Preterm Birth

Making a Difference

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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Introduction

Preterm birth is an important perinatal health problem in Ontario. About 8% of babies are born preterm in Ontario. The rate of preterm birth has increased slightly in the past few years, in part due to the increase in multiple births. Depending on their age and maturity, preterm babies may experience a variety of health problems. Some health problems pose serious concerns in the first few weeks of life, while others have long-term consequences.

Comprehensive programs are needed to prevent preterm birth and decrease health problems associated with preterm birth. The two strategies needed to achieve these goals are:

- Addressing risk factors and conditions that are associated with preterm birth; and
- Encouraging the early recognition and response to preterm labour in order to provide time to administer antenatal steroids and ensure safe transfer to the appropriate level of care centre.

This manual focuses on developing this second strategy. Ideally, preterm birth initiatives should take place within a comprehensive healthy pregnancy/healthy baby program that addresses the many determinants of healthy fetal growth and development.

Improving the early detection and appropriate response to preterm birth is a complex undertaking. It may require many changes within your community, including:

- The development of a common understanding of preterm birth and its prevention;
- Collaborative action by health care providers, hospitals, public health and others to address preterm birth; and
- The consistent use of evidence-based clinical practice guidelines by health care providers.

This manual provides three sections to accomplish these objectives:

Preterm Birth FAQs	Answers to frequently asked questions on preterm birth – its impact and prevention
Program Planning and Implementation Guide	A five-step process to plan, implement and evaluate an initiative to increase the early recognition and appropriate response to preterm labour in your community
Clinical Practice Guidelines	Best practice recommendations for assessing and managing preterm labour

Section 1: Preterm Birth FAQs

Overview

What is preterm birth?

A preterm baby is born before 37 completed weeks gestation. Very preterm babies are born before 32 completed weeks gestation. Many preterm babies are born with low birthweight (less than 2500 grams). In fact, preterm birth accounts for about 70% of the babies born with low birthweight. Other low birthweight babies are born at term but are small for gestational age (less than the 10^{th} percentile for gestational age) because of poor intrauterine growth. Birthweight of less than 2500 grams is an important predictor of future health problems and disability, regardless of whether it is caused by poor intrauterine growth or preterm birth.

How many infants does it affect?

About 8% of babies are born preterm in Ontario, or about 1 in 12 babies. The rate of preterm birth has been increasing slightly in the past few years, in part due to the increase in multiple births. Although only about 2% of births are multiple, they have a much higher rate of preterm birth (60% for twins and 100% for higher order multiples). Therefore, they have a significant impact on the rate of preterm birth in the population. The growth in assisted reproduction has increased the number of multiple births. In addition, an increasing proportion of older women, among whom the rate of multiple birth is higher, are having children. Medical technology has also improved the ability to detect babies who need to be born early. Other unknown factors may also be contributing to the increase in preterm birth.

How does being born preterm affect the baby?

Depending on their age and maturity, preterm babies may experience a variety of health problems throughout their lives.

Death - Preterm babies have a higher risk of death in the first few weeks of life due to complications associated with immature lungs, infections and intra-cerebral (brain) haemorrhage. The mortality rate increases dramatically when babies are less than 1500 grams or born before 33 weeks gestation (Society of Obstetricians and Gynaecologists of Canada, 2000).

Gestation	Survival
23 - 24 weeks	10 - 50%.
25 weeks	60%
26 weeks	70%
27 weeks	above 80%
33 weeks	greater than 95%
34 - 36 weeks	about 99%.

Lungs - Many preterm babies experience some degree of Respiratory Distress Syndrome (RDS) because of lung immaturity. These babies experience breathing difficulties because their surfactant system is not mature enough to coat the alveolae (air sacs). The lungs collapse as the baby exhales. The risk of RDS can be greatly reduced if the preterm baby is given antenatal steroids (odds ratio 0.4 -0.6). RDS is treated with the administration of surfactant and the use of assisted ventilation.

RDS may lead to bronchopulmonary dysplasia (BPD), a chronic respiratory problem secondary to the effect of inflammation on the immature lung. This condition may require long-term hospitalization and dependence on technology to assist with breathing.

Brain - Preterm babies are more likely to have a bleed into their brain ventricles or to develop periventricular leukomalacia . These complications are associated with major intellectual, emotional and physical disabilities.

Infections - The preterm baby's immune system is not well developed, so any infection can become life threatening.

Heart - The fetus has a duct between the major vessels from the heart that must close at the time of birth to permit the development of a mature circulatory system. In preterm babies this duct may not close (patent ductus arteriosis) and surgery may be required to fix the problem.

SIDS - Preterm babies have a higher risk of Sudden Infant Death Syndrome (SIDS).

Disability - The risk of long-term intellectual, emotional or physical disabilities is directly related to the gestational age of the infant (Society of Obstetricians and Gynaecologists of Canada, 2000). It is difficult to predict the nature and severity of the disability.

Gestation	Risk of Disability
23 - 24 weeks	Some disability (20 -35%) Severe disability (10%)
25 weeks	10- 25%
28 - 32 weeks	10 - 15%
33 weeks	About 5%
35-36 weeks	Similar to that of a term infant

How does preterm birth affect the family?

Families with a preterm baby must cope with the emotional distress associated with the uncertainty of their baby's future. If the baby dies, then profound grief is felt. Prolonged hospitalization separates the parent(s) from the baby in the critical newborn period. Difficulty with breastfeeding, travel to and from the hospital, and arranging childcare for other children are challenges parents must face.

A child with a disability or chronic health problems may require medication and/or special assistive devices, such as a wheelchair. While some financial assistance is provided, families bear much of these costs. Families must be advocates for their children throughout all or a good part of their lives.

How does preterm birth affect the community?

Preterm babies who survive with a disability will need many community resources to assist them in achieving optimal quality of life. This may include educational support, social services, respite care for the family and, as adults, supportive housing and transportation.

How does preterm birth affect the health care system?

Almost all babies who are born preterm require extra medical and nursing care as newborns. In addition those who are less than 34 weeks usually spend time in a neonatal intensive care unit for a few days or several weeks. During the course of his/her lifetime, it is estimated that each preterm low birthweight baby will use about $676,800 (1995 Canadian dollars) in health care. With the existing number of preterm low birthweight babies, the total lifetime health care costs are likely to exceed $8 billion dollars (Moutquin & Lalonde, 1998).

Primary Prevention

What causes preterm birth?

The exact cause of preterm birth is unknown, but it is likely the result of an injury to the fetal/placental unit. In response to this injury, the uterus may begin to contract, the cervix may dilate, or membranes may rupture. The pathways that lead to injury may be:

- Infection: Ascending genital tract or systemic infection causes the release of inflammatory cytokines that can trigger labour
- Stress: Maternal or fetal stress that is mediated through the hypothalamic-pituitary-adrenal-placental axis
- Decidual haemorrhage: Bleeding in the placenta can lead to thrombin formation that increases prostaglandin production causing cervical change and rupture of membranes
- Uterine over-distension: Uterine over-distension can lead to activation of the uterine muscle secondary to the effects of stretch on cell surface receptors

Who has a preterm birth?

Although some women are at higher risk for preterm birth, any woman can have a preterm baby. About 50% of the women with a preterm birth have no identifiable risk factors.

A woman is at higher risk for preterm birth if she:

- Is carrying a multiple pregnancy;
- Is having a first baby;
- Has had a previous preterm baby;
- Has a serious medical problem;
- Has a lifestyle risk factor;
- Is living in poverty;
- Is single;
- Is a teen or over age 35;
- Is less than 62” in height; or
- Has uterine or cervical anomalies, diethylstilbestrol (DES) exposure.

While efforts must continue toward ensuring that the needs of women at higher risk are met, we cannot focus solely on these groups. Most preterm babies are born to the middle income, well-educated married/partnered women because this is the largest group of women having babies.

Can preterm birth be prevented?

About 25% of preterm births are related to clearly identifiable health problems in the mother or baby, which affect fetal well-being. Based on what is known about the underlying pathways leading to contractions, cervical change or ruptured membranes, many of the other preterm births may be prevented if we could reduce infection, stress or decidual hemorrhages.

