— CHAPTER 4 —

Care During Pregnancy

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Introduction

The overall goal of providing prenatal care is to improve and maintain the health and well-being of mothers, babies, and families. This involves ongoing assessment and monitoring of the health status of the women and their unborn babies. In keeping with the values of family-centred care, it is recommended that prenatal care be provided in an environment in which:

- pregnancy is considered a state of health;
- women and families are valued and respected;
- the relationship between women and health care providers is mutually consultative and interactive;
- the diversity of women's needs is recognized, as well as the variety of personal and cultural meanings that women and families bring to pregnancy; and
- care providers facilitate the process of informed decision making.

This chapter provides a comprehensive framework for the provision of prenatal care and services. These approaches should be adapted according to local and regional needs and the needs of individual women and families. Not all aspects of care described in this chapter are appropriate or necessary in all situations.

Issues in the Organization and Provision of Prenatal Care

Many studies have shown that women who receive prenatal care early and regularly have a better outcome than those who do not. Although the tendency is to equate regular prenatal care with a good outcome, it must be recognized that those accessing prenatal care tend to be more financially secure than the average; often, they are of middle or higher socio-economic status and have well-organized support systems. Many determinants influence the health of pregnant women and their unborn babies. These include the socio-economic conditions, social policies, financial and human resources, and health care organization of a community (Enkin et al., 1995). In addition, communities vary according to geography, climate, living conditions, and population characteristics. Community- or population-

based approaches to health care delivery are therefore necessary if equitable access to health is to be achieved.

Women have many reasons for not accessing pregnancy care. Often, these are linked to socio-economic disadvantage, culture, language, age, and geography. Services need to be organized in such a way that these conditions do not act as barriers to care.

Providers

Providing prenatal care requires the cooperation and coordination of many different health care providers and services. Table 4.1 describes some of the personnel, agencies, and services to be considered in planning a comprehensive system.

Table 4.1 Health Care Providers, Agencies, and Services for Prenatal Care

Health Care Providers	*Agencies/Services*
• primary caregivers (physicians, midwives, nurse practitioners)	• health units/community health centres
• consultant specialists	• social service agencies
• community health nurses	• in-hospital services
• regional or outpost nurses	• labour support groups
• nutritionists/dieticians	• birth centre services
• prenatal educators	• community-based services
• social workers	• self-help groups
• mental health workers	• genetic services
• family home visitors	• laboratory services
• physiotherapists	• ultrasound units
• doulas/labour companions	• emergency response or transport services
• home support workers	• fitness and exercise programs
	• smoking cessation programs
	• preparation for breastfeeding services (e.g. La Leche League, lactation consultants)
	• addiction agencies (alcohol, drugs)
	• services for pregnant teenagers
	• adoption agencies and counselling services

CHOICE OF PRENATAL HEALTH CARE PROVIDERS

Some communities have a wide choice of health care providers offering prenatal care; others do not. The availability of such caregivers depends on the size of the community, as well as its geographic location and resources.

Regardless of the range of choice, those undertaking prenatal care for women and families must hold to the fundamental principles of providing family-centred maternity and newborn care: informed choice, continuity of care, evidence-based care, and respect for individuality.

In addition to health care providers and other service providers, a woman's support system may include her partner, her immediate and extended family, her friends, her community and its members, her labour companion/doula, her spiritual advisor, and any other individuals that she feels are necessary to her physical, emotional, and social well-being. Generally, the woman chooses her personal support system. It is important for health care providers to find ways to accommodate the members of the woman's support system. They should be made to feel welcome, with their needs and concerns during care acknowledged.

Continuity of Care

During pregnancy and childbirth, every effort should be made to provide women with care from the same health care provider, or from a familiar group. Women have repeatedly stressed the importance of such continuity of care. Evidence indicates that women receiving such care experience many positive outcomes, including less likelihood of prenatal admissions to hospital, greater likelihood of attendance at prenatal education programs, less likelihood of using pharmacological methods of pain relief during labour, less likelihood of their newborns requiring resuscitation, and greater likelihood of satisfaction with their prenatal, labour, birth, and postpartum care (Hodnett, 1997).

