— CHAPTER 5 —

Care During Labour and Birth

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Introduction

For most women and families, labour and birth is a time of excitement and anticipation, along with uncertainty, anxiety, and fear. Giving birth represents a major transition in a woman's life — not only is she becoming a mother, she will also be growing and learning throughout the process. The memories and experiences of labour and birth remain with women throughout their lives. Clearly, the support and care they receive during this time is critical. The overall aim of caring for women during labour and birth is to engender a positive experience for the woman and her family, while maintaining their health, preventing complications, and responding to emergencies.

The principles of family-centred maternity and newborn care are particularly important at this time, especially the recognition that:

- birth is a celebration. It is a privilege for all family members and health care providers who are present;
- birth is a healthy process;
- health care providers play a profound role at the time of birth — facilitating attachment between mothers and newborns, as well as family closeness;
- continuity of caregiver and setting is preferred. For example, labour and birth should take place in the same location unless a cesarean birth is anticipated;
- policies and procedures are focused on the needs of the woman and her baby — physical, social, and psychological;
- decisions are made in full consultation with the woman and her supporters;
- women and their families need privacy and comfort at all times, but especially during labour and birth; and
- the family is a unit, its members not normally separable during their stay in the hospital or birthing centre.

Many environmental elements influence a woman's care during labour and birth. These include staffing patterns, policies, and standard procedures, as well as the attitudes of staff, expectations of professionals, and expectations of those receiving care. These in turn reflect the local culture and the interaction of national, regional, and professional constituencies — all of which

are governed by beliefs, traditions, and established norms. The focus on birth as a medical rather than a personal event risks minimizing the importance of support, mastery/coping, attachment, and the healthy nature of the event. Comparative audits of clinical practice for women with healthy pregnancies, conducted by various kinds of care providers, all conclude that supportive, continuous care and the appropriate use of technology are central issues in achieving an optimal outcome (Hodnett, 1998a).

An active approach to changing attitudes and environments is necessary. The introduction of concepts developed from studies of birth rooms, single-room maternity care, and birthing centres can be helpful. But for any of these environmental developments to be effective, they must be based on a genuine awareness among staff of the central role of attitudes and beliefs, as well as a coherent philosophy of care. In the absence of such an approach, physical changes reflect little more than marketing (Klein, 1993).

Place of Birth

In Canada, most women give birth in hospitals. Some free-standing birth centres do exist, however, and a small but growing number of women choose to give birth at home. Free-standing birth centres, births at home, and small Level I hospitals providing maternity and newborn care services to healthy pregnant women and families share certain similarities. It is recommended that basic maternity services and caregiver skills be present in these settings. Chapter 2 describes these services and skills in detail.

The design of the birth facility does not necessarily engender more family-centred maternity and newborn care. In fact, the philosophy of care is primarily sustained by the care providers. While home-like settings are more agreeable work environments for health care providers, and the environments may favourably influence their attitudes, studies show much stronger evidence of need for change on the part of the care providers than in the actual physical facility of the labour units. If changes to the physical facility are desired, they should be accompanied by efforts to change the behaviour of the health care providers, so that they provide support to women in labour based on family-centred maternity and newborn care principles (Hodnett, 1998a).

Since the early 1980s, many changes have occurred in the provision of hospital maternity and newborn care. Traditionally, hospitals have had

separate rooms or units/wards for labour, birth, recovery, and postpartum care. This has given way to many creative strategies to strengthen continuity, efficiency, and effectiveness of care. Today, labour, birth, and recovery, and in a growing number of hospitals, postpartum care, are accommodated in the *same* room with the *same* health care providers. These rooms are called LBRs (labour/birth/recovery rooms), or LBRPs (to include postpartum care), and the overall concept is referred to as "single-room maternity care." Based on equipment, layout, and bed numbers, both simple and complex care can be accommodated effectively. The move to single-room care has involved various simple or elaborate renovations of settings, skills, and style.

It is recommended that *single-room maternity care* — where mothers experience labour, give birth, and spend postpartum time together — should be the standard of care. Such a standard ensures a continuum both of care and of health care providers.

It is further recommended that the multitransfer system — where women labour in one room, give birth in another, and spend postpartum time in a third — be considered obsolete.

Planning for Birth

Every woman giving birth and her family have expectations. In effect, women and health care provider(s) can effectively plan to include what is important to all three parties — women, families, and providers — during birth in many ways. Establishing a birth plan, or suggesting that women state their expectations, wishes, needs, and fears in a written summary is one possible way of achieving that objective. It enables the woman and her health care provider(s) to work toward a common goal — that of a safe and positive childbirth experience. (See Appendix 1 for a sample birth plan.)

A written birth plan has many useful advantages:

- It can encourage open, honest discussion that promotes informed, joint decision making and provides a focus for this discussion.
- It provides a starting point for the woman to reveal her fears, expectations, wishes, and needs.
- It builds trust by fully addressing the individual woman's concerns.
- It is a tool for education (e.g. about options available at the place of birth and the evidence/research basis for certain practices).

- It allows for efficient use of the care provider's time — as the plan is refined, providers can help women to find appropriate resources within the community.
- It offers staff in labour and birth settings an opportunity to learn about the woman, her knowledge, and her wishes.
- It is a vehicle for women to question local practices.

Whether or not a written birth plan is used, it is important that the health care provider(s) and women take the time during prenatal care to discuss their respective expectations.

Care Providers During Labour and Birth

Physicians, midwives, nurses, doulas, and families/significant others may all be involved in caring for the woman as she experiences labour and gives birth. It is essential that all health care providers demonstrate mutual respect and communicate and collaborate effectively. This means recognizing the vital role each one plays in providing a safe and satisfying childbirth experience for women and their families; striving to complement each other in providing care for the women and families; and observing each other's respective competencies and limitations, so that all confer, consult, and transfer care when appropriate. Clear guidelines for consultation and transfer of care between professionals, developed in a consensual manner, must be in place. (One example of effective guidelines can be found in the *Indications for Mandatory Discussion, Consultation and Transfer of Care* [College of Midwives of Ontario, 1994a].) Given the geographic realities of Canada, there is ample opportunity to develop different models of care involving various partnerships among nurses, midwives, family doctors, obstetricians, and other physicians (e.g. surgeons and anesthetists). This is a particular challenge in rural and remote areas.

The presence of the woman's physician, intermittently or continuously throughout labour, should be supported. Mechanisms whereby the physicians are readily available for reassurance, consultation, and care should be in place. As well, there should be a clear understanding of the need for ongoing interprofessional communication, particularly between nursing staff and physicians. (See Chapter 2 for recommendations regarding physicians' availability.)

The role of the midwife in caring for women with healthy pregnancies is re-emerging in Canada. While midwifery practices vary across the country, the midwifery model of care usually supports the principles of informed choice, choice of birth place, and continuity of care.

Nurses have both the privilege and responsibility of caring for women during labour and birth in the hospital setting. The goal of nursing during labour and birth is to promote the maximum physical and emotional well-being of the woman, her baby, and her family (Reeder et al., 1996). In hospital, nurses have more contact than other professionals with the woman during childbirth and her family. Nurses thus have a great influence on shaping the childbirth experience of both the woman and her family (Bryanton et al., 1994).