Primary prevention consists of promoting health and avoiding or reducing risk factors so that preterm labour or premature rupture of membranes leading to preterm birth does not occur. In

some cases, the focus of primary prevention is on risk factors that can be minimized through action prior to conception or during pregnancy. Research has identified several modifiable factors that are associated with an increased risk of preterm birth. More research is needed to determine if modification of these factors actually leads to prevention of preterm birth.

What are the modifiable risk factors/conditions for preterm birth?

Research has identified several potentially modifiable factors that are possibly associated with an increased risk of preterm birth. While we do not know for sure whether modifying these factors will decrease the risk of preterm birth, reducing these factors will certainly lead to improved health in general. Thus, it is prudent to minimize these risk factors in the population:

- Cigarette smoking and exposure to environmental tobacco smoke;
- Genital tract infections- bacterial vaginosis;
- High perceived stress;
- Cocaine use;
- Asymptomatic bacteriuria (infection in the bladder);
- Poor nutrition - low Body Mass Index (BMI) pre-pregnancy, and poor weight gain in pregnancy, inadequate micro-nutrient intake; and
- Prolonged standing on the job (> 3 hrs).

What strategies are needed to support healthy behaviours and a supportive environment?

Primary prevention of preterm birth should be a focus of prenatal care providers and the community as a whole. Prenatal programs should include all pregnant women and their partners. A broad range of strategies are needed, including developing healthy public policy, creating supportive environments, encouraging community action, developing personal skills, and re-orienting the health system. These programs must address:

- Tobacco prevention and control strategies;
- Stress reduction and management;
- Healthy sexuality to avoid sexually transmitted infections (STIs) and to become pregnant at a healthy time in life;
- Drug and alcohol abuse;
- Healthy weight and nutrition;
- Healthy workplace; and
- Supportive community.

In addition, programs should focus on the adoption of healthy behaviours prior to pregnancy, especially among children and youth. Ideally, these programs should be part of a community-wide health promotion program for all ages.

Secondary and Tertiary Prevention

What can be done to improve the health of babies who are born preterm?

One of the more promising strategies for reducing morbidity and mortality associated with preterm birth involves promoting early detection and appropriate response to preterm labour. Prompt recognition of the signs and symptoms of preterm labour (secondary prevention) is essential if treatment with corticosteroids (tertiary prevention) is to begin early enough to have an optimum effect. Antenatal treatment of the mother with one full-course of corticosteroids (two doses, 24 hours apart) is known to make a difference in neonatal morbidity and mortality for infants of 24-34 weeks gestation (National Institutes of Health, 1994). Antenatal steroids increase surfactant production in the fetus so that the lungs are more mature at the time of the birth, thereby reducing the risk and severity of Respiratory Distress Syndrome (RDS). Early recognition of preterm labour can also permit the use of drugs to delay the birth by two to five days, giving an opportunity for the steroids to work (Society of Obstetricians and Gynaecologists of Canada, 1995).

If the mothers of infants weighing less than 2 kilograms at birth were treated with a complete course of antenatal steroids, there would be a 15% cost savings for the initial hospitalization, according to US studies (Simpson & Lynch, 1995). Appropriate treatment has been shown to decrease the rate of death and RDS. For every 100 babies treated with antenatal steroids there will be an estimated 7 deaths and 25 cases of index disease. In a group not receiving steroids, for every 100 babies there will be an estimated 12 deaths and 37 cases of index disease (Simpson & Lynch, 1995).

The third section of this manual, *Clinical Practice Guidelines,* contains detailed evidence-based recommendations for the assessment, diagnosis and treatment of preterm labour.

Program Planning and Implementation Guide

Overview

Preterm birth is an important perinatal health problem in Ontario. Comprehensive programs are needed to prevent preterm birth and decrease health problems associated with preterm birth. Achieving these goals requires two strategies:

- Addressing risk factors and conditions that are associated with preterm birth; and
- Encouraging the early recognition and response to preterm labour in order to provide time to administer antenatal steroids and to ensure safe transfer to the appropriate level of care centre.

The *Program Planning and Implementation Guide* will take you through the step-by-step process of developing an effective community-wide initiative. It will help you plan comprehensive programs and implement community-based initiatives.

Strategies for the early recognition and appropriate response to preterm labour

It is important to remember that preterm strategies are interconnected and support each other. In order for preterm initiatives to be effective, women need to recognize the signs and symptoms of preterm labour, and hospitals need to respond with immediate and effective care.

Women and their families

An essential part of this strategy is to educate pregnant women and their partners as to ways of recognising and responding to the signs and symptoms of preterm labour by 22 weeks of pregnancy. Educating all pregnant women, (not just those considered to be at higher risk), is important because the majority of preterm birth occurs in the low risk population (Stewart & Nimrod, 1993). There are many opportunities to provide this education, such as the 18-22 week regular prenatal care visit, prenatal classes or community prenatal programs.

Health care providers

The Society of Obstetricians and Gynaecologists (SOGC) recommends the inclusion of preterm birth education at the 18-22 week prenatal visit. They also recommend lifestyle counselling about healthy behaviours early in pregnancy for all women. The primary maternity care setting is a key education point because almost all women begin care with a physician, midwife or nurse practitioner before 14 weeks of pregnancy. As a result, most can be reached by 18-22 weeks of pregnancy.

Research evidence suggests that not all physicians discuss preterm labour with every pregnant woman (Davies et al., 1998). Changing health care provider behaviour is not an easy undertaking.

Research studies (Jennett & Hogan, 1998) suggest that interventions for physicians should:

- Use multiple approaches;
- Tailor suggestions to the stage of "readiness" of the provider;
- Assist the provider in preparing, implementing and maintaining services; and
- Include input from "expert" peers or research literature.

A successful program in Ottawa and Kingston used academic detailing (Thomson et al., 2001) in which physicians and midwives were visited by a trained nurse who provided information about the need to educate all women. The physicians were also provided with resource materials for distribution to patients. Letters, some media coverage, and presentations at key functions promoted the program.

Hospitals

Potentially, all hospitals can be involved in the early recognition and appropriate response to preterm labour. Hospitals without obstetrical services may be called upon to assess a woman in possible preterm labour and then refer her to another hospital for further assessment and management. The *Clinical Practice Guidelines* section in this manual outlines the best practices for the assessment, diagnosis, treatment and supportive care for women in preterm labour. The adoption of supportive policies and education of staff can enhance the effectiveness of the response within the hospital setting. Some hospitals provide antenatal clinics, another ideal opportunity to provide education to women and their partners.