Groups are most effective when there is a shared philosophy and approach to caring for women. As well, continuity of care and teaching is enhanced by documentation systems that provide effective communication between providers. Such documentation decreases the possibility of repetition and gaps in care.

Prenatal Visits

The frequency of prenatal visits should be determined by the physical and psychosocial needs of the woman and her unborn baby. To date, no data have indicated the optimal number and schedule of visits. Frequency of visits has been based on arbitrary decisions and tradition, rather than evidence. Further research is needed to answer questions about the number

and timing of visits (McDuffie et al., 1996; Sikorski et al., 1996; Villar and Khan-Neelofur, 1998).[1]

It is recommended that the guidelines of the Society of Obstetricians and Gynaecologists of Canada (SOGC) be followed. They state: "After the initial prenatal visit, women with no identifiable risk should be seen every 4-6 weeks up to 30 weeks' gestation, for assessment. After 30 weeks, visits should occur every 2-3 weeks and, after 36 weeks, every 1-2 weeks until delivery. The assessments at these times should focus on different issues appropriate to the gestational age" (SOGC, 1998a).

Initial Care Visits

A number of essential components are included in initial prenatal care visits. They include developing an understanding between the woman/family and the health care provider concerning the roles, responsibilities, and organization of services; establishing a prenatal record; taking a history; doing a general physical examination; conducting the requisite screening, diagnostic tests, and laboratory investigations; assessing and counselling; and educating about community resources and care options.

Prenatal Record

It is recommended that every province and territory provide a standardized care record for prenatal, birth, and newborn care, and that the country strive to establish a Canada-wide record. Such a record would provide the necessary documentation for clinical care. It could also serve as a data collection instrument, gathering useful aggregate information for providers, consumers, health care planners, and researchers.

It is recommended that women have a copy of their prenatal record with the essential information. There is evidence to support this practice. Women who carry a copy of their prenatal record report an increased feeling of control during pregnancy. Effective communication between women and health care providers is thereby enhanced and a partnership encouraged. Continuity of care is enhanced as well (Hodnett, 1995; Webster et al., 1996).

It is important that women take this record with them to their birth site, or if they see a different health care provider. (If women cannot carry

1. The World Health Organization is currently examining this issue via a large trial.

such a record, health care providers should ensure that copies of the essential information are sent to the planned place of birth.)

A woman-held record can take a variety of forms. It should document the essential, basic health-assessment information. It should provide women with the opportunity to record their plans for pregnancy and birth as well as any questions or concerns they may have about their pregnancy; it should also allow the care providers to record information. It can thus become a diary for each woman's pregnancy and birth. (Appendix 1 presents an example of a woman-held record.)

History Taking

A complete prenatal history includes not only the woman's physical health history, her family history, and her history of previous pregnancies and reproductive concerns, but also information about her social and emotional situation. It is important that the prenatal history be taken in a comfortable environment, in a relaxed manner. The elements of a prenatal history are outlined in Table 4.2. Most provinces and territories have standard prenatal forms that include this information. However, if forms are being redesigned, the list in Table 4.2 should be consulted.

Physical Examination

A physical examination should be completed according to the guidelines presented in *Healthy Beginnings: Guidelines for Care During Pregnancy and Childbirth* (SOGC, 1998a). This should include a breast assessment in preparation for breastfeeding (see Chapter 7).

Determination of Risk

An initial and ongoing assessment is needed of the health status of both the mother and unborn baby; their potential risk of developing problems should be assessed as well. Such an assessment facilitates the provision of appropriate care — during pregnancy and birth — with the appropriate health care provider, and in the appropriate place. Such an assessment also serves as the basis for referral within a regionalized system. As well, it provides an opportunity to identify the variety of factors that affect the health of the mother and her unborn baby and the outcomes of childbirth.