Developing rapport, trust, and effective communication with health care providers is important to a woman's positive childbirth experience. Nurses caring for women during labour and birth should be knowledgeable about the normal and abnormal processes of labour and birth; have a mastery of appropriate technical skills; communicate and collaborate well with the health care team; and possess the necessary judgment, self-confidence, and skills to cope with stressful, emergency conditions (Reeder et al., 1996; AWHONN, 1997). Nurses must also be able to assess the woman's needs based on her cultural background (vis-à-vis the birth experience) as well as her expectations, needs, and wishes; and to support her in having the most positive childbirth experience possible. The roles of advocate, and provider of physical, emotional, and informational support all fall within the realm of nursing practice.

Research has indicated that nurses spend relatively small amounts of time providing supportive care for women in labour (McNivin et al., 1992; Gagnon and Waghorn, 1996). Policies and procedures must therefore be put in place that enable nurses to be in the room with women in labour and to provide supportive care. (See section on Assessing the Progress of Labour, p. 15.)

Continuity of Care Providers

It is preferable to minimize the number of care providers, and to provide models of care that ensure that women will experience labour and give birth with at least one familiar professional at hand. Research has shown that women who had the continuity of supportive caregivers have considerably better outcomes in terms of reduced interventions, including reduced rates

of lower Apgar scores; fewer intubations and resuscitations; fewer episiotomies; and increased levels of satisfaction (Klein et al., 1983a;b; Klein et al., 1985; Hodnett, 1998b).

Many health care providers practise in groups. *In these situations, communication — with women and families and between providers — is critical.* Health care providers should tell women about the structure of the group and how its members practise. If a woman's primary care provider cannot be present at the birth, mechanisms should be put in place so that the backup care provider has access to the woman's health information and care plan. Women should be given the opportunity to meet other members of the call group whenever possible. When call systems are organized, consideration should be given to balancing the needs for continuity of care against the needs of the professionals for protected time.

Family Participation

A family-centred approach encourages family participation. The woman, herself, should determine the role(s) of each family member. Some family members may want to be present for the birth, while others may want to take on a supportive role. In some cultures, it is important that certain family members be present. Visiting and participation policies should recognize the crucial role of the family and be flexible in meeting the woman's needs for family support. Historic practices, such as arbitrarily or routinely limiting the number of support people in the room, need to be reviewed individually, in light of each woman's needs.

Care During Labour and Birth

The Diagnosis of Labour and Early Labour

The approach to assessment and care in early labour can have a sizable impact on outcomes. It is recommended that women with healthy pregnancies, who are not in active labour, not be admitted to the active labour and birth area. Doing so runs the risk of initiating unnecessary interventions (Morris et al., 1996; McNiven et al., 1998). Indeed, these women are better supported at home, or in a less intensive environment, where comfort measures and nutrition are readily accessible. Women who arrive at the labour unit early in labour usually do so because of a perceived

need for support and care. Skilled staff should do an admission assessment and triage in an early assessment room. If possible, this area should not be allocated to women in active labour.

It is important for labour units to develop clearly defined strategies regarding the assessment of the woman and her unborn baby, the diagnosis of labour, the criteria for admission, the type and timing of medical procedures performed in early labour, and the support that is provided to women during this time. The following specific criteria for diagnosing active labour have been recommended (SOGC, 1998):

- cervical dilation of 3 to 4 cm and 80 to 90 percent effacement for women having their first baby; and
- cervical dilation of 3 to 4 cm and 70 to 80 percent effacement in women having subsequent babies.

If the woman is in the latent phase of labour, she needs to be reassured and informed of the situation. The woman may either be discharged home (if this is appropriate for her and her family), or be asked to remain in the triage area or a lounge. Ambulation, comfort measures, nutrition, and hydration are particularly important at this time. *Even at the early stages of cervical dilation, labour pain and anxiety may be intense and some women may require additional care and support* (see section on Pain During Labour, p. 18). This can be provided using various strategies, such as visits at home for assessment and support, or employment of a labour companion or doula.

If the woman is in active labour, she should be admitted to the birthing area. Women in active labour benefit from the continuous presence of a professional. The decision to admit a woman to the labour and birth unit implies that this level of care will be provided until birth.

Initial Assessment

Women are often anxious and frightened when they begin labour and enter hospital (Chalmers et al., 1989). As they welcome and provide support to the family, health care providers must be aware of the fear and anxiety experienced by many women and their companions. The care women receive at this time will have a profound and lasting effect (Green et al., 1990; Simkin, 1991).

In general, a nurse is the first professional to meet the woman. At admission, the nurse has an excellent opportunity to initiate a rapport with

the woman and her companions. Admission is the time to review the woman's birth plan, whether written or verbal, with the woman and her partner and to discuss their worries and concerns. It is also the time to inform the woman about the nature and reasons for examinations and procedures. Orientation to the setting and staff organization is especially important if the woman has not had a prenatal tour.

When a woman is entering the birth area, an initial history and assessment is conducted. This assessment includes both the woman and unborn baby's health status, their physical and emotional well-being, the progress of labour, and their individual needs. The history and assessment should be conducted so as not to disrupt the woman or her family.

Sources of information for the history include speaking with the woman, the antenatal record, a previous hospital chart (if available), and the woman's companion (if appropriate). Antenatal records from the physician, midwife, or mother should be available for review. Important elements of an initial history, normally found on the provincial antenatal form, include the following: previous obstetrical history; last known menstrual period; estimated date of birth; any complications associated with this pregnancy; psychosocial history; health problems; allergies; communicable diseases; group B streptococcus and hepatitis B status; and blood type. Health care providers are referred to clinical practice guidelines for the essential elements of the physical assessment of the woman and her unborn baby (AWHONN, 1997; SOGC, 1998).

In some Canadian centres, certain common hospital admission procedures do not benefit the woman, her baby, or her companions. Based on available evidence, it is recommended that the following procedures be abandoned:

- routinely requesting the woman to change into a hospital gown;
- ordering enemas and shaves;
- routinely confining a woman to bed;
- routinely ordering intravenous fluids;
- routinely ordering electronic fetal heart-rate monitoring, including a baseline strip;
- routinely restricting food and fluids; and
- routinely ordering artificial rupture of membranes (ARM)

(Chalmers et al., 1989; Neilson et al., 1998; SOGC, 1998).

Supportive Care

Every woman should be allowed to choose her primary source of social support during labour — be it her partner, friends, or family members. These choices should be respected. However, a professional should also be involved to provide supportive care. Research has shown that the support of the woman in labour by someone of her own choosing is not a substitute for the support provided by a trained midwife or doula (whose only responsibility is to the woman). The support by a trained midwife or doula results in positive outcomes (Hodnett, 1998c).