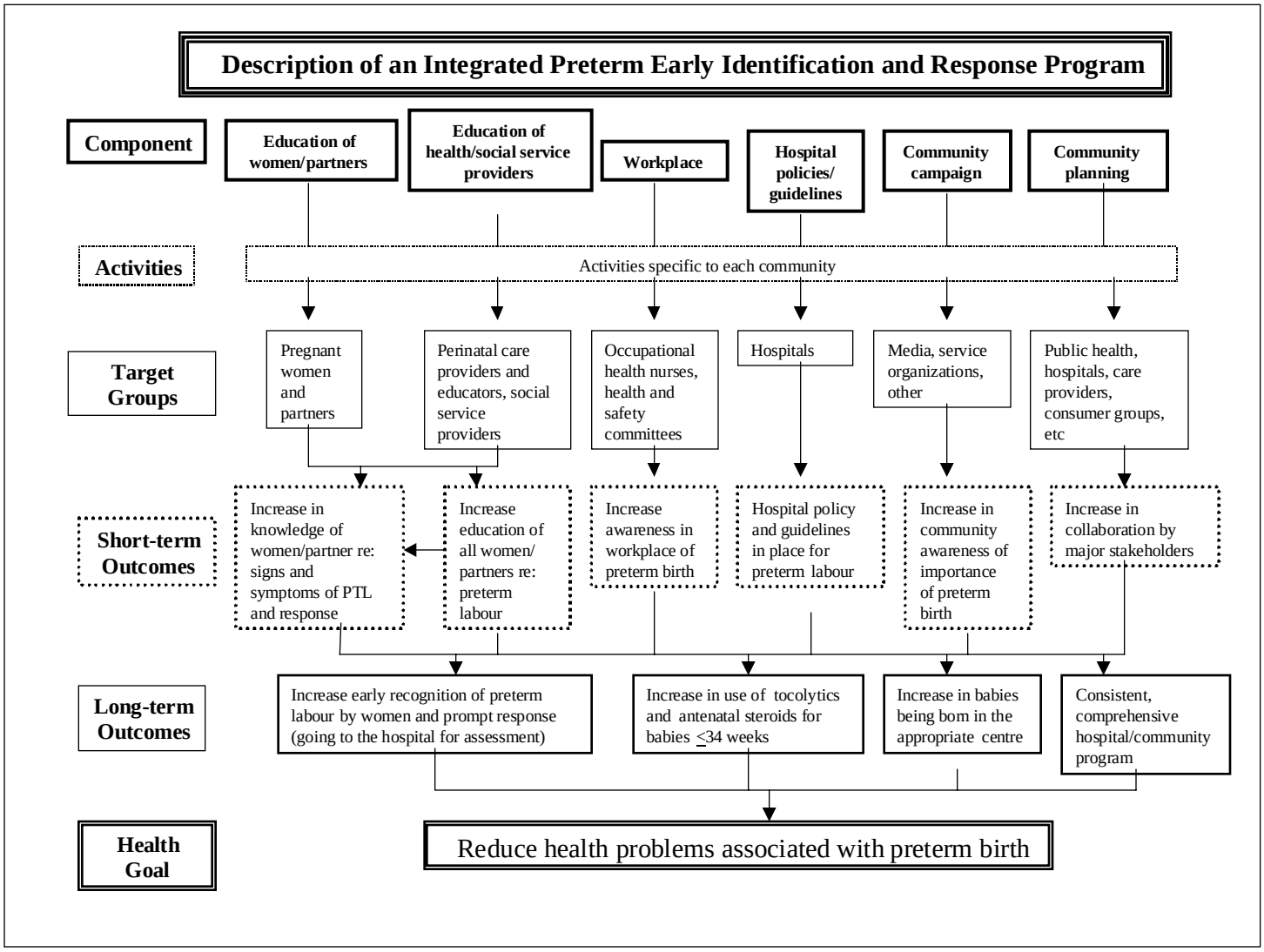
Public health units/community organizations

A high proportion of women who are pregnant for the first time attend prenatal classes. Information about preterm birth prevention and preterm labour can easily be included in the class curriculum. The challenge is to encourage women and their partners to attend early enough in pregnancy to get maximum benefit from the information.

Other community programs for pregnant women and their partners such as Healthy Babies/Healthy Children and the Canada Prenatal Nutrition Program present opportunities to reinforce the messages received from health care providers.

Community awareness

A general community awareness campaign can provide the backdrop within which a program occurs. While insufficient on its own, such a campaign can increase awareness of preterm birth as an important health issue. Many less costly approaches are available, such as posters, newspaper articles, talk shows, news coverage, public service announcements, and local cable television programs.



Workplace

Over 90% of women who are pregnant for the first time and about 60-70% of all pregnant women work outside of the home. The workplace, therefore, is a potential place to educate women about preterm labour. Preterm information can be included in broader workplace initiatives that promote healthy policies, worker education and a supportive work environment. This broader health promotion approach should also address any workplace conditions and hazards that can present risks to reproductive health.

Program Description

The following diagram outlines the basic elements of a comprehensive program for the early identification and response to preterm birth and the intended outcomes and health benefits. The appendices include examples of community preterm initiatives, a list of resources and sample evaluation tools.

Purpose of the Program Planning and Implementation Guide

This guide takes you through five steps of planning, implementing and evaluating a preterm birth initiative to increase the early recognition and appropriate response to preterm labour.

In **Step 1,** you will ***form a small group*** who will guide the initiative. This small group will recruit additional members to ***form the Preterm Action Group***, which will include the individuals and organizations that are required to plan and implement the project.

In **Step 2,** you will ***find out what is happening*** in your community and what needs to be done.

In **Step 3,** you will ***choose priority areas for action*** and ***set objectives*** based on your assessment of your community's needs, interests and resources.

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

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

Key Success Factors

- Get the right people on board
- Be clear about what you intend to do
- Plan, plan, plan
- Know your community and work with its strengths and limitations
- Set realistic goals and timelines
- Build on success as you go

Step 1 Form the Preterm Action Group

Improving the early detection and appropriate response to preterm birth is a complex undertaking that involves many health care providers, organizations and community groups. It needs the varied insights, energy and resources of a group that represents the community. Collaboration with a wide variety of stakeholders adds to the credibility of your project in the eyes of the community.

By the end of Step 1, you will:

- Form a small group to initiate the process; and
- Establish the Preterm Action Group to provide advice and endorsement and to implement your preterm birth initiative.

Step 1A: Form a small group to initiate the process.

You need a small group of three to five committed people to guide your initiative. This small

group will recruit the individuals or organizations that will be essential to the project.

Activities:

a) Identify possible individuals. Focus on key people or organizations who have a vested interest in preterm birth – such as an obstetrician, family physician, midwife, public health nurse or manager, prenatal educator, hospital manager, or parent of a preterm baby. Also consider people on existing community committees that promote healthy pregnancy, such as Healthy Babies/Healthy Children or the Canada Prenatal Nutrition Program.

b) Prepare before approaching the key people. Use points from the *Preterm Birth FAQs* component that would most convince the specific participants of the value of their contribution.

c) Use personal contact to help you recruit new partners.

Step 1B: Establish the Preterm Action Group to provide advice and endorsement, and to implement the initiative

A community group with broad representation can ensure that the project will meet community needs, build on existing strengths and opportunities, and avoid duplication of services. Right from the beginning, try to include at least one individual with expertise in program evaluation. Within this Preterm Action Group, smaller working groups may plan and implement the specific tasks of the project.

There are two ways to create and develop a Preterm Action Group:

- Become part of an existing group that represents those in the community with an interest in preterm birth. The existing group can either take on the initiative as the focus of its work or create a sub-group to carry out the project on its behalf.
- Create a new group.

The solution will be specific to your community. Each community has different services, needs and partnerships.

Baseline Activities of the small working group:

a) Begin networking to identify possible collaborators.

- Identify key stakeholders, such as hospitals (particularly emergency and obstetrical staff), physicians, midwives, nurse practitioners, public health units, parent groups, community health centres, community prenatal programs, prenatal program providers, homes for young single moms, infant development workers, service clubs. Approach these stakeholders regarding their interest in collaboration. Where possible, take advantage of existing meetings, such as medical rounds and management meetings.
- Identify all existing groups that promote health during pregnancy, such as Healthy Babies/Healthy Children, Canada Prenatal Nutrition Programs or a regional perinatal committee. Consider whether one of these may be the appropriate umbrella organization for the project. Approach representatives of this group to explore the possibility of their collaboration.

b) Hold a community event inviting all potential collaborators to generate enthusiasm and to enlist members for the Preterm Action Group.

- The original group will likely be the driving force behind the event. If an existing coalition has consented to be the umbrella organization, then it will be directly involved in planning. Careful attention to all aspects of the event is essential to ensure a positive outcome.
- Identify an opinion leader as chairperson for the event. This person will also need strong facilitation skills.
- Send a letter of invitation from opinion leaders in your community to key stakeholders. Use the information in the *Preterm Birth FAQs* component of this manual.
- Start with an "expert" as guest speaker. Have the speaker articulate the problem and the range of possible solutions. Use the information in *Preterm Birth FAQs*.
- Invite a panel of representatives of public health, physicians, hospitals and consumers to respond to the speaker's comments and deal with questions from the audience. The purpose of the panel is to create "buy-in" among the participants and begin discussion about the implications for their community.
- Involve participants in small group discussions to identify possible strategies for improving the early recognition and appropriate response to preterm labour.
- At the end of the event, ask for interest in participation on the Preterm Action Group and set a date for the first meeting. Keep a list of individuals interested in the Preterm Action Group activities. You may be able to enlist their help later in implementation.
- Prepare a Preterm Action Group membership list with all contact information. Arrange for ongoing communication with members.
- Consider when and how to involve the media.

c) Form the Preterm Action Group.