The evidence is insufficient to recommend general use of risk-scoring and grading systems of classification that assign mild, moderate, and high

risk. Their predictability tends to be poor, because of such factors as tool validity and differences in approach, use, and interpretation (Hall, 1994; Hutchison and Milner, 1994; Enkin et al., 1995).

The nuances of pregnancy health assessment cannot be contained in a simple risk-scoring system. They require a skilled professional — one aware of the woman's health status, of the local and regional health care resources, and of the likelihood of complications and risks for poor outcomes.

Table 4.2 Elements of a Prenatal History

- Family history (of the woman and father of the baby)
- Genetic history: indications for discussion, counselling, and further testing (screening programs, maternal age, paternal age, family history or previous child with genetic abnormality, ethnic background)
- Past medical and surgical history, with attention to conditions that might influence pregnancy and breastfeeding, or might be adversely affected by pregnancy
- Menstrual history: to determine conception date; gestational age; and history, or recent use, of birth control
- Sexual health history
- Previous obstetrical and gynecological history: to assess risk, and potential recurrence, of conditions that may affect this pregnancy
- History of present pregnancy, and feelings and reactions of the woman and her family toward the pregnancy
- Current medication history (prescribed and over-the-counter medication)
- History of allergies and symptoms to drugs, foods, and substances (e.g. latex)
- History of past and current exposure to environmental contaminants
- Dietary history and nutritional status
- Activity pattern: work, rest, recreation
- Psychosocial history: to explore issues of lifestyle (smoking, alcohol consumption, and other drug use), interpersonal relationships, levels of stress/anxiety, adequacy of personal/family supports, financial status and work/living arrangements (early in pregnancy, see ALPHA Form)
- History of physical, sexual, or emotional abuse
- Expectations for pregnancy, birth, and parenting
- Past experience with labour, birth, postpartum, and breastfeeding
- Traditions related to birth and postpartum practices arising from the woman's religious or ethnic background
- Any other factors that the woman believes are relevant to her care and that of her baby and family

Screening, Tests, and Laboratory Investigations

Health care providers are referred to *Healthy Beginnings: Guidelines for Care During Pregnancy and Childbirth* (SOGC, 1998a) for the recommended prenatal diagnostic laboratory investigations and screening procedures. These guidelines state that the following tests are recommended once pregnancy is confirmed: hemoglobin level, blood group and antibody screen, rubella titre, hepatitis B surface antigen assay, and VDRL (Venereal Disease Research Laboratory) (SOGC, 1998a).

The Society of Obstetricians and Gynaecologists of Canada suggests that other investigations are appropriate in certain circumstances.

SCREENING

The conditions that justify the establishment of a screening procedure are:

- The disease in question is a serious health problem.
- The disease has a presymptomatic phase, during which treatment can change the course of the disease more successfully than during the symptomatic phase.
- The screening procedure and the ensuing treatment are acceptable to the public.
- The screening procedure has acceptable sensitivity and specificity.
- The screening procedure and ensuing treatment are cost-effective (Carroll, 1993).

In all cases where screening is undertaken, the following guidelines should be observed:

- provision of appropriate education to parents and health care providers;
- access to accurate and prompt laboratory testing;
- access to competent counselling and support services;
- access to specialist consultants as necessary;
- access to appropriate treatment (Carroll, 1994); and
- effective and timely transmission of results.

Several areas of screening during pregnancy remain controversial. These areas are chlamydia, gestational diabetes, group B streptococcus, ultrasound, HIV/AIDS, and maternal serum marker screening. Clear-cut recommendations are not possible in these situations. Decisions can be made only after all the available evidence is considered. These areas are discussed in detail in Appendix 2.