The effects of one-to-one supportive care to a woman in labour have been well researched and documented in the literature (Health Canada, Canadian Institute of Child Health, 1995). The advantages of trained, supportive lay companions providing one-on-one care to a woman in labour are several: lower cesarean birth rates; decreased use of oxytocin; decreased use of epidural anesthesia; decreased use of analgesia or anesthesia; improved Apgar scores; fewer operative vaginal births; fewer admissions to neonatal intensive care units; and longer breastfeeding durations (Sosa et al., 1980; Klaus et al., 1986; Hofmeyr et al., 1991; Kennell et al., 1991; Wolman et al., 1993). Other randomized trials have shown that women who were accompanied by partners and assigned a midwife during labour received less epidural anesthesia, analgesia, and general anesthesia; had fewer episiotomies; and had a greater sense of control during labour compared with women permitted accompaniment by partners but not assigned midwives (Cogan and Spinnato, 1988; Hodnett and Osborn, 1989a;b; Hemminki et al., 1990; Breart et al., 1992). In environments where nurses are able to spend time at the bedside, as demonstrated in the intermittent auscultation trial, beneficial outcomes have also been observed (Neilson, 1995; Thacker and Stroup, 1995; Gagnon et al., 1997).

Supportive care involves the continuous physical presence of a caregiver. It also encompasses the following elements: physical support (comfort measures such as massages, touch, cool or hot compresses, etc.); emotional support (encouragement, reassurance); informational support (instructions, information, and advice); and advocacy (relaying the woman's or couple's wishes to other team members, acting on the woman's behalf) (Hodnett and Osborn, 1989b; McNiven et al., 1992; Hodnett, 1996, 1998c).

A *supportive environment* is also critical. Here, an emphasis is placed on privacy, quiet, and a minimal number of intrusions. Creating and maintaining a supportive environment for birth requires a multidisciplinary approach involving all care providers and input from consumers; mutual goals can then be identified, implemented, and monitored (Phillips, 1994; Hodnett, 1998a).

Registered nurses should be employed to care for families in the labour and birth areas. The registered nurses' scope of practice fits best with the high level of assessment required — not to mention the potential unpredictability of the course of labour. As already mentioned, when staffing patterns are being planned, an emphasis should be placed on keeping the nurse at the bedside to provide supportive care. *Staffing recommendations entail one-to-one nursing care for active labour and birth, until completion of the fourth stage of labour.*

Hospital administrators should explore creative, flexible methods to ensure that nurses provide effective, supportive care; they should establish policies and standards to support such care. The peaks and valleys in the use of labour units make this a very challenging issue. A policy of on-call, stand-by part-time pools to support the baseline staff complement is thus critical to maternity services.

Other approaches enabling nurses to provide supportive care include the following: promulgation of the idea that such care is of equal or greater value than technical care; establishment of educational courses that teach the art and science of labour support; institution of systems so that recording of care is done in women's rooms; provision of documentation structures for nursing care that promote supportive care; implementation of structural changes, including strategically placed chairs and computers; and elimination of requirements that nurses perform non-nursing and ineffective activities.

At this critical time, it is key that nurses working with families during labour and birth possess the knowledge, skills, and experience to competently care for the mothers and babies. They should have appropriate training, commensurate to the type of women served. (Table 2.3 in Chapter 2 describes a registered nurse's responsibilities when caring for women during labour and birth.) Nurses must be able to access post-RN training programs and continuing education to develop these skills. In fact, agencies need to facilitate the nurses' training and continuing education. Incentives

in the form of clinical and salary "laddering" should be explored, and barriers such as pay losses and child care expenses addressed. Such training/continuing education can take many forms, depending on the region. It can be offered through local community colleges, regional perinatal programs, universities, or in-house programs.

Assessing the Progress of Labour

The normal rate of labour progress varies widely, both in the first and second stages. The many factors influencing labour duration — parity, cervical status at labour onset, status of labour (spontaneous or induced), and presence and type of epidural analgesia — should be considered when evaluating progress.

Ongoing assessment during labour includes the following elements: the woman's well-being and ability to cope; the woman's vital signs; the frequency, duration, and strength of contractions; the degree of pain; the descent, flexion, rotation, and position of the presenting part of the baby; the degree of effacement and dilation of the cervix; the fetal heart rate; the amniotic fluid (colour, odour, consistency); and the vaginal "show."

Nutrition and Hydration During Labour

Although the practice of withholding food and fluid once labour has begun exists in many settings, it has come increasingly into question. The practice is not supported in the literature. Moreover, because all women and therefore all labours are unique, it seems reasonable that no one routine approach to nutrition during labour will suffice. Decisions must thus be made on an individual basis, in consultation with the woman. The question of the appropriate oral intake remains unanswered and, as with many unanswered questions, is ripe for a properly executed controlled trial. Such a trial should look at both the question of eating and drinking in labour and the type of food and drink to be ingested (Sachs et al., 1987; Endler et al., 1988; McKay and Mahan, 1988; Ludka and Roberts, 1993).

Position and Ambulation During Labour and Birth

A policy of encouraging mobilization, particularly in early labour, can potentially facilitate the progress of labour and increase comfort (Nikodem, 1995a). Giving women the liberty to select positions for labour and birth involves few risks and has potential benefits (Nikodem, 1995b).

In general, policies encouraging women to be upright in the first stage of labour have been associated with less pain and fewer administrations of narcotics and epidural analgesia. Moreover, less variability of fetal heart rate has been noted among women encouraged to assume upright, as opposed to recumbent postures. As well, no evidence from clinical trials has shown that upright, as compared to recumbent positions in the first stage yield differences in indicators of neonatal status (Nikodem, 1995a).

Evidence regarding the second stage of labour shows that vertical positions and conventional recumbent or semi-recumbent positions have similar impacts on the length of the second stage, the mode of birth, and the risk of perineal trauma (Nikodem, 1995b). Upright positions, however, tend to be associated with increased risk of labial lacerations. For the few studies reporting on the effects of vertical postures on maternal discomfort, results are inconclusive (Stewart and Spiby, 1989; Crowley et al., 1991).

Several trials, however, have reported an increase in postpartum blood loss as an adverse effect of upright positions during the second stage of labour (Crowley et al., 1991). Intramuscular administration of oxytocin early in the third stage, shown to reduce postpartum hemorrhage, should minimize this risk for women preferring to give birth in this position (Prendiville and Elbourne, 1989).

It is recommended, therefore, that units adopt flexible policies with respect to maternal position in labour and birth, so that women can choose the most comfortable positions. As well, members of the medical and nursing staff should be encouraged to provide care for women who wish to assume non-recumbent as well as recumbent postures. Vertical postures such as standing or walking, sitting, squatting, and kneeling; various reclining positions with back support provided by a person, a wedge, or an adjustable chair; and recumbent positions (supine or lateral-tilt) — all are possible. In effect, women are likely to vary their position intermittently throughout labour; the actual phase of labour may itself dictate the choice of posture.

Fetal Health Surveillance

Fetal health surveillance is the general term for assessing fetal well-being during labour. It is recommended that intermittent auscultation, usually performed using doptone methods, be the preferred method of fetal

surveillance for women who have no apparent risk associated with their pregnancy (SOGC, 1995a). The routine use of electronic fetal heart-rate monitoring is questioned; its association with higher cesarean birth rates and a plateau in fetal outcomes has raised doubts (SOGC, 1995a). More specifically, intermittent auscultation techniques need to be taught and appropriately applied in the active phases of labour: every 15 to 30 minutes in the active first stage, and every 5 minutes during the second stage when the woman has begun pushing. In circumstances where non-reassuring fetal heart-rate patterns are discovered on intermittent auscultation, it is appropriate to begin continuous electronic fetal monitoring.