- Hold the first meeting of the Preterm Action Group. This meeting will have three purposes:
    - Allow the participants get to know each other;
    - Establish the group's terms of reference; and
    - Outline the draft workplan for Steps 2 to 5, including an overall timetable for each step. (See "Overview" section).
- Select a person (or persons) from within to chair (or co-chair) the group. The chair(s) should be well-respected and demonstrate the following:
    - Ability to recognize and affirm the participants;
    - Ability to keep meetings on track;
    - Diplomacy; and

- A positive, optimistic and encouraging manner.

- Identify the resources needed to support the basic administration of the Preterm Action Group, such as photocopying, administrative support, meeting space and snacks. Wherever possible, obtain "in-kind" donations from supportive organizations.
- Group members should be supported as needed to ensure their full involvement in group discussions. For example:
    - All members need to have their input affirmed. Consumer involvement is essential and must be meaningful
    - Provide specific education on technical terms so that all members can feel more at ease and confident within the group
    - Avoid short forms and abbreviations
    - Provide childcare and transportation if needed
    - Arrange for teleconferencing if needed
    - Plan convenient times and places for meetings
    - Provide snacks
    - Schedule meetings well in advance
    - Ensure that meeting minutes are prompt and clear, with action items defined
    - Plan a consistent method of communication regarding changes in meetings and new initiatives so that everyone has equal awareness

Key Success Factors

- Representation from major stakeholders - two or more organizations involved
- Support from your own organization
- Energy and determination
- Valuing the contribution of all involved
- Administrative support for the work of the Preterm Action Group
- Clear direction

Step 2 Determine Needs and Capacities

The *Description of an Integrated Preterm Early Identification and Response Program* chart (found in the Overview section) provides a snapshot of what needs to be done to reduce health problems associated with preterm birth. Before starting the program, gather data about the present situation related to preterm birth in your community. This data will be used to plan your Preterm Birth Initiative and as a baseline to assess progress. In addition, the process of collecting the data will raise awareness of your initiative and encourage the co-operation of the partners.

For this task you may want to create a sub-group that includes both individuals with experience in data collection and representatives from the partner organizations and parents.

By the end of this step you will have identified:

- Present health outcomes related to preterm birth in your community;
- The characteristics of your community;
- Current policies, programs and services for preterm birth prevention; and
- The interest in, and possible resources for, a preterm birth initiative.

Step 2A: Identify present health outcomes related to preterm birth in your community.

It is helpful to have a baseline by which to compare progress over time. In this step you can collect information on the current status of the outcomes listed in the *Description of an Integrated Preterm Early Identification and Response Program* (found in the Overview section). This chart provides a sample of information that you may want to gather, to help you plan and track your progress.

Instructions:

For items in the "Need to Know" column in Table 2A, identify and check sources of data that are available to you. Consider which partner will have access to the data needed and the skill to collect it. Indicate this in the "Partner Responsible" column.

Table 2A: Identify present health outcomes related to preterm birth in your community.

Need to know	Possible Sources of Data	Partner Responsible
Rates of preterm birth for previous 5 years by maternal characteristics (age, parity, multiple birth, etc.)	☐ Public Health Unit (HELPS) ☐ Perinatal Database ☐ Other _____	
Rates of antenatal steroid use among babies less than 34 weeks gestation (if possible, obtain data for previous 5 years)	☐ Hospital chart review (See form in Appendices) ☐ Perinatal Database ☐ Other _____	
Proportion of preterm births in appropriate centres (See "Clinical Practice Guidelines" component of this manual)	☐ Hospital chart review (See form in Appendices) ☐ Perinatal Database ☐ Other _____	
Proportion of women with signs and symptoms of preterm labour who go to the hospital immediately	☐ Hospital chart review (See form in Appendices) ☐ Post-partum survey of women (See questionnaire in Appendices) ☐ Other _____	
Knowledge among pregnant women (and partners if possible) about preterm birth	☐ Focus groups ☐ Prenatal class survey ☐ Post-partum survey of women (Questionnaire in Appendices) ☐ Other _____	
Knowledge among health care providers (for example, physicians, midwives, nurse practitioners) about preterm birth	☐ Focus groups ☐ Survey of health care providers (Questionnaire in Appendices) ☐ Other _____	
Proportion of women who are educated about preterm birth by 22 weeks of pregnancy	☐ Focus groups ☐ Post-partum survey of women (Questionnaire in Appendices) ☐ Other _____	

Step 2B: Identify the characteristics of your community.

Each community is unique. Collecting data on characteristics of your community will help you plan a Preterm Birth Initiative that suits the needs of your community.

Instructions:

For each item in the "Need to Know" column in Table 2B, identify the sources of data available to you. Consider which partner will have access to the data needed and the skill to collect it. Indicate this in the "Partner Responsible" column.

Table 2B: Identify the characteristics of your community.

Need to Know	Possible Sources of Data	Partner Responsible
Number of births overall Number and proportion of births by maternal characteristics (e.g., age, language, parity, literacy level, income level)	❑ Public Health Unit (HELPS) ❑ Perinatal Database ❑ Key informant interviews with community agencies or organizations that have contact with pregnant women ❑ Other _____	
Geography - urban/suburban/rural, transportation modes, usual patterns of movement ("hang-outs", gathering places)	❑ Key informant interviews ❑ Focus groups ❑ Public Health Unit ❑ Town/city planner ❑ Business community ❑ Other _____	
Health services – number and type of health service providers, organizations, hospitals, patterns of access	❑ Hospital administration ❑ Community organizations ❑ Public Health Units ❑ District Health Council ❑ Key informant interviews ❑ Focus groups ❑ Other _____	
Key communications people and channels of communication, such as community newspapers, radio, TV, community cable TV, existing groups (newsletters, meetings), websites, community bulletin boards	❑ Communications staff ❑ Key informant interviews ❑ Other _____	

Step 2C: Identify current policies, programs and services for preterm birth prevention.

Knowledge of existing policies, programs and services for preterm birth prevention will help you plan your Preterm Birth Initiative. It can help you identify strengths, opportunities, challenges and gaps. It can also help you avoid duplication and ensure that all potential partners are included.

Instructions:
For each item in the "Need to Know" column in Table 2C, identify the sources of data available to you. Consider which partner will have access to the data needed and the skill to collect it. Indicate this in the "Partner Responsible" column.

Table 2C: Identify current policies, programs and services for preterm birth.

Need to Know	Possible Sources of Data	Partner Responsible
How and where women receive antenatal care and education	❑ Key informant interviews with community agencies or organizations that have contact with pregnant women ❑ Prenatal class survey ❑ Post-partum survey of women ❑ Focus groups ❑ Other _____	
Content of education provided to women about preterm birth	❑ Key informant interviews with community agencies or organizations that have contact with pregnant women ❑ Post-partum survey of women (See questionnaire in Appendices) ❑ Survey of health care providers (See questionnaire in Appendices) ❑ Focus groups ❑ Other _____	
Policies and guidelines of local hospital(s)	❑ Key informant interviews with hospital obstetrical and emergency departments ❑ Other _____	
Workplace programs and policies	❑ Key informant interviews with management, small businesses, etc. ❑ Other _____	
Collaboration among players, such as prenatal educator liaison group, health unit/hospital perinatal committee, occupational health nurse groups, physician organizations	❑ Key informant interviews ❑ Other _____	

Step 2D: Identify the interest in and possible resources for a preterm birth initiative.

It is helpful if many people and organizations are involved in the implementation of the preterm birth initiative, either by donating services or funding. It is important at this early stage to identify potential interest in, and possible resources for, the initiative.

Instructions:

For each item in the "Need to Know" column in Table 2D, identify the possible contributions available to the project. Consider which partner will have access to the information and the skill to collect it. Indicate this in the "Partner Responsible" column.

Table 2D: Identify the interest in and possible resources for a preterm birth initiative.

Need to Know	Possible Sources of Information	Partner Responsible
Willingness of partners to: • Commit resources ("in-kind" or financial) to the implementation of your project • Develop and pilot test components of the project • Consider change in their policies, programs or services	❑ Key informant interviews ❑ Other	

Key Success Factors

- Involvement of people with data collection skills and experience
- Involvement of people who know the community
- Avoiding "paralysis by analysis" - doing what is needed but not getting bogged down in detail

Step 3 Choose Priority Areas for Action

The goal of the Preterm Birth Initiative is to reduce health problems associated with preterm birth. Research has identified that the use of antenatal steroids, and ensuring that preterm babies are born in a centre that is able to provide the appropriate level of care, are essential to achieving this goal.