Psychosocial Assessment

Although prenatal care has traditionally focused almost exclusively on detection of medical and obstetrical problems, psychosocial issues have recently been recognized as important determinants of health for pregnant women and their newborns (National Health and Welfare, 1987; Rosen, 1989; Culpepper and Jack, 1993; Enkin et al., 1995).

Assessment of psychosocial risk during prenatal care, which can be done efficiently, permits health care providers to tailor interventions to individual women. Research shows that appropriate interventions can improve psychosocial health (Holden et al., 1989; Oakley, 1992; MacMillan, et al., 1993; Midmer et al., 1995). Without systematic enquiry, however, many problems will go undetected. Therefore, it is recommended that the assessment of psychosocial health be incorporated into routine prenatal care.

The ALPHA (Antenatal Psychosocial Health Assessment) Form was created to facilitate systematic gathering of this information. (See Appendix 3.) Based on a systematic review (Wilson et al., 1996), a number of antenatal risk factors were chosen for screening; these factors demonstrated association with poor postpartum family outcomes of woman abuse, child abuse, postpartum depression, marital (couple) dysfunction, and increased physical illness. The ALPHA tool is recommended for health care providers trying to identify pertinent, new information about women and their families — information needed when women must make decisions about life situations or seek assistance for psychosocial problems. Women are comfortable with this form of enquiry and providers have noted an increased rapport with women after this assessment (Midmer et al., 1996; Reid et al., 1998). Recommendations for using this form are summarized in Table 4.3.

ELEMENTS OF PSYCHOSOCIAL ASSESSMENT AND COUNSELLING

Adjustment to Pregnancy. When a woman becomes pregnant, she must cope with physical and psychological changes while preparing for birth and mothering. Assessment of the situation includes evaluating the pregnant woman's perceptions of the complexities associated with mothering, evaluating her attachment to her unborn baby, and evaluating the acceptance of her child by her family and support network.

Table 4.3 Recommendations for Using the ALPHA Form[2]

1.	The ALPHA Form is one particular systematic method of assessing the psychosocial aspects of a woman's life. The presence of a risk factor does not imply causality, but rather the possibility of an increased association with the outcome(s). The form should be used to identify problems and, with the woman's participation, to assist her in deciding if and how they should be dealt with. This may mean increased monitoring, support or use of additional resources or interventions, and referral to other community services during the postpartum period.
2.	The requisite information may be gathered in one interview, or over a series of visits.[3] The second trimester, during the 20- to 30-week period, is a favourable time for the assessment to take place; more time is usually available at that point and an increased rapport has been developed with the caregiver.
3.	Information must remain confidential. With the woman's consent, the caregiver can share the information with appropriate professional(s) during the prenatal period (e.g. social worker), the intrapartum period (labour and delivery nurses), or the postpartum period (family physician, pediatrician).
4.	Care must be taken when cross-cultural communication is involved. Sensitivity to cultural values must be maintained. Caregivers working with people from other cultures may have to determine what is appropriate and acceptable within those cultures.
5.	If possible, women should be interviewed alone at least once during the prenatal period so they can disclose sensitive issues regarding partners or family members who may be accompanying them.
6.	Caregivers should compile a list of resources available in their own communities to deal with concerns arising from the ALPHA assessment. Concerns will vary according to the setting and culture.

Adapted from: Midmer et al., *A reference guide for providers: The ALPHA Form,* 1996.

Support for the Pregnant Woman in Pregnancy. A woman needs social support during pregnancy. Social support reflects an individual's sense of belonging and safety with respect to a caring partner, family, or community. Insufficient social support during pregnancy is characterized by isolation; lack of help when dealing with daily tasks, stressful events, or crises; and lack of support from a spouse, close friend, or family member. Lack of social support has been associated with abuse of the child and/or woman, and postpartum depression (Midmer et al., 1996).

2. *A Reference Guide for Providers: The ALPHA Form* (Midmer et al., 1996) is available from the Department of Family and Community Medicine, University of Toronto, 8th Floor, 620 University Avenue, Toronto, ON M5G 2C1.
3. A self-administered version of the form has been developed and is now being tested in a pilot study. Providers would be expected to review this form with the woman and to plan follow-up or interventions.