The Society of Obstetricians and Gynaecologists of Canada has recommended specific instances for the use of electronic fetal heart-rate monitoring and fetal-scalp blood sampling. Such situations include prolonged labours; labours augmented with oxytocin; labours in which auscultation reveals non-reassuring information; or labours where there is a particularly significant risk of fetal acidosis (SOGC, 1995a).

A number of studies show that when fetal-scalp sampling is not employed to verify non-reassuring fetal heart-rate patterns (whether by intermittent auscultation or continuous electronic fetal monitoring), the consequence is an increase in the cesarean birth rate without benefit to the fetus. The Society of Obstetricians and Gynecologists of Canada recommends that fetal-scalp blood sampling be considered if non-reassuring fetal heart-rate patterns are encountered (SOGC, 1995a) (See Chapter 2).

USE OF TERMINOLOGY

One of the first rules is to avoid using physiological language to describe conditions that are unknown or speculative. Hence, it is inappropriate, regardless of the method of fetal surveillance, to use the terms "fetal distress," "asphyxia," or "placental dysfunction" when describing the condition of the fetus. These terms should be used only *after* the birth, when the full clinical picture has been established; that is, when the involvement of systems other than the brain has been determined, as well as an adequate blood-gas analysis performed. When expressing concerns about fetal well-being, the appropriate approach is to say that the fetal surveillance provides information that is either "reassuring" or "non-reassuring." Non-reassuring patterns, whether determined by electronic fetal monitoring or intermittent

auscultation, demand clarification, followed by action to improve the situation (maternal positional change, oxygen, etc.), or confirmation by fetal-scalp sampling. If these means do not improve the situation to one that is reassuring, the birth must be expedited.

ARE THESE RECOMMENDATIONS REALISTIC?

The document of the Society of Obstetricians and Gynecologists of Canada, *Fetal Health Surveillance in Labour* (SOGC, 1995a), has often been dismissed as unrealistic and impossible to implement, because of financial and staffing limitations. Yet, the evidence for these guidelines is strong enough to insist that all units involved in maternity care should have sufficient staffing to implement these guidelines. In fact, by now, *one-to-one nursing during the active phase of labour should be an essential condition of maternity care in Canada*. Indeed, one-to-one high-quality nursing care is an essential element if intermittent auscultation is to be safely used as the principal method of fetal surveillance. In effect, saying that the provision of nursing care requires the use of continuous electronic fetal monitoring as the method of fetal surveillance is the same as stating, given the present state of knowledge, that a particular unit is prepared to provide inferior maternity care. Clearly, it should be unacceptable in Canada to operate without one-to-one nursing in the active phase of labour, regardless of the method of fetal surveillance.

Pain During Labour

Experiencing pain during labour is a universal feature of childbirth. The degree of pain and each woman's ability to cope with it will depend on a number of different factors. These include the woman's experience; her psychological makeup; the degree of preparation for birth; her cultural beliefs and practices; the quality and strength of uterine contractions; the support she receives during labour and birth; and the position of the fetus (ICEA, 1993; Simkin, 1995).

Many options are available for pain relief during labour. It is important for women to have the opportunity to discuss their preferences and the choices available — from the least to the most interventional — well in advance of their expected date of birth. Informed decision making is thereby facilitated.

COMFORT MEASURES

The majority of women want no pharmacological pain relief, or they may want to delay its use as long as possible. For others, pain medication is preferable. Continuous professional support may be the most powerful non-pharmacological way of managing pain during labour (Hodnett, 1998c).

Integral to a woman's care during labour is the supportive care of her partner and friends, as well as the professional support of a doula/midwife/nurse. The importance and advantages of supportive care are well documented in the literature and include a reduction in use of medication for pain relief (Hodnett, 1998c). Supportive care includes an array of elements: the continuous presence of a caregiver; specific physical comfort measures; encouragement; reassurance; and the provision of information (Hodnett and Osborn, 1989). It is important that the whole "basket" of supportive measures be made available, so that individuals can use them as their needs dictate.

The components of supportive care/comfort measures are varied and wide ranging. Women report touch to be helpful in coping with labour, inasmuch as it conveys caring, comfort, support, and competence (Weaver, 1990). Techniques incorporating touch include counterpressure, usually over the lower back; effleurage; and massage.

Relaxation is the goal of many non-pharmacological pain-control techniques. Psychoprophylactic techniques, which include patterned breathing, controlled vocalization, moaning, and chanting, can enhance relaxation according to Dick-Read et al. (1994). Women trained in psychoprophylactic techniques have been shown to require less pain medication. Visualization-guided imagery or self-guided imagery are other useful prophylactic techniques that involve attention focusing and distraction.

Showers, jacuzzis, and tub baths can all help to enhance relaxation. Immersion in water during the first stage of labour has been linked to decreased use of other pain-relief methods; to date, no significant adverse effects have emerged (Nikodem, 1998). However, tub baths should be used carefully, bearing in mind the following issues. The water temperature for a tub bath should be $<39^{\circ}C$ to minimize risk (Hall et al., 1990). Women should maintain their oral fluid intake, since diuresis is enhanced while in the tub. Their vital signs should be recorded before entry into the tub and every 30 minutes thereafter. (Fetal heart auscultation in the first stage can be done with a hand-held Doppler or fetoscope.) Finally, each institution

should determine its own policies for cleaning and maintaining tubs. Reports have shown a slight increase in maternal temperature and fetal heart rates for 15 to 30 minutes after tub use (Schorn et al., 1993). However, present evidence does not show an increase in maternal or fetal infections attributable to use of hydrotherapy in labour; this includes women with ruptured membranes (Odent, 1983; Lenstrop et al., 1987; Waldenstrom and Nilsson, 1992; Schorn et al., 1993; Rush et al., 1996).

Back pain during labour can be relieved or eliminated by the use of intracutaneous sterile water. The technique involves intracutaneous use of sterile water by raising four papules over the sacrum in specific locations. It can be easily learned by anyone capable of administering a tuberculin skin test. Sterile water, not physiologic saline, should be used. Although the technique does produce transient local pain after the injection, it may reduce the need for more invasive methods of pain relief when used in conjunction with other supportive techniques such as breathing and relaxation (Melzack and Schaffelberg, 1987; Lytzen et al., 1989; Ader et al., 1990; Trolle et al., 1991; Reynolds, 1992;1994).

PHARMACOLOGICAL METHODS FOR PAIN CONTROL

Several pharmacological options are available for the management of labour pain. It is important for health care providers to discuss the benefits and risks of each with women and their families as part of prenatal care. Only then can an informed decision be made.

