Skip to # 17)**

9. How far along in your pregnancy were you when the topic of preterm labour was <u>first</u> discussed?

(NR)

_____ 7-9 weeks (about 2 months) after my last period
_____ 10-13 weeks (about 3 months) after my last period
_____ 14-17 weeks (about 4 months) after my last period
_____ 18-21 weeks (about 5 months) after my last period
_____ 22-25 weeks (about 6 months) after my last period
_____ more than 25 weeks - specify _____ weeks **or** _____months
_____ can't recall

10. Which member of the <u>office staff</u> gave you the information on preterm labour? (check as many as apply) **(NR)**

_____ My own health care provider
_____ A nurse in the office
_____ A receptionist in the office
_____ Picked it up at a display
_____ Other: (specify) _____

11. Did this person or these people: **(Read each one)**

a) Discuss the signs and symptoms of preterm labour?
_____ Yes _____ No

b) Give you a booklet, pamphlet, or sheet of paper on preterm labour to read?
_____ Yes _____ No

c) Show you how to feel your abdomen for contractions?
_____ Yes _____ No

d) Tell you what to do if you had any of the signs and symptoms of preterm labour?
_____ Yes _____ No

e) Do anything else:(specify) _____

12. Was your partner and/or support person given this information as well?
_____ Yes _____ No _____ Can't recall

13. Did this information meet your needs?
_____ Yes _____ No

Comments: _____
_____

(Complete only if there was a yes answer in #11)

14. Can you remember what you read or were advised to do if you experienced any of the signs and symptoms of preterm labour? (check as many as apply) **(NR)**

_____ Rest for a while on your side
_____ Time the contractions for a while
_____ Call the health care provider
_____ Call the hospital or labour & delivery dept. for advice
_____ Go to the hospital or labour & delivery department for assessment
_____ Change your activity level for a while
_____ Modify your work activities
_____ Drink 2 or 3 large glasses of water
_____ Take a warm bath and relax
_____ Have a glass of wine to try and relax
_____ Don't remember
_____ Other (specify) _____

15. Did your health care provider ever review the information that was initially given to you about preterm labour?
____Yes ____ No **(Skip to question # 17)** ____ Can't recall **(Skip to #17)**

16. The information was brought up or reviewed again: (check all that apply) **(R)**
____ At another visit
____ At every visit
____ Only after I asked a question about the material

17. Did you attend prenatal classes during your pregnancy?
____ Yes ____ No **(skip to question #23 if term)**
(skip to question #24 if preterm)

18. How far along in your pregnancy were you when you started your prenatal classes? **(NR)**

_____ 7 - 9 weeks/ about 2 months
_____ 10 - 13 weeks/ about 3 months
_____ 14 - 17 weeks/ about 4 months
_____ 18 - 21 weeks/ about 5 months
_____ 22 - 25 weeks/ about 6 months
_____ 26 - 29 weeks/ about 7 months
_____ more than 29 weeks (specify) _____ weeks **or** ____ months
_____ can't recall

19. Did the prenatal teacher review the signs and symptoms of preterm labour?
____ Yes _____ No _____ Can't recall _____ Didn't finish the classes

20. Did the prenatal teacher tell you what to do if you had any of the signs and symptoms of preterm labour?
_____ Yes _____ No _____ Can't recall _____ Didn't finish the classes

21. Did you receive any written information (pamphlet, info sheet) on preterm labour from the prenatal teacher?
_____ Yes **(complete # 22)** _____ No **(skip to # 23 if term)**
(skip to # 24 if preterm)

22. Did the information meet your needs?
_____ Yes _____ No

Comments:
_____
_____

And now some questions about your experience with the signs and symptoms of preterm labour
If preterm, skip to # 24

(Only term women answer # 23)
23. At any point in your pregnancy, did you feel like you might be experiencing preterm labour or preterm ROM? ____ Yes **(skip to # 25)** ____ No (**skip to # 34)**

(Only preterm women answer question # 24)

24. Did you have? **(R)**

_____ spontaneous preterm labour or ROM
_____ an induced labour (gel or IV drip) for medical or pregnancy problem **(skip to # 34)**
_____ a pre-booked cesarean section for a medical or pregnancy problem **(skip to # 34)**

25. How many weeks/months along in your pregnancy were you when you first felt like you might be in preterm labour or have preterm ROM?

_____ Weeks **or** _____ Months

Lets talk about the most recent time these signs and symptoms happened prior to the birth of this baby.