To assess social support, the ALPHA guide suggests asking:

- How does your partner and/or family feel about your pregnancy?
- What support do you get from your family, friends, and partner?
- Who will be helping you when you go home with the baby?
- What family and/or friends do you have in town?
- Who do you turn to when you have a problem or when you've had a bad day?

Stress and Anxiety in Pregnancy. Some psychological stress during pregnancy is inevitable since it is a time of change. Certain pregnant women may be more stressed than others, especially if social circumstances are not ideal, if there are complications associated with the pregnancy and/or the unborn baby, if hospitalization is required, if the pregnancy was unplanned, or if the woman's family circumstances change (e.g. a marriage breakdown) (Midmer et al., 1996).

To assess stressful life events, the ALPHA guide suggests asking:

- What major life changes have you experienced this year? For example, has there been a job loss, financial problems, illness or death of a loved one, a work or household-related move?
- What changes are you planning during this pregnancy?
- How do you cope with stress in your life? How does your partner cope?

Support for Fathers. In two-parent, heterosexual families, it is important for expectant fathers to be part of prenatal care. Typically, as the reality of a child unfolds during pregnancy, fathers feel a sense of evolving responsibility toward their family and the unborn baby (Jordan, 1990). Men have specific psychological, emotional, and physical needs connected with their preparedness for fatherhood and their successful adaptation to the transition to parenthood (Mason and Elwood, 1995). As they work through incorporating their paternal role into their identity, they begin to enact parental behaviours (Jordan, 1990).

Pregnancy may be an ideal time for the expectant father to become aware of his own health and lifestyle habits, and their potential effects on his new family. He has the opportunity to modify his own lifestyle habits to support choices that his partner makes — both for her own health and that of the unborn baby (Polomeno, 1997; 1998).

Parenthood is a transition that implies a change in roles and status for *all* family members. Some stress and anxiety during this transition are

considered normal. Fathers and mothers who come to the parenting role with a range of personal and coping resources have the potential for good mental and physical health. Social support and communication within their relationship are key buffers of stress. The mutual support they offer each other during pregnancy will help them to deal with the major changes imposed by the pregnancy on their relationship (Schroeder-Zwelling, 1988).

Couple relationships. To assess the couple's relationship, the ALPHA guide suggests asking:

- How will your partner be involved in looking after the baby?
- How do you share tasks at home? How do you feel about this?
- Has your relationship changed since pregnancy? What will it be like after the baby?
- Do you have any concerns about your relationship with your partner?
- In your culture, what usually happens in a couple relationship once the baby is born?

Sexuality in Pregnancy. Pregnancy, labour, and birth are all aspects of a woman's sexuality. Although a wide range of physiological sexual responses exist during pregnancy, sexual interest, frequency, and satisfaction often change for both men and women. Sexual relationships during pregnancy depend on many factors, including the quality of the relationship in all areas, sexual values and attitudes, religious beliefs, general health, specific pregnancy-related health concerns, and the quality of the couple's relationship (Phillips, 1996).

Pregnant women and their partners should have a basic understanding of sexuality and impact of pregnancy on sexuality. They need to have information about the following: the physical and psychological changes of pregnancy and how these can change physical and emotional sexual responses; the different ways of pleasuring; and the importance of communicating changes, needs, and desires. Certain sexual restrictions during pregnancy may be necessary, for example, if vaginal bleeding, premature rupture of the membranes, or premature labour occurs.

Health care providers need to understand the range of attitudes and feelings that women and their partners may have in intimate relationships during pregnancy. They also must be aware of their own personal attitudes, values, and biases and how these affect their assessment of women's sexual health. Health care providers are encouraged to actively explore and

understand their own personal attitudes and values about sex and sexuality. Health care providers need skills in sexual health assessment. (See MacLaren, 1995, for a full discussion of sexual health assessment.) As well, they need to recognize their limitations regarding sexual health assessment and feel confident in referring to others, as appropriate.