Narcotics can be administered as an intramuscular (IM), subcutaneous (SC), intravenous (IV), or intravenous patient-controlled analgesia (IV PCA). Narcotic agonists (morphine, meperidine, fentanyl) or agonist-antagonists (nalbuphine, butorphanol) are useful in labour. The IV PCA allows for maternal control of pain within set parameters, while providing more continuous therapy with better drug levels and fewer acute side effects than is seen with larger IM boluses. The drawbacks to parenteral narcotics are several: maternal sedation; nausea and vomiting; incomplete pain relief; hallucinations; respiratory depression; and fetal transfer leading to fetal/neonatal sedation and respiratory depression. The timing of narcotic use is therefore limited, and larger IM/IV doses should not be given within approximately two hours of anticipated birth. The IV PCA is not withheld for the last two hours of labour; however, if used, a qualified person must be present at birth to deal with potential neonatal respiratory depression.

Of all inhaled anesthetics, only nitrous oxide in oxygen (50:50 mix) is used for labour analgesia. Nitrous oxide provides mild analgesic effects. Some of its benefits are psychological; for example, it provides a distraction during contractions. The drawback is that it is useful for short periods only. Thus, it is most beneficial when a woman is close to full dilation, or when she is waiting for other methods of pain relief. Adequate scavenging of gases must be conducted, however, to prevent symptoms appearing in support personnel. The side effects of nitrous oxide include maternal nausea, dizziness, sedation, and hyperventilation/hypoventilation sequences leading to hypoxia between contractions.

Epidural analgesia has been used safely and effectively since the 1960s (Reynolds, 1989). Epidural analgesia for labour provides pain relief combined with preservation of maternal consciousness (Harrison et al., 1987; Howell and Chalmers, 1992). Studies have indicated that women are very satisfied with epidural anesthesia (Robinson et al., 1980; Harrison et al., 1987; Philipsen and Jensen, 1990). However, recent literature has documented its negative effects on the progress of labour and on women's ability to have a spontaneous unassisted vaginal birth, especially among women having their first babies (Howell and Chalmers, 1992).

Epidural analgesia has been associated with an increase in second-stage operative vaginal births, particularly those requiring rotation of the fetal head (Howell, 1992). Epidurals may, in certain clinical contexts, be a risk factor for cesarean births. Further research is required, however, to assess the importance of this possible association. Several approaches have been proposed to minimize the effects of epidurals on labour progress in the second stage: the use of continuous infusions of diluted local anesthetic/narcotic solutions to minimize the motor block (Vertommen et al., 1991); the use of oxytocin to augment labour in the second stage (Saunders et al., 1989); and the use of the delayed pushing technique (Fraser et al., 1997; Vause et al., 1998).

For women having their first babies with epidural analgesia, an approach of delayed pushing for up to two hours after full dilation has been shown to be effective in reducing difficult second-stage births (Fraser et al., 1997). Women whose baby is in the posterior or transverse position are most likely to benefit from this approach.

Recent variations of epidural analgesia include combined spinal-epidural analgesia (CSE) and patient-controlled epidural analgesia (PCEA).

With CSE, the initial phase of analgesia is provided via an intrathecal narcotic with or without local anesthetic. Benefits include the minimization of motor block, and the ability to ambulate during the initial phase. A recent study has shown a decreased duration of first-stage labour with CSE compared to conventional epidural analgesia (Tsen et al., 1999). With PCEA, the total dose of the agents used is minimized. The multicentre randomized controlled trials now under way in Canada and the United States are comparing IV PCA to epidural analgesia in labour, to determine the impact of epidurals on second-stage intervention (Sharma et al., 1997).

When epidural analgesia is available for labouring women, information about its risks and benefits should be made available to all expectant mothers well in advance of their due date; this allows them ample opportunity to consider the technique. It is recommended that epidurals not be considered alone as a first-line approach to pain relief, but instead be reserved for use when other methods, such as the comfort measures described above, prove ineffective. It is further recommended that all health care providers — family physicians, obstetricians, midwives, nurses, and anesthetists — work in close cooperation to optimize women's use of all approaches to pain management. In addition, practitioners at health care centres should develop pain-relief pathways and should make use of pain-measurement scales, such as visual analog scales.

Episiotomy

Given the evidence, the practice of *routine* episiotomy should be abandoned. In fact, research shows that trauma occurs from the episiotomy itself, rather than from the consequences of avoiding episiotomy. In the only North American randomized trial, which involved more than 700 women, the best outcomes were found in women with an intact perineum, followed by those who had spontaneous second-degree tears; the worst outcomes occurred among women receiving an episiotomy or whose episiotomies extended to a third- or fourth-degree tear. As well, women with an intact perineum or spontaneous second-degree tears tended to have less perineal pain overall at one, two, and ten days postpartum; according to the research evidence, this effect persisted until three months postpartum. Moreover, sexual satisfaction after childbirth was enhanced when an episiotomy was avoided.

The evidence shows that women having their first babies are 20 times more likely to have a third- or fourth-degree tear if they received an episiotomy than if they did not (Klein et al., 1992;1994;1995). Since mediolateral episiotomy is more painful than median, and since both are associated with increased maternal morbidity without demonstrable maternal or fetal benefit when employed routinely, both procedures should be reserved for special circumstances; principally, concerns about fetal well-being (non-reassuring patterns) and very limited maternal indications. In fact, both vacuum and forceps can be employed without episiotomy, which should be used only when birth must be expedited because of concerns about fetal well-being. These concepts need not only to be revisited in every hospital, but should be included in medical schools' curricula.

Birth and Immediately Following

The Second Stage of Labour

The second stage of labour has traditionally been defined as the period from full cervical dilation to the birth of the baby. It is important to recognize that labour is a process and that the progress of labour is a continuum. Thus, rather than issuing arbitrary routine directions, health care providers need to be responsive to cues from the expectant mother; at the same time, they must be knowledgeable and aware of the parameters concerning maternal and fetal safety (SOGC, 1998).

The length of the second stage should not be arbitrarily defined. Instead, it should be individualized, so that if there is evidence of progress and the mother's and the baby's condition is satisfactory, intervention need not occur (SOGC, 1998). Traditionally, two hours have been deemed the upper limit of normal for the duration of the second stage of labour in women giving birth for the first time. Recent information indicates that the mean duration of the second stage can be prolonged in light of epidural analgesia use (Paterson et al., 1988; Howell and Chalmers, 1992). It seems that in the presence of an epidural block, there is no association between duration of the second stage and risk of adverse neonatal outcome (Cohen, 1977; Moon et al., 1990; Saunders et al., 1992). Clinicians should therefore avoid placing limits on the duration of the second stage when an epidural

block is present. As long as there is continuous progress (as measured by descent of the fetal head), and fetal and maternal status remain satisfactory, expectant management of the second stage is the preferred approach. (See earlier text on epidurals, p. 21.)

Birth and Mother-Infant Contact

As the baby's head emerges, the pressure of the vagina on the infant's thorax causes the baby to start clearing its upper airway secretions. Routine suctioning is not recommended at this point. The baby should be suctioned only if particulate meconium is present in the amniotic fluid, or if the baby has difficulty clearing secretions from the upper airways. In effect, laryngoscopy and intubation should not be performed routinely, but only in the presence of respiratory distress.