Both of these strategies require that pregnant women arrive at the hospital early in preterm labour. It is critical, therefore, that pregnant women recognize the early signs and symptoms of preterm labour and go immediately to the hospital. Once there, the diagnosis of preterm labour can be made and appropriate therapy initiated, along with transfer to another hospital if needed.

In Step 3 you will use data that you collected in Step 2 to identify what needs to be done to *REACH* the women in your community so that they will *REACT* appropriately and ensure that health care providers *RESPOND* using best practices. For an outline of the REACH, REACT, RESPOND program, see the *Clinical Practice Guidelines* section of this manual. You will also set specific objectives for your program.

By the end of this step you will have:

- Identified how you will *REACH* women and partners in your community so they will *REACT* appropriately;
- Identified how you are going to communicate with health care providers so that they can *RESPOND* using best practices;
- Identified how you are going to involve the community and workplace to create a supportive environment; and
- Set up your evaluation.

Think about long-term sustainability as you make your way through this section. Elements of the program that will be ongoing need to fit within the existing community and organizational infrastructure. For example, if a new antenatal clinic is the preferred method to reach women, then an ongoing source of funding will be required.

Step 3A: Identify how you will REACH women and partners in your community.

It is important that service providers in the community educate women and partners about preterm labour. This education ensures that women will know the signs and symptoms of preterm labour and know how to respond appropriately. These are the short-term outcomes of the program.

Instructions:

- Complete Table 3A. Use the data collected in Step 2 to complete the "Where We Are Now" column. (See the completed example.)
- Complete the "Where We Would Like to Be" column. These are the objectives for your program. Be realistic as you set your objectives, recognizing where you are now and the resources that you have for investment in the program. Go for "slow and steady" rather

than “fast and furious”. As you achieve your initial objectives, new ones can be set.

- Use the data collected in Step 2 to identify possible program strategies to reach your objectives.

Table 3A: Identify how you will reach women and partners in your community.

Program Short-term Outcome	**Where We Are Now** (Data from Step 2)	**Where We Would Like to Be & By When** (Objectives)	**Program Strategies to REACH Women** **(Choose one or more)**
Women and their partners			
All pregnant women and partners know the signs and symptoms of preterm labour prior to 22 weeks and know how to react appropriately.			❑ Physicians and midwives educate at the 18-22 week prenatal visit ❑ Prenatal class instructors educate prior to 22 weeks ❑ Hospital antenatal clinic educates women prior to 22 weeks ❑ Education through community groups for pregnant women, such as Canada Prenatal Nutrition Program (CPNP) ❑ Community campaign ❑ Workplace campaign ❑ Other

Table 3A: Identify how you will reach women and partners in your community, (filled-out example of chart)

Program Short-term Outcome	Where We Are Now (Data from Step 2)	Where We Would Like to Be & By When (Objectives)	Program Strategies to REACH Women (Choose one or more)
Women and partners			
Pregnant women and partners know the signs and symptoms of preterm labour prior to 22 weeks and know how to react appropriately.	50% of pregnant women and partners know three or more signs of preterm labour. 50% of women know to go to hospital immediately when in preterm labour.	In 12 months, 80% of pregnant women and partners know three or more signs of preterm labour. In 12 months, 80% of women know to go to hospital immediately when in preterm labour.	❑ Physicians and midwives educate at the 18-22 week prenatal visit ❑ Prenatal class instructors educate prior to 22 weeks ❑ Hospital antenatal clinic educates women prior to 22 weeks ❑ Education through community groups for pregnant women, such as Canada Prenatal Nutrition Program (CPNP) ❑ Community campaign ❑ Workplace campaign ❑ Other

Step 3B: Identify how you are going to communicate with health care providers.

In Step 3A you identified strategies to reach the women and partners in your Preterm Birth Initiative. In this step you will identify strategies for communicating with health care providers so that they can educate women and partners. You will also select strategies to encourage the development and use of hospital policies and guidelines that support the early recognition of and appropriate response to preterm labour.

Instructions:

- Complete Table 3B. Use the data collected in Step 2 to complete the "Where We Are Now" column.
- Complete the "Where We Would Like to Be & By When" column.
- Using the data collected in Step 2, identify possible program strategies.

Table 3B: Identify how you are going to communicate with health care providers.

Program Short-term Outcome	Where We Are Now (Data from Step 2)	Where We Would Like to Be & By When (Objectives)	Program Strategies (Choose one or more)
Prenatal care providers Prenatal educators and prenatal support workers know the signs and symptoms of preterm labour and the appropriate response. Health care providers (physicians, nurses and midwives) know the guidelines for preterm labour assessment and treatment. Health care providers educate all women and their partners before 22 weeks of pregnancy.			❑ Visit each physician, nurse and midwife providing prenatal care ❑ Calls to physicians, nurses and midwives providing prenatal care ❑ Training for prenatal educators and prenatal support workers ❑ Provide materials to support "patient" education, such as tear-off sheets, decals ❑ Provide materials to remind educators to cover preterm labour, such as chart flags ❑ Articles in health care provider newsletters ❑ Mail-outs ❑ "Lunch 'n' Learn" with physicians' office staff members ❑ Special meeting with good food ❑ Other
Hospitals Obstetrical and emergency department personnel know the signs and symptoms of preterm labour and the appropriate response. Hospitals develop and use policies and guidelines that support the early recognition and appropriate response to preterm labour.			❑ Individual and group presentations to hospital management and key health care providers (such as chiefs of family practice, paediatrics, obstetrics and emergency) ❑ Provide written guidelines and sample policies to hospital management ❑ Provide materials to remind hospital staffs, such as posters and chart flags ❑ Other

Table 3B: Identify how to communicate with health care providers; (filled-in example)

Program Short-term Outcome	Where We Are Now (Data from Step 2)	Where We Would Like to Be & By When (Objectives)	Program Strategies (Choose one or more)
Prenatal care providers Prenatal educators and prenatal support workers know the signs and symptoms of preterm labour and the appropriate response. Health care providers (physicians, nurses and midwives) know the guidelines for preterm labour assessment and treatment. Health care providers educate all women and their partners before 22 weeks of pregnancy.	76% of prenatal educators score at least 90% on knowledge questionnaire. 70% of health care providers score at least 90% on knowledge questionnaire. 40% of women and their partners are educated by health care providers before 22 weeks.	In 12 months, 95% of prenatal educators score at least 90% on knowledge questionnaire. In 12 months, 90% of health care providers score at least 90% on knowledge questionnaire. In 12 months, 60% of women and their partners are educated by health care providers before 22 weeks.	❑ Visit each physician, nurse and midwife providing prenatal care ❑ Calls to physicians, nurses and midwives providing prenatal care ❑ Training for prenatal educators and prenatal support workers ❑ Articles in health care provider newsletters ❑ Mail-outs ❑ "Lunch 'n' Learn" with physicians' office staff members ❑ Special meeting with good food ❑ Other
Hospitals Obstetrical and emergency department staff know the signs and symptoms of preterm labour and the appropriate response. Hospitals develop and use policies and guidelines that support the early recognition and appropriate response to preterm labour.	70% of staff score at least 90% on knowledge questionnaire. 1 in 4 hospitals has a policy re: preterm labour.	In 9 months, 90% of staff score at least 90% on knowledge questionnaire. In 9 months, all 4 hospitals have a common policy re: preterm labour.	❑ Individual and group presentations to hospital management and key health care providers (such as chiefs of family practice, paediatrics, obstetrics and emergency) ❑ Provide written guidelines and sample policies to hospital management ❑ Other

Step 3C: Identify how you are going to involve the community and workplace.

A workplace and community awareness campaign can educate pregnant women, partners and others with whom they have contact. Education can prepare others to provide support to women in identifying preterm labour and reacting appropriately. For example, in the workplace, if a woman starts describing what she is feeling, a knowledgeable co-worker could identify possible preterm labour and encourage her to go to the hospital. Ideally, this initiative would be part of a broader workplace program to promote healthy pregnancies that includes both education and policies.

With limited resources, this step may need to be deferred until a later date. The critical elements of the program are the education of all women/partners by health care providers and the adoption and use of the *Clinical Practice Guidelines* by both hospitals and health care providers. Therefore, it is important to start working on these two activities first.