Violence in Pregnancy. The incidence of violence in pregnancy runs between 4 and 17 percent (SOGC, 1996). Pregnancy is a time of increased risk for abuse because of ambivalent feelings about the pregnancy, increased vulnerability of the woman, mounting economic pressures, and decreased sexual availability (Stewart and Cecutti, 1993).

There may be reticence on the part of the woman, the care provider, or both, to broach the issue of violence. However, health care providers need to be alert to the possible consequences stemming from the abuse, which could affect the health of the woman and her unborn baby.

Care providers need to:

- be aware of the problem of abuse;
- be able to assess and identify abuse;
- provide a safe, private, and therapeutic environment to facilitate disclosure; and
- provide support and care for the woman.

Assessing and identifying abuse involves:

- being able to identify the risk factors and clinical clues that indicate abuse (see Table 4.4); and
- being able to ask direct, sensitive questions. An abuse-screening tool for women has been incorporated into the ALPHA Form (Brown et al., 1996). The questions are summarized in Table 4.5. The SOGC Policy Statement on Violence Against Women also includes relevant questions (SOGC, 1996).

Educational material on abuse should be clearly displayed in waiting areas, examination rooms, and washrooms. Telephone numbers of local shelters and help lines should be clearly displayed in all areas, especially in washrooms.

Following disclosure, health care providers should state clearly that physical, sexual, and psychological abuse are unacceptable behaviours, and that the woman is in no way to blame for the situation. The woman should be reassured about confidentiality. As well as enabling her to make

decisions, health care providers should acknowledge and support her efforts to take charge of her life. The health care providers should also indicate that they will support the woman whether she decides to stay with, or leave, her partner. They should ask about the woman's perception of her own safety, and whether she has an exit or safety plan in case of increased danger. She should be helped to formulate plans for this eventuality. Community and family support systems should be explored, as well as the woman's knowledge of community support and resources. Specific information should be transmitted regarding available community resources, with addresses and telephone numbers (Midmer et al., 1996; SOGC, 1996; Ferris et al., 1997; Martin and Younger-Lewis, 1997).

Table 4.4 When to Suspect Physical Abuse

Physical abuse should be suspected when women make multiple visits to care providers' offices with problems such as:

- headaches, insomnia
- choking sensations, hyperventilation
- gastrointestinal symptoms, chronic pain
- shyness, fear, embarrassment
- evasiveness, passivity
- frequent crying
- a male partner who often accompanies her but who is reluctant to leave
- drug and alcohol abuse or overdose
- attempts at self-harm or suicide
- depression
- sexual problems
- injuries not consistent with stated cause

Adapted from: Society of Obstetricians and Gynaecologists of Canada, *Policy Statement: Violence Against Women*, 1996.

Table 4.5 How to Ask About Abuse During Pregnancy

- In general, how would you describe your relationship with your partner?
- How do you and your partner solve arguments?
- Do you ever feel frightened by what your partner says or does?
- Have you ever been hit, pushed, shoved, or slapped by your partner?
- Has your partner ever humiliated you or psychologically abused you in other ways?
- Have you ever been forced to have sex against your will?
- In your culture, what do people think about a man who is violent with a woman?

Source: Brown et al., 1996; Midmer et al., *The ALPHA Form,* 1996.

Tobacco Use. In Canada, maternal smoking is a major risk factor for low birth weight or premature babies, as well as perinatal mortality. Women smoke for many reasons and are influenced by both external and internal factors. External factors include social and cultural norms, laws, and the smoking behaviour of people with whom the woman lives and works. Some women have very stressful lives and smoking can become an important mechanism for coping (Health and Welfare Canada, 1987; 1990). (See Chapter 3, page 13, section on Tobacco.)