26. A. At the time you were experiencing these signs and symptoms, did you contact a health professional about them? **(R)**

_____ Yes, immediately **(skip to #29)**
_____ Yes, but not right away **(skip to #27)**
_____ No **(complete B and then skip to #34)**

B. Was there a particular reason why you chose not to call a health professional? **(NR)**

_____ I didn't really think anything would come of the signs/symptoms
_____ I was unsure about what was happening
_____ My partner/support person/family member said it was probably nothing
_____ I didn't want to bother people who are busy
_____ I didn't think a few hours would make a difference
_____ I was going to visit my health care provider soon anyway
_____ My symptoms resolved on their own
_____ I thought the symptoms were just Braxton-Hicks contractions
_____ Other (specify) _____

27. About how long did you wait before you contacted your health care provider or went to the hospital? _____ hours or _____ minutes

28. Could you finish this statement, "I waited a while before calling my health care provider or going to the hospital because...." (Check as many as apply) **(NR)**

_____ I didn't really think anything would come of the signs/symptoms
_____ I was unsure about what was happening
_____ My partner/support person/family member said it was probably nothing
_____ I didn't want to bother people who are busy
_____ I didn't think a few hours would make a difference
_____ I wanted to see if the signs and symptoms were the real thing
_____ Other (specify) _____

29. When you realized that you needed to get professional help for the signs and symptoms you were experiencing, **<u>what did you do first?</u> (R)**

_____ Called the hospital/ labour and delivery department **(answer # 30)**
_____ Called my health care provider's office **(skip to # 31)**
_____ Went directly to the hospital or labour & delivery department **(skip to # 32)**

30. What response did you get when you decided to call the hospital or the hospital's labour & delivery department? **(NR)**

_____ I was told to come in and be assessed **(skip to #32)**
_____ I was told to call my own health care provider **(answer #31)**
_____ Other (specify)_____
_____

(skip to # 32) What happened when you called your health care provider's office to explain your signs and symptoms? (check as many as apply) **(NR)**

_____ No one answered the phone
_____ I only got the answering machine
_____ I couldn't get through so I went to the hospital
_____ I was put through to the health care provider or whoever was covering, within a few minutes
_____ I spoke with the receptionist and was called back within one hour
_____ I was called back after one hour
_____ I was told to come in to the office to be seen
_____ I was told to go directly to the hospital/labour & delivery department
_____ I didn't get called back and I went to the hospital
_____ I was told it wasn't preterm labour and given other advice
_____ I was told to rest and/or evaluate the signs and symptoms
_____ Other (specify) _____

31. Were you admitted to the hospital for observation or treatment of preterm labour or preterm ROM?
_____ Yes _____ No

32. Do you feel that your concerns about your signs and symptoms were taken seriously by the health professionals?
_____ Yes _____ No

Comments: _____
_____
_____
_____

To complete the questionnaire, we need some information about you. Let me remind you that all the information you give us remains confidential.

33. Can you tell us a little about your pregnancy history: Including this pregnancy, how many: **(R)**

a) _____ Pregnancies you have had (including those that did not end in a birth)

b) _____ Pregnancies you had that went to 37 weeks or more
-Were any of these pregnancies twins, triplets or more?
_____ Yes _____ No

c) _____ Pregnancies you have had that went more than 20 weeks but less than 37 weeks
- Were any of these pregnancies twins, triplets or more?
_____ Yes _____ No

Was this pregnancy you have just finished a: **(R)**

_____ single
_____ multiple (specify)
___ twins
___ triplets
___ quads
___ quints

34. How old are you? _____ yrs.

35. Which of the following best describes your present marital status? (Mark one) **(R)**

_____ single
_____ married
_____ common law
_____ separated
_____ divorced
_____ widowed

36. What was the last level of school that you completed? **(NR)**

_____ didn't complete high school
_____ grade 12 Are you a high school graduate? _____Yes _____ No
_____ grade 13 Are you a high school graduate? _____Yes _____ No
_____ some community college or CGEP

_____ community college or CGEP graduate
_____ some university
_____ university graduate
_____ postgraduate degree

37. What language are you most comfortable speaking? **(NR)**

____ English	____ Vietnamese	____ Punjab
____ French	____ Arabic	____ Spanish
____ Chinese	____ Italian	____ Cambodian
____ Portuguese	____ Somalian	____ Other (specify)

_____

38. What language are you most comfortable reading? **(NR)**

____ English	____ Vietnamese	____ Punjab
____ French	____ Arabic	____ Spanish
____ Chinese	____ Italian	____ Cambodian
____ Portuguese	____ Somalian	____ Other (specify)

_____

Thank you for taking the time to complete this survey. Your information will be very useful to us.

Please record who was present when the interview was taking place

_____ **Woman only**
_____ **Woman plus partner/support person**