Instructions:

- Complete Table 3C. Use the data collected in Step 2 to complete the "Where We Are Now" column.
- Complete the "Where We Would Like to Be & By When" column.
- Using the data collected in Step 2, identify possible program strategies.

Table 3C: Identify how you are going to involve the community and workplace.

Program Short-term Outcome	Where We Are Now (Data from Step 2)	Where We Would Like to Be & By When (Objectives)	Program Strategies (Choose one or more)
Workplace Employers and employees are aware of signs and symptoms of preterm labour and the appropriate reaction.			❑ Meetings with occupational health and safety reps/committees ❑ Meetings with unions ❑ Workplace newsletters ❑ Training for occupational health nurses ❑ Provide pamphlets, posters, static-cling decals in the workplace ❑ Worksite "Lunch 'n' Learn" sessions ❑ Workplace websites ❑ Other
Community General awareness exists in the community of the importance of early identification of preterm labour.			❑ Provide pamphlets, posters, static-cling decals at community events, such as reproductive health fairs, Welcome Wagon ❑ Place posters in strategic community locations, such as drug stores, workplaces, day care centres, shopping centres, women's locker rooms, and maternity stores ❑ Information on websites of health care providers and community partners ❑ Press releases and articles in community newspapers ❑ Other

Step 3D: Set up your evaluation

It is essential to develop an evaluation strategy as early as possible in your planning. Evaluation will help guide decisions as the initiative progresses.

Identify an individual or group with experience in evaluation to lead this part of the Preterm Birth Initiative. Make use of evaluators within partner organizations. A useful reference for this step is *Program Evaluation: A Toolkit for Public Health,* available at your local public health unit.

Instructions:

- Bring the objectives that you identified in the "Where We Would Like to Be" columns in Steps 3A to 3C into the "Objective" column of Table 3D.
- From this identify what you need to measure to know if you have made a difference ("Indicator of Success" column).
- Then identify the source of data and the person/organization who will be responsible for collecting the data. Refer to the data collection methods that you used in Step 2. This data will form the baseline for measuring success.

Table 3D: Set up your evaluation

Objective	Indicator of Success	Data Source	Responsibility
80% of pregnant women and partners know three or more signs of preterm labour.	Number of pregnant women who score 3 out of 7 on knowledge questionnaire about signs and symptoms	Post-partum survey of women	Hospital partner

Key Success Factors

- Involve the stakeholders
- Consider all possibilities and select the most feasible
- Plan strategies that are realistic in terms of available resources

Step 4 Design Your Plan of Action

In Step 3 you decided *what* you are going to do to improve the early recognition of and appropriate response to preterm labour in your Preterm Birth Initiative. Now you are going to decide *how* you are going to do it. Planning will ensure that everyone works together effectively making the best use of resources.

By the end of Step 4, you will have:

- Identified the specific activities that are required for each strategy, as well as those who will be responsible, the timeframe and necessary resources;
- Communicated your plan to others; and
- Developed an evaluation plan for activities.

Step 4A: Plan Your Activities.

You will need to implement various activities for each of the strategies that you selected in Steps 3B and 3C. With so many partners involved, detailed planning will help you identify how the tasks can be shared among the partners. By clarifying the resources required ahead of time, you can solicit in-kind support or conduct the necessary fundraising. Ultimately, you will be able to ensure that you have what is needed to complete the activity within the timeline.

Instructions:

- Complete Table 4A for each strategy that you selected in Steps 3B and 3C.
- Identify the specific activity, responsibility, timeframe and resources needed, as in the example below.

Table 4A: Plan your activities (Blank Activity Planning chart)

Strategy (from Steps 3B and 3C) _____

Activity	Responsibility	Timeframe		Resources Needed
		Start	Completion	

Table 4A: Example of Filled-in Activity Planning Chart

Strategy (from Steps 3B and 3C) ***"Visit each physician and midwife providing prenatal care"***

Activity	Responsibility	Timeframe		Resources Needed
		Start	Completion	
Compile a list of prenatal educators, physicians, nurses and midwives providing prenatal care.	Public health unit (list already exists)		January 15	# of People/Hours: 1 person x 1 hr.
Assemble resource materials, including your teaching materials needed at the visit, and any materials that you intend to leave with the health care provider to use in education of women and partners.	Hospital partner Public health unit Family physician representative on the committee Community members of the committee	January 15	March 15	# of People/Hours: 2 persons x 5 hr. = 10 hr. Materials 3 teaching sets @ $10 = $30; Fact Sheets @ $.05 for 100 physicians x 50 clients = $250. Financial resources: $280.00
Make appointments. Send an introductory letter from opinion leaders by email, fax or regular mail. Make phone call to book appointment.	Chief of Obstetrics and Medical Officer of Health Individuals who will conduct the visits Public Health Unit, plus clerical help	February 15	March 15	# of People/Hours: 100 physicians x 10 min. = 16 hr. (3 people) Postage: $0.47 x 100 letters = $47. Zerox; In-kind contribution. Long distance calls – In-kind contribution Financial resources: $47.00
Conduct the visits. (If the appointment is over the lunch hour, bring food)	3 nurses: 2 from Public Health Unit and 1 from hospital partner	March 15	April 30	# of People/Hours: 100 physician-visits x 45 min. = 75 hr. (3 people @ 25 hr. per person) Materials Lunch/Nutritious snacks (Food store sponsor) Mileage & Parking – In-kind contribution Money; in-kind contributions
Follow-up phone call one month later.	3 nurses: 2 from Public Health Unit and 1 from hospital partner	April 15	May 31	# of People/Hours: 100 physicians x 10 min. = 16 hr. (3 people) Long distance calls – In-kind contributions

Step 4B: Develop a Communication Plan.

Ongoing formal communication will generate and maintain the interest and enthusiasm of all stakeholders and keep them informed about the progress of the Preterm Birth Initiative. Good communication will also create a climate of support in the community that will encourage the success of the activities.

Instructions

- Complete Table 4B. In the "Audience" column, list the specific individuals or organizations with whom you need to communicate.
- Select the medium that will be most effective for reaching the audience.

Table 4B Develop a Communication Plan (activity chart)

The Audience	The Message	The Medium
Partner organizations: (List) • • • • • •	Project updates	❑ Minutes and agendas of meetings ❑ Project newsletters ❑ Articles in existing newsletters ❑ Meetings with key people ❑ Websites ❑ Other _____
Other stakeholders (physicians, other professionals, interest groups, funding bodies) : (List) • • •	*Preterm Birth FAQs* Project updates	❑ Project newsletters ❑ Articles in existing newsletters ❑ Meetings with key people ❑ Websites ❑ Other _____
General community (List) • • •	*Preterm Birth FAQs* Project updates Individual stories re: preterm birth experiences	❑ Community newspapers ❑ Media interviews (radio and television) ❑ Other _____
Other: (List) • •		❑

Step 4C: Plan the Evaluation.

Work with your evaluator to plan an evaluation of the activities that you have decided to do in Step 4A (i.e. a process evaluation). This will allow you to see whether your Preterm Birth Initiative is on track, and provide you with information for planning changes and future initiatives.

Instructions:

- For each activity identify indicators of success.
- For each indicator, identify the source of data and who will be responsible for collecting the data, as in the following example.

Step 4C: Plan the Evaluation (Blank Evaluation Activity Chart)

Activity	Indicator of Success	Data Source	Responsibility

Step 4C: Plan the Evaluation (Sample of Filled-in Evaluation Activity Chart)

Activity	Indicator of Success	Data Source	Responsibility
Conduct the visits to health care providers	Number of health care providers visited	Logs of visiting nurses	Project Co-ordinator
Follow-up phone call one month later	Number of health care providers reached Number of health care providers who found the training useful Number of health care providers who have used the materials to educate women and partners.	Survey of physicians as part of follow-up phone call	3 nurses

Key Success Factors

- Make planning a team effort
- Fill out the plan in detail to fully consider your resources and time
- Tailor the plan to your community

Step 5 Implement the Plan

You have now assessed your community, identified the priority areas for action, and developed a comprehensive plan for your Preterm Birth Initiative. Now you are ready to put your plan into action.