Women turn to a variety of support systems and sources of information as they make their choice to quit or reduce smoking. For example, their friends, families, and partners may be supportive and influence their decisions. They also turn to their health care providers (Levitt et al., 1997). The most effective way of quitting or reducing smoking, however, appears to be self-help behavioural (how to) strategies (Lumley and Astbury, 1989). Health care providers have many useful resources available with which to approach the issue of tobacco use with pregnant women. Examples are found in Appendix 1 of Chapter 3.

Alcohol. The consumption of alcohol in Canada is pervasive and widely accepted. Alcohol use, abuse, and addiction occur in a social context and affect all levels of our society (Loney et al., 1994). Fetal Alcohol Syndrome (FAS) is recognized in Canada as one of the leading causes of preventable birth defects and developmental delay in children. The *Joint Statement: Prevention of Fetal Alcohol Syndrome (FAS) and Fetal Alcohol Effects (FAE) in Canada* (Health Canada, 1996) concludes by saying that no definitive statement can be made regarding a safe quantity of alcohol use during pregnancy. *Consequently, the prudent choice for women who are, or may become, pregnant is to abstain from alcohol*.

Various tools are on the market to assist in the identification of women at risk. (See Chapter 3.) The ALPHA Form includes questions about alcohol use. Every pregnant woman should be asked about alcohol consumption. In effect, health professionals have a responsibility to inform women at risk, and to assist with appropriate referrals and supportive interventions. If the woman has a partner, he or she should be included in the counselling on alcohol use. Counselling should emphasize the importance of supporting the woman's choice not to drink.

Other Drugs. Drugs of any kind may affect both the mother and the unborn baby. Such substances include over-the-counter drugs (e.g. aspirin, cold remedies, antihistamines, antinauseants, codeine, large doses of vitamins), prescription medication, herbal and plant products, caffeine, marijuana, narcotics (e.g. methadone, heroin, cocaine), and solvents.

It is recommended that questions be asked regarding drug use during the prenatal assessment. Referral to a drug treatment program for further assistance may be necessary. It is important to note that maternal withdrawal and detoxication from some drugs involves risk of fetal withdrawal (SOGC, 1998a). Health care providers are referred to the following resources for detailed information on the effects of drugs on pregnancy and the unborn baby, as well as counselling information: the Motherisk Program (The Hospital for Sick Children, tel: 1-877-327-4636, fax: (416) 813-7562, Internet address: http://www.motherisk.org); *Maternal-Fetal Toxicology, a Clinician's Guide* (Koren, 1994); and the Canadian Centre on Substance Abuse, tel.: (613) 235-4048, fax: (613) 235-8101, Internet address: http://ccsa.ca/.

In recent years, the availability of herbal preparations has kept pace with the accelerating interest in the use of herbal remedies. Unlike pharmaceuticals, herbal products are not subject to regulations, and information as to their safety during pregnancy may be hard to find. Health care providers seeking information are referred to the safety of herbal medications in the pregnancy section of *Drug Information Perspectives* (Lepik, 1996) and to *Maternal-Fetal Toxicology: A Clinician's Guide* (Koren, 1994).

Physical Activity. Regular exercise during pregnancy appears to improve (or maintain) physical fitness. Unfortunately, the important risks or benefits for the mother and baby are insufficiently covered by the data available (Kramer, 1997).

Certain contraindications to vigorous exercise in pregnancy have nonetheless been identified (ACOG, 1994):

- a history of three or more miscarriages
- a history of premature rupture of the membranes
- a history of premature labour
- an incompetent cervix
- a history of placenta previa
- a history of intrauterine growth restriction.

Women engaged in vigorous exercise programs should know that hyperthermia may have teratogenic effects. They should be aware that this potential risk is greatest in the earliest weeks of pregnancy (ACOG, 1994).