Prolonged early contact of the baby with mother and family should be strongly promoted. As soon after birth as possible, the newborn should be placed in physical contact with the mother; for example, on her abdomen or in her arms. Placing the newborn into an infant warmer immediately after birth should be done only if medically indicated for the newborn, if the mother cannot immediately receive the newborn on her abdomen, or if the mother has requested that the newborn be put into a warmer. The warmer should be in close physical proximity to the parents. (If the baby is under the warmer for more than 10 minutes, servo control mechanisms should be used to ensure that the baby is not overheated.)

The mother and newborn should be viewed as an inseparable unit. Disruption of the close mother-infant relationship during the first few hours after birth is to be avoided, and direct skin contact is strongly encouraged. The initial mother-infant bond marks the beginning of all the infant's subsequent attachments. Inasmuch as early events have long-lasting effects, it is formative to a child's sense of security. As well, the benefit to the mother cannot be underestimated, as this early prolonged contact with the baby affirms her sense of accomplishment. Keeping babies and mothers together should be of higher priority than institutional convenience, or adherence to traditional policies. Although specific procedures such as administration of identification bands, vitamin K, or ophthalmic medication may be required for care of the baby (or by law), their execution should be timed so as to minimize the effects on the attachment process. As well, newborn assessments can be done when the baby is with the mother.

Mothers should be encouraged to breastfeed as soon as the baby is ready and willing after birth. Prolonged early contact is a positive predictor of success with breastfeeding. Studies have shown that separation of mothers and infants immediately after birth jeopardizes successful establishment of lactation (CICH, 1996). (See Chapter 6 for a detailed discussion of care of the newborn, including resuscitation. See Chapter 7 for a detailed discussion of breastfeeding.)

Care During the Third Stage of Labour

The usual practice immediately after birth, as long as the uterus remains firm and no unusual bleeding occurs, is to wait watchfully until the placenta is separated. To ensure that the uterus does not become atonic or fill up with blood, behind the separated placenta, the height of the uterine fundus and its consistency should be frequently checked by resting a hand on the fundus (SOGC, 1998).

Evidence from controlled trials supports the routine use of oxytocic drugs in the third stage of labour. However, their advantage — the reduced risk of postpartum hemorrhage — must be weighed against the relatively small risk of hypertension, as well as the disadvantages attending the routine use of injections. In addition, the evidence available provides no support for the continued prophylactic use of ergometrine. This drug offers no advantage over oxytocin in reducing blood loss and is associated with a greater risk of hypertension and vomiting (SOGC, 1998).

Dystocia

At present, no universally accepted criteria for the diagnosis of dystocia exist. One Canadian guideline suggests the following: that 3 cm cervical dilation must have been achieved, and, following this, that there should be a period of at least four hours during which cervical dilation is less than 0.5 cm per hour (Panel of the National Consensus Conference on Aspects of Cesarean Birth, 1986). Compared to alternative definitions, this definition of dystocia has been found to have an acceptable level of sensitivity and a high specificity (Lemay, 1995).

This definition, although relatively conservative, may result in as many as 40 percent of women being labelled as having dystocia. However, given the individuality of the labour process, not all women who go beyond the limits of normality established by this definition will require medical intervention (Peisner and Rosen, 1985;1986).

The *partogram*, a method of documenting vaginal examinations performed at predetermined intervals, is used as a tool for the screening and diagnosis of dystocia. It is not clear, however, that screening via regular vaginal examinations results in improved obstetrical outcomes (World Health Organization, 1994). The partogram can nevertheless be helpful in distinguishing between disorders of the latent and active phases of labour.

The Active Management of Labour

The active management of labour has been advocated as a means of preventing dystocia and reducing cesarean birth (O'Driscoll et al., 1984). This approach to care involves several components, including selective admission to the labour ward, support from caregivers, early amniotomy, and early oxytocin. However, randomized controlled trials of early amniotomy and early administration of oxytocin, although they have resulted in a modest reduction in duration of labour, have not translated into improvements in maternal or fetal morbidity rates. Indeed, routine early amniotomy appears to be associated with an increase in the hourly rate of early, variable, and late fetal heart-rate decelerations, which may lead in turn to increased numbers of cesarean births for concerns regarding fetal well-being (Goffinet et al., 1997). Reports also indicate that if labour is progressing normally, it is preferable to avoid artificial rupture of the fetal membranes (Bidgood and Steer, 1987; Hunter, 1991; Fraser et al., 1993; Thornton and Lilford, 1994; Fraser, 1995a;b).

In contrast, psychosocial support during labour has been shown to be associated with a reduction in cesarean and operative vaginal births, along with improved fetal outcomes (Hodnett, 1998c). Thus, an acceptable approach to care would be expectant management of slow labour progress in the latent phase, with an emphasis on measures of psychological support and physical comfort.

Augmentation of Labour

A recent meta-analysis of trials comparing early labour augmentation with oxytocin and amniotomy to a more conservative form of management found no benefit of routine early intervention for women with mild delays in labour progress (Fraser et al., 1998). In trials that studied women with an established diagnosis of dystocia, a trend toward a reduction in cesarean risk was noted with labour augmentation. However, the number of women randomized in these studies was too small for definitive conclusions to be drawn. For the treatment of dystocia, given the frequency of uterine dysfunction in association with delayed progress in labour (Gibb et al., 1984), it is recommended that augmentation with oxytocin be instituted prior to consideration of cesarean birth.

Medical Intervention for the Treatment of Dystocia

Once the decision has been made to intervene medically for dystocia — whether by amniotomy, oxytocin augmentation, or both — adequate time must be allowed to observe a clinical response to treatment. Depending on the starting dose and rate of increase of oxytocin, two to three hours may be required to achieve therapeutic concentrations in maternal serum (Brindley and Sokol, 1988). In the majority of cases, a therapeutic level is achieved at doses of 10 mU/min or less. Once a therapeutic level has been achieved, a further period of observation is required to assess for a clinical response. Particularly when oxytocin is commenced at cervical dilations of less than 5 cm, the time interval from initiation of treatment to achievement of a clinical response (i.e. an increase in cervical dilation) may be considerable (Cardozo and Pierce, 1990).

Induction

A policy of routine induction of labour at 40 to 41 weeks in healthy pregnancies cannot be justified in the light of evidence from controlled trials (Crowley, 1995a;b). In most cases, post-term pregnancy probably represents a variant of the norm and is associated with a good outcome. When compared to spontaneous labour, however, induction is often associated with a cascade of problems and interventions, such as increases in the mean length of labour, the need for analgesia, and the rate of operative birth.

Induction often requires continuous electronic fetal monitoring, which reduces the woman's mobility. All available methods of induction of labour have associated medical risks. (See Appendix 2.)

The decision to induce labour should be made only when the risk of continuing pregnancy outweighs the risk of induction; for example, in the presence of severe pre-eclampsia. In many other situations, the point at which the risk of continuing pregnancy outweighs the benefit is often not clear-cut.