By the end of this step you will have

- Obtained any necessary funding and resources for the activities;
- Implemented the activities;
- Collected data for the evaluation to help guide the initiative;
- Created a supportive environment for the community mobilization process; and
- Developed a method for sustaining of the initiative.

Step 5A: Get the resources and funding in place.

a) Finalize the budget for your program.

b) Obtain support letters from partner agencies.

c) Consider a wide variety of funding sources, including external grants, partners, business, service clubs, fundraising activities.

d) Take your plan and budget to your identified potential funding sources.

Step 5B: Put the plan into action.

a) Once you have your funding and resources in place, do a final review of your plan.

b) Make any necessary adjustments based on funding received.

c) Ensure that all partners are ready to go.

d) Launch the Preterm Birth Initiative with an innovative community event. Invite the media. Prepare press releases and articles for community newspapers.

Step 5C: Collect the data for the evaluation.

a) Identify one partner to co-ordinate the data collection and collate the data from the various sources for the evaluation.

b) Prepare regular reports for the Preterm Action Group and funding sources.

c) Modify the program as needed, based on the evaluation.

Step 5D: Support the community mobilization process.

a) Continue to meet regularly to review progress. Each partner can provide updates on its activities.

b) Communicate regularly with all partners in accordance with the Communication Plan that you developed in Step 4B.

c) Encourage, reward and celebrate your program's achievements. Use the evaluation findings on an ongoing basis to let people know the progress and to celebrate accomplishments. Even the smallest accomplishments are positive signs.

d) Host social events to build team spirit and maintain commitment.

Step 5E: Ensure sustainability of the initiative.

In order to maintain change, it must be positively reinforced. Eventually, the new approach to the early recognition and appropriate response to preterm birth will become a norm. To ensure sustainability:

a) Identify what needs to be done to maintain progress.

b) Negotiate with partners for ongoing commitment for future activities. This also ensures extra funding for future activities.

c) If the preterm action initiative is not part of an ongoing community coalition, perhaps you could approach a group with an ongoing related focus that would be willing to take it under its umbrella.

Troubleshooting Tips

What if…	You could…
Resources within partner organizations are stretched too thin to take on anything else	1. Hire contract workers to take on some activities 2. Involve students doing a practicum in the workplace 3. Simplify – plan to take on fewer tasks 4. Plan the work sequentially
There is conflict within the committee	1. Focus on common goals and the contribution that each stakeholder can make 2. Get an outside facilitator for a debriefing session, if necessary 3. Allow time for discussion and consensus-building 4. Talk privately with individual people who appear to have concerns
You are having trouble getting stakeholders interested and getting the initiative off the ground	1. Re-group and spend more time laying the groundwork for a common understanding of the importance of preterm birth 2. Offer food at meetings 3. Meet at a location and time that is convenient for physicians, such as at a hospital at lunchtime 4. Defer until the time seems better 5. Break down tasks into manageable components
A key opinion leader (such as Chief of Obstetrics at the local hospital) is not supportive	1. Meet with the individual and use the FAQs to explain the rationale behind and the need for the program 2. Approach another opinion leader (such as the Chief of Paediatrics) 3. Ask a visiting physician to be a keynote speaker on the topic
Key stakeholders have to leave the coalition	1. Talk to the stakeholder about a replacement before he/she leaves 2. Re-group and see whether someone else can take on that individual's role 3. Ensure that each task is understood by more than one person 4. Document the process carefully
There is lack of ownership and inconsistent attendance among members	1. Emphasize accomplishments of the committee 2. Give members opportunity to be responsible for tasks

Key Success Factors

- Be positive and supportive of each other
- Be persistent and adjust the program as needed
- Celebrate all accomplishments
- Try not to take things personally
- Have your sense of humour close at hand at all times

Section 3: Clinical Practice Guidelines

Introduction

As previously discussed in earlier sections of this document, preterm birth (less than 37 completed weeks 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 renewed interest in the recognition and management of preterm birth as well as in its related morbidity and mortality.

Depending on their gestational age and maturity, preterm babies may experience a variety of health concerns. Families with a preterm baby must cope with the emotional distress associated with the uncertainty of their baby's future in the period immediately following birth. They may also have to cope with long-term health concerns as a consequence of the preterm birth. Preterm babies who survive with a disability may need many community resources to help them achieve optimal quality of life. Almost all babies who are born preterm require extra medical and nursing care as newborns. In addition, those born at less than 34 weeks usually spend time in a neonatal intensive care unit for a few days or several weeks. During the course of their lifetime, it is estimated that each preterm low birthweight baby will use about $676,800 (1995 dollars) in health care. With the existing number of preterm low birthweight 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 with preterm birth involves promoting early detection and appropriate response to preterm labour (Meis et al., 1987; Moutquin et al., 1996; Papiernik et al., 1985; Stewart & Nimrod, 1993). Prompt recognition of the signs and symptoms of preterm labour (secondary prevention) is essential if treatment with corticosteroids (tertiary prevention) is to begin early enough to have an optimum effect. One full-course of corticosteroids (two doses, 24 hours apart) given to the mother antenatally is the one intervention known to make a difference in neonatal morbidity and mortality for infants of 24-34 weeks gestation (Crowley, 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-wide 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 **F*orm 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	--	--	--	Yρ	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, HealthyBabies/Healthy Children programs

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

ρ ρ 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
- Previous preterm birth
- Women living in poverty
- Height less than 62" (157.5 cm.)
- Multiple pregnancy
- Uterine or cervical anomalies
- Primiparous
- Single women
- Women with serious medical problems

Probable association between preterm birth and:

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

Possible association between preterm birth and:

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

(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 A: Preterm Labour Fact Sheet

What is Preterm Labour?

Preterm labour is labour that ***begins before 37 weeks*** and may result in your baby being born too soon.

Usually, pregnancy lasts between 37 and 42 weeks.

Medical experts do not know all the reasons why labour starts too early.

How Do I Know If I Am Having Preterm Labour?

It is not always easy for a woman to tell if she is experiencing preterm labour. Many of the signs of preterm labour can feel the same as some of the changes that normally occur in the second half of pregnancy.

The important signs to watch for, especially if they are ***new or different,*** are:

- A sudden gush or a constant slow leak of fluid from the vagina ("down below")
- Bleeding from the vagina
- Contractions of the uterus (menstrual-like or abdominal cramps)

or a change in what you normally feel such as:

- Low dull backache or thigh pain
- Pelvic pressure (feeling full or heavy)
- Discharge from the vagina

Some women may just feel that "**something is not right**"

Preterm labour contractions feel ***different*** from the normal tightenings that many women feel in the second half of pregnancy.

- They may feel more regular
- They do not go away if you move or lie down

You may feel other signs at the same time as the contractions, such as fluid leaking from the vagina or pelvic pressure.

Can it Happen to Me?

Preterm labour can happen in any pregnancy.

Some women are more likely to have preterm labour because they:

- had preterm labour or a preterm birth before
- are carrying more than one baby, twins or triplets for example
- smoke
- are underweight
- are not getting enough healthy foods
- have a lot of stress in their lives
- may have a vaginal or bladder infection

What Should I Do if I have Preterm Labour?

TELL someone that you are having these signs.

GO TO THE HOSPITAL (or nursing station in remote areas) if you experience any of these symptoms.

REMEMBER, y**ou know yourself and your body best**!

- Don't be shy, ***ask*** your health care provider if you have questions
- ***Learn*** what can decrease the chances of preterm labour
- ***Learn*** the signs and symptoms of preterm labour
- ***Know what you need to do*** **if preterm labour happens**

Appendix B: Examples of Community Initiatives

In February 2001, 29 Ontario health units participated in a telephone survey that asked about preterm birth initiatives. Most had addressed the issue of preterm birth prevention to some degree. However, only a few had managed to mobilize their communities to the extent that 1) consistent **reach**ing out to women and partners by all health care providers (the educational component) had occurred and 2) consistent and guidelines-based **response** by hospital emergency and obstetrical staff (the guidelines component) had been accomplished. In most instances, evaluations had not been done or did not assess 3) the proportion of women in preterm labour who **react**ed by going to hospital immediately.

The experiences shared with the surveyors gave valuable insights into the challenges of community mobilization. Health units consistently reported that the support of those with an interest in the issue of preterm birth, particularly the doctors, was essential to the success of the initiative. It is helpful to carefully consider the best method for gaining this support. Best Start has valuable resources on building partnerships, including partnerships with physicians.

Several health units reported campaigns with varying degrees of success. Here are some highlights of four preterm birth campaigns:

Ottawa Carleton Health Department (now City of Ottawa) and Waterloo Regional Community Health Department both had thorough and successful community mobilization initiatives that resulted in the adoption of new clinical guidelines by the hospitals, and improved outcomes for babies. Both process and outcome evaluations were completed. Reports can be obtained from these health departments.

In Ottawa, a community coalition worked on increasing the awareness of preterm birth for approximately the past 10 years. Several of the founding members are still part of the coalition, with a few new partners on board. Along with Perinatal Partnership Program of Eastern and Southeastern Ontario (PPPESO) and other partners, the coalition developed preterm birth guidelines and resources to be used for teaching pregnant women and partners on how to REACT to the preterm labour signs and symptoms. Preterm birth initiatives included working with hospital staff, health care providers and prenatal educators to review guidelines encouraging women to come to hospital with any signs of preterm labour. They also worked with hospitals to develop policies. Their most recent project focused on raising low birth weight awareness in the workplace. This was done via a communications campaign, and by launching a poster and Website.

Their success is partly attributable to their pattern of tackling smaller achievable steps in an overall long-term goal. Decisions about the steps have been based on the availability of funding and resources. Another key success factor has been the supportive involvement and dedication of the Medical Officer of Health, and directors and managers of the various organizations.

Waterloo began its preterm birth work in 1998 using the partnership that already existed between Pre-Birth Services of both birthing hospitals and the Community Health Department (Health Unit). The existing committee expanded to address the preterm birth issue. Their goals included working through

health care providers to increase awareness of signs and symptoms of preterm birth and the appropriate response, in the maximum number of pregnant women. Another goal was to have consistent response policies in the 2 hospitals. They did not have external funding for their activities.

Networking and education were planned to involve key people who could help accomplish the goals. They carefully organized a big 'launch' to involve all health care providers and agencies that care for pregnant women. The launch took a lot of time and effort but they were satisfied that it was effective in getting the message out. Now that the initial goals have been achieved, Waterloo continues to distribute preterm labour resources to ultrasound clinics, health care providers and prenatal educators, and through quarterly prenatal health fairs.

Northwestern Health Unit worked with six different community coalitions within their health unit area. They reviewed policies of hospital emergency and obstetrical departments. In general, policies were not a problem. In this northern area where women in preterm labour have to be flown out, the physicians advise their patients in preterm labour to come to hospital early.

Education was the main focus of their campaign. Best Start resources were provided to health care providers for distribution. Health unit staff provided training sessions for the public health nurses responsible for teaching early prenatal classes. Other prenatal educators were also invited to the training sessions. Prenatal educators with the Best Start resources, including the video.

Health unit staff also conducted a communication campaign. The campaign was aimed at getting the public to support the message that woman in preterm labour need to go to hospital immediately. This campaign included press releases, information on the Web site and letters to all hospitals, physicians, prenatal educators and public health nurses working in the Healthy Babies, Healthy Children program.

Not surprisingly, success of the endeavour in each of the six communities in the Northwestern area seemed to vary with the commitment of key stakeholders to the coalition.

At the time of the telephone survey, Northwestern was evaluating the health care practitioner education and surveying postpartum women and prenatal couples at prenatal classes.

The Toronto Public Health - Scarborough Office facilitated the development of the *Growing Healthy Together Coalition* to promote and advocate for the health of childbearing women and their babies. One of their many initiatives focussed on the development of a preterm birth prevention program. The coalition developed a work plan, undertook a literature review, developed prenatal teaching plans, and drafted awareness materials. Unfortunately, as the result of various changes impacting on membership, resources and mandates, this particular initiative was not completed. Lessons learned included recognizing the need to have members and resources dedicated to the project throughout the duration of the initiative. Other health units also commented on the need to have a broad sharing of responsibility within the committee so that, in the event of loss of members, there is back-up strength and others can carry on.

Resources Developed

Many different preterm resources are available. Health units often borrowed and adapted the resources developed by PPPESO, other health units and Best Start. Looking at existing resources may give ideas, save time, and help you figure out what would work best for your community. Inquiries about the resources listed below should be addressed to the health unit involved.

The Best Start resources are available for a nominal fee (for more information, go to www.beststart.org). To keep current as new resources are developed across the province, you could join the new Maternal Newborn Network and receive their E-mail Bullet (for more information, contact beststart@beststart.org).

Here are some of the resources that were used preterm birth prevention initiatives:

Static-cling decals - Best Start

Fridge Magnets – Simcoe County District Health Unit, Durham Health Unit

Wallet cards with preterm labour information - Algoma and Northwestern Health Units

A resource binder for physicians - Bruce-Grey Owen Sound Health Unit

Duo-tang for physicians - Northwestern Health Unit

Posters - Elgin-St. Thomas, Best Start, City of Ottawa

Display - Middlesex-London Health Unit, Elgin-St. Thomas Health Unit

Booklet for Professionals - Regional Niagara Public Health Department

Pamphlet - Perinatal Partnership Project of Eastern and Southeastern Ontario, Regional Niagara Public Health Department, Elgin-St. Thomas Health Unit, Eastern Ontario Health Unit (in French and English), Best Start, Simcoe County District Health Unit

Tear-off sheets - Porcupine Health Unit

Video - Best Start and Simcoe County District Health Unit

Newspaper Articles - Renfrew County Health Unit, Waterloo Regional Health Department, Regional Niagara Public Health Department

Media Campaign - Porcupine Health Unit (French and English announcements), Algoma Health Unit, Northwestern Health Unit

Resources about working with physicians – Best Start

Package of campaign materials –(Includes work plan, sample clinical manual policy, final report and all the materials used) - Regional Municipality of Waterloo

Web sites - Best Start www.beststart.org and PPPESO www.PPPESO.on.ca

Appendix C: Preterm Resources

Organization	Resources Available
Best Start: Maternal, Newborn and Early Child Development Resource Centre 1900 - 180 Dundas Street West Toronto, Ontario, M5G 1Z8 Tel: 1-800-397-9567 or 1-416-408-2249 Fax: 1-416-408-2122 E-mail: beststart@beststart.org www.beststart.org	✓ Pamphlet ✓ Video ✓ Poster ✓ Static Cling ✓ Prevention of Low Birth Weight in Canada: Literature Review and Strategies ✓ How to Build Partnerships with Physicians
Society of Obstetricians and Gynaecologists of Canada (SOGC) 780 Echo Drive, Ottawa, ON K1S 5R7 Tel: 1-613-730-4192 Fax: 1-613-730-4314 www.sogc.com	✓ Healthy Beginnings: Guidelines for Care During Pregnancy and Birth
Sidelines Canada Prenatal Support Network 31 Iona Street Ottawa, Ontario, K1Y 3L6 Tel: 1-877-271-SIDE www.sidelinescanada.org	✓ Support and information for individuals with difficult pregnancies
Motherisk The Hospital for Sick Children Dept of Clinical Pharmacology 555 University Avenue Toronto, Ontario, M5G 1X8 Tel: 1-416-813-8084 www.motherisk.org	✓ Information
March of Dimes Education and Health Promotion Department 1275 Mamaroneck Ave White Plains, New York, 10605 Tel: 1-914-997-4456 www.noah-health.org	✓ Information and a range of resources

Organization	Resources Available
Perinatal Partnership Program of Eastern and Southeastern Ontario (PPPESO) 401 Smyth Road Ottawa, Ontario, K1H 8L1 Tel: 1-613-737-2660 Fax: 1-613-738-3633 Email: pppesoinfo@pppeso.on.ca www.pppeso.on.ca	✓ Preterm Labour – It Might Happen To You" brochure
Health Canada www.hc-sc.gc.ca	✓ Nutrition for a Healthy Pregnancy ✓ A Handbook for Health and Social Service Professionals Responding to Abuse During Pregnancy ✓ Family Centred Maternity and Newborn Care

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: **(R 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 <u>first</u> 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, **what did you do first? (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 <u>best</u> 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 <u>speaking?</u> **(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**