A post-term pregnancy is the most frequent indication for induction. With recommended ultrasound gestational age assessment, the frequency of gestation of 42 plus weeks should be no greater than 4 percent. A large Scandinavian study provides data on the perinatal mortality risk in relation to gestational age (Bakketeig et al., 1979). Only after 42 weeks does the risk of perinatal mortality return to the level observed before 39 weeks. Moreover, a near doubling of risk occurs after 43 weeks.

A Canadian post-term pregnancy trial demonstrated that the fetal morbidity risk associated with serial antenatal monitoring was no greater than the risk of prophylactic induction of labour. Among the 3407 babies in the trial there were only two instances of perinatal mortality; both were in the expectant management group (Hannah et al., 1992). In a meta-analysis of 12 trials comparing expectant management to induction of labour in post-date pregnancies, reported in the Cochrane database (Crowley, 1998), eight perinatal deaths occurred, seven of which were in the expectant management group. This analysis suggests that a policy of labour induction at 41 plus weeks may be associated with a slight reduction in the risk of perinatal mortality. However, even if this were the case, many inductions would have to be performed to prevent one case of perinatal death.

A reduction in the risk of cesarean births was observed in association with a policy of labour induction in the Canadian post-term trial. This finding appears to contradict the prevalent view that induction increases the risk of cesarean births. However, this observation should be interpreted with caution. For one thing, a prostaglandin gel was available only to women in the induction group: the approximately one third of those in the expectant group who went on to induction did not have access to gel. As well, most of the excess of cesarean births in the expectant management group were due to "fetal concerns." Whether the use of amnioinfusion in situations of fetal concern due to oligohydramnios would have reduced or eliminated this difference is open to speculation.

In light of the evidence, the Cochrane database recommends offering women induction of labour by the best method available (Crowley, 1995b). However, if women are to make an informed decision about induction, they must be informed of the risks and benefits of the procedure.

Reducing the Incidence of Cesarean Births

The current rates of cesarean births in Canada are considered unacceptably high. The challenge today is how to safely reduce these rates while preserving optimal infant and maternal outcomes. Studies from across North America have shown no links between high cesarean birth rates and improved perinatal mortality. In fact, some jurisdictions with the highest cesarean birth rates have the highest perinatal mortality rates, illustrating that social factors and aspects related to the organization of care are critical determinants. Individual hospitals and individual practitioners with high rates of cesarean births do not have higher or lower numbers of admissions to special care (baby) units in their practices, and the babies born have neither higher nor lower Apgar scores, than those institutions or practices with low rates. In fact, within any large group of practitioners, intervention rates for cesarean births and other principal procedures tend to follow a bell-shaped distribution.

All the usual reasons given for the high cesarean birth rate — the overdiagnosis of "fetal distress," the overdiagnosis and suboptimal management of dystocia, the overuse of repeat cesarean births, and the use of cesarean births for breech and multiple births — are well known to the practice community, and attempts are under way to improve practice in these areas. Research on changing clinician behaviour and practice clearly demonstrates that exhortation, continuing medical education, rounds, and various quality assurance or disciplinary approaches generally fail. In fact, Continuous Quality Improvement (CQI) methods have been the most successful approaches to date. (See Appendix 3 for details on CQI.)

Family-Centred Care During Cesarean Births

The experience of cesarean birth, either elective or emergency, provokes anxiety for most women and families. A number of options, however, can be made available to facilitate a family-centred cesarean birth. These are summarized in Table 5.1.

Table 5.1 Options to Facilitate Family-Centred Cesarean Births

- Admit the woman to hospital for an elective cesarean on the morning of the birth, so that family members can spend the previous night together (provided they have already had an orientation).
- Enable father/partner/support person to remain with the mother during the physical preparation.
- Choose regional anesthesia where possible, and explain the differences between regional and general anesthesia.
- Enable father/partner/support person to be in the cesarean birth room in non-emergency situations. (There is controversy regarding the support person's presence during emergency situations. Further evidence is needed to assess this area.)
- Provide a mirror and/or ongoing commentary from a staff member for mother and family.
- Enable photographs or videos to be taken, if even one parent is unable to witness the birth.
- Free the mother's hands from restraint, thereby allowing contact with her partner and the baby.
- Provide the opportunity for both parents to interact with the baby in the cesarean birth room and/or the postanesthetic recovery room.
- Provide the opportunity for the mother to breastfeed in the cesarean birth room or the postanesthetic recovery room.
- If father/partner chooses not to be in the cesarean birth room, replace him/her at the mother's side with a support person. Give the father/partner the baby to hold en route to the nursery. Have the staff describe the birth experience to the father/partner.
- Have the father/partner accompany the baby to the nursery and remain with the infant until both are reunited with the mother.
- Reunite the family in the postanesthetic recovery room, if possible.
- Ask the father/partner to be in the postanesthetic recovery room to tell the mother, if she has had a general anesthetic, about the birth.
- If it is difficult to reunite the family in the postanesthetic room, judge each mother's condition individually with an eye to reuniting the family as soon as possible.
- Judge the baby's condition individually to avoid time alone in an incubator in the nursery, whenever possible.
- Provide time alone for the family in those first critical hours.
- Institute mother/baby combined-care nursing as soon as possible and do not routinely separate mothers and babies.
- Include the family in the teaching of caretaking skills.
- Include siblings according to their and the family's wishes.

Adapted from: Phillips CR, *Family-Centered Maternity and Newborn Care: A Basic Text*. 4th ed. St. Louis, Mo.: Mosby, 1996.

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APPENDIX I

Birth Plan

Introductions

My name is ..... *My due date is* .....

My doctor is ..... *My baby's doctor will be* .....

My support person(s) during labour will be .....

These people will be present for the birth .....

.....

We would like to have our other children visit...

☐ during labour

☐ after I go to the mother-baby unit

☐ not at all

We have attended or are planning to attend...

☐ prenatal classes

☐ Dad classes

☐ hospital tour

☐ sibling tour

☐ exercise classes

I am part of this research study: .....

Getting to Know You...

Is there anything you would like us to know about you (i.e. important issues, fears, concerns)? .....

.....

.....

.....

My goal is:

☐ to use supportive and comfort measures offered by support person and nurse only

☐ to use pain medications in addition to supportive and comfort measures

☐ other, please explain .....

.....

.....

First Stage of Labour... Coping with Contractions

Women have found the following comfort measures helpful when coping with the discomforts associated with contractions. Please check which of the following comfort measures you would like your nurse to offer you during your labour...

☐ tub bath/jacuzzi/shower

☐ walking

☐ hot/cold compresses

☐ listen to my own music

☐ use the birthing ball

☐ use my own "focal" point

☐ wear my own clothes/night wear

☐ use many pillows (must bring your own)

☐ massage

☐ use of Nitronox (self-administered combination of two gases)

☐ an epidural

☐ other: .....

The Birth of Your Baby

Your nurse will help you to find different, comfortable positions during the pushing stage of your labour. Which of the following would you also like to try:

☐ use the squatting bar

☐ give birth on my side

☐ do *not* want to use stirrups

☐ other .....

.....

.....

After my baby is born, I would like to:

☐ have ..... cut the umbilical cord

☐ have my baby put on my stomach right away

☐ have the baby wrapped in a blanket before holding

☐ have our own bonnet put on the baby

☐ have ..... diaper my baby for the first time

☐ have ..... take pictures/video during the birth

☐ other .....

.....

Unexpected Labour Events

If you need more information about any of the following topics, ask your doctor or midwife:

☐ external fetal monitoring

☐ internal fetal monitoring

☐ artificial rupture of membranes

☐ forceps/vacuum extractor

☐ episiotomy

☐ cesarean birth

☐ induction of labour: use of cervical foley catheter and syntocinon

---

After the Birth of Your Baby Until You Go Home

The obstetrical unit believes in keeping mothers and their babies together 24 hours a day; nursing staff will support and help you care for your baby in your room.

I am planning to:

☐ breastfeed

☐ formula feed

During my stay on the mother-baby unit, I would like to:

☐ have my baby with me all the time

☐ be a part of my baby's examinations (admission and discharge)

☐ be present during any tests my baby may be having (i.e. PKU/TSH heel prick blood test)

☐ have the nurses show me and ..... how to do a baby bath

☐ give my baby's first bath on my own

☐ have ..... give the first baby bath

☐ have our baby boy circumcised

☐ other .....

.....

After going home these people will be helping:

.....

.....

Additional ideas or comments: .....

.....

.....

.....

.....

I would appreciate a telephone follow-up call after I go home from the mother-baby unit. (First-time moms usually receive a phone call from the Public Health Nurse after they go home.) ☐ yes ☐ no ☐ undecided

Date .....

Mom's signature .....

☐ Dad's ☐ Support person's signature .....

Source: St. Joseph's Health Centre, Family Birthing Centre, London, Ont.

APPENDIX 2

Methods of Induction and Augmentation

"SWEEPING" THE MEMBRANES

Several recent studies suggest that for women who have a non-urgent indication for induction of labour, a "sweeping" of the membranes may increase the likelihood of spontaneous labour onset. A randomized clinical trial is under way in Canada to assess if a policy of membrane sweeping for such women would reduce the requirement for formal induction of labour.

CERVICAL RIPENING — USE OF PROSTAGLANDINS

Oxytocin, while effective for labour induction, is ineffective for cervical ripening. Prostaglandins (PGE^2) have been demonstrated in clinical studies to be effective medications for cervical ripening. Prostaglandins act directly on the cervix; their effects are not solely mediated by uterine contractions. Prostaglandins result in biochemical changes which lead to a softening of the cervix. Intracervical PGE^2 is currently the preferred method for cervical ripening.

A meta-analysis reported in the Cochrane database compares prostaglandins (all routes) to placebo or "no treatment" for cervical ripening (Keirse, 1993). Prostaglandins for cervical ripening produced a statistically significant reduction in the rate of cesarean births, instrumental vaginal birth, and failed induction. The proportion of women who had not given birth within 12 hours of commencing labour induction was dramatically reduced when the cervix was prepared with postaglandins. Although there was some risk of both hyperstimulation and fetal heart abnormality associated with the use of prostaglandins for cervical ripening, the risk of neonatal compromise did not appear to be increased. Approximately 30 to 40 percent of the women receiving intracervical PGE^2 are expected to go into labour during the process of ripening.

COMPARING OF METHODS OF LABOUR INDUCTION

For women with a favourable Bishop score (Bishop, 1964), whether achieved spontaneously or by medical means, several options are available when induction is necessary: amniotomy alone, oxytocin alone, amniotomy and oxytocin, oral prostaglandins (PG), or vaginal prostaglandins. Amniotomy

alone would appear to be an attractive approach in some situations. However, controlled trials suggest that early administration of oxytocin following amniotomy reduces the risk of operative birth compared to amniotomy.

The controlled trials evaluating different medical approaches to induction tend to involve small sample sizes. Again, meta-analysis provides an indication of the relative effectiveness of the different approaches. Trials have compared oxytocin to oral prostaglandins and oxytocin to vaginal prostaglandins. (There have been no direct comparisons of oral to vaginal PG.) Gastrointestinal side effects (vomiting and diarrhea) are more frequent and severe with oral prostaglandins than with vaginal, making their acceptability lower.

Overall, prostaglandins (any route) appear to result in a reduction in the frequency of operative births when compared to oxytocin alone. The proportion of women not giving birth within 24 hours is significantly reduced (odds ratio = 0.43). The frequency of analgesic use is reduced with PG as compared to oxytocin.

There have been few studies concerning women's views of induction methods. It appears likely that if vaginal gel allows the woman to delay or avoid insertion of an IV drip, greater mobility might result and acceptability might be increased. The subsequent use of electronic monitoring in labour should depend on the indication for induction.

The occurrence of ruptured membranes is noted as a contraindication to the use of Prostin vaginal gel in the product monograph. However, the protocol of the randomized trial that examined term premature rupture of membranes (PROM), and that compared expectant management to induction of labour in patients with term premature rupture of membranes, required administration of a vaginal gel. Several published controlled trials suggest that vaginal gel can be used safely in these situations.

APPENDIX 3

Continuous Quality Improvement (CQI)

Continuous quality improvement (CQI) focuses on the system of care. It is concerned with improving the processes and reducing variation so that everyone's performance improves (Headrick, 1995). A basic tenet of CQI is that most people care about the quality of their work and want to do a good job. Improvement usually requires removing the barriers in the way of the providers who already possess the intrinsic motivation for high quality. This is quite different from traditional quality assurance programs, which focus on identifying outliers ("bad apples") and taking steps to improve their performance in order to meet an established standard.

Audits and feedback (central tools of the CQI process) have been shown to affect rates of birthing interventions when combined with appropriate education and administrative support (Inglesis, 1991; Dillon et al., 1992; Socol et al., 1993; Sandmire and Demott, 1994; Reynolds, 1995).

The CQI process is designed to provide practitioners with feedback about their practice patterns. Basic to this is the notion that for all interventions, even cesarean births (though obstetricians are generally the principal intervenors), the physicians or midwives hold themselves accountable for the intervention or outcome, as do, for their part, the obstetricians, nurses, and anesthetists. Individualized feedback is presented in the form of a series of histograms examining interventions such as episiotomies, cesarean births, epidurals, inductions, augmentations, and consultation rates across the department. A survey, which accompanies the results, invites practitioners to provide directions for the project, indicate educational issues needing attention, and make comments about the process. A similar process involving an entire institution should be multidisciplinary and institution-wide.

Detailed flow diagrams of the process of care and consensus building complement other CQI strategies and can be applied to contributing factors, such as admission procedures, inductions, pain management, strategies in early labour, and fetal surveillance. An audit is carried out on randomly selected charts from hypothesized areas thought to be at the root of the problem. Teams are then formed and educational issue areas developed.

Each group uses a template to lead it through the major steps for completing a clinical algorithm and/or pathway for its area of focus, as well as a time line for implementation. The objectives for each group are to complete the analysis of baseline evidence; review the literature; and identify existing clinical algorithms, guidelines, and pathways. The group then designs an improvement process based on this information. Implementation of the results of this work will involve disseminating information through the care provider population, allowing for feedback, and ensuring that everyone feels part of the process. Recommendations will then be made, incorporating key data markers in the chart abstraction process.