Working Conditions and Environmental Exposure. Large numbers of expectant mothers continue to work outside the home. The question of whether or not a mother's work affects the unborn baby depends on the type of work, hours of work, levels of physical and emotional stress, and the mother's individual health status. Strenuous extended work may be associated with a decreased birth weight, prematurity, and miscarriages. Women's working conditions should therefore be assessed early in pregnancy to determine the type of work involved.

It is recommended that when assessing the woman's working conditions and making recommendations for modification, health care providers use the guidelines described in the document *Healthy Beginnings: Guidelines for Care During Pregnancy and Childbirth* (SOGC, 1998a).

Whether a person's working environment is in or outside the home, everyone is exposed on a daily basis to various chemicals and toxins. It is important to assess the woman's current and previous exposure to environmental toxins (CICH, 1997a;b). (See Chapter 3 for more discussion on this topic.)

Nutrition

DEVELOPING HEALTHY EATING PRACTICES

Canada's Food Guide to Healthy Eating (Health Canada, 1997) recommends that pregnant women eat five to twelve servings of grain products, five to ten servings of vegetables and fruit, three to four servings of milk products and two to three servings of meat and/or alternatives per day. Please note that the following discussion of nutrition may be supplemented by referring to *Nutrition for a Healthy Pregnancy: National Guidelines for the Childbearing Years* (Health Canada, 1999). As well, nutrition is discussed in Chapter 3 of this document.

NUTRIENTS OF SPECIAL CONCERN DURING PREGNANCY

Certain specific nutrients are of particular concern during pregnancy. Health care providers should ensure that they assess, with the woman, the adequacy of her diet with regard to these nutrients. The nutrients are outlined in Table 4.6. More detailed information is found in Appendix 4.

Table 4.6 Nutrients of Special Concern During Pregnancy

Calcium	The recommended daily intake is between 1200 and 1500 mg per day depending on age. Available data suggest that the average dietary calcium intake of Canadian women of childbearing age is lower than the recommended intake.
Vitamin D	The recommended daily intake is 5.0 μg or 200 IU per day. This was established assuming that a large portion of the nutrient required daily would be derived from exposure to sunlight.
Iron	The recommended daily intake is 13 mg in the first trimester, 18 mg in the second trimester, and 23 mg in the third trimester. Iron status should be assessed early and throughout pregnancy.
Folic acid	Women should be advised to take 0.4 mg of folic acid supplementation, starting at least one month prior to becoming pregnant and continuing through the early weeks of pregnancy, and to eat a healthy diet, according to *Canada's Food Guide to Healthy Eating* (Health Canada, 1997), taking care to include folate-rich foods.
Vitamins/Mineral supplementation	Women on healthy diets may not need supplements. Any supplement should complement the woman's daily intake.
Essential fatty acids	The recommended nutrient intake for essential fatty acids (EFAs) increases during pregnancy so pregnant women should be encouraged to increase their intake of EFAs.

Source: Health Canada, *Nutrition for a healthy pregnancy: national guidelines for the childbearing years*, 1999.

WEIGHT GAIN IN PREGNANCY

The mother's pre-pregnancy weight-for-height, rather than her weight gain per se, is the most significant and predictive factor for the growth of her unborn baby. Although gestational weight gain is not as strongly linked to growth of the unborn baby and birth weight as previously thought, measuring weight gain is an easy and convenient way to monitor the progress of pregnancy, particularly in the second and third trimester.

The appropriate weight gain varies from woman to woman and is based on the pre-pregnancy Body Mass Index (BMI), which reflects the mother's weight-to-height ratio. (For detailed information on calculating BMI, see *Nutrition for a Healthy Pregnancy: National Guidelines for the Childbearing Years*, Health Canada, 1999.) In general, optimal growth of the unborn baby occurs if women with a low pre-pregnancy BMI (< 20) gain more weight and women with a high pre-pregnancy BMI (> 27) gain less weight than women who enter pregnancy with a healthy body weight (BMI between 20 and 25).

Recent research has brought into question previously accepted upper and lower limits of weight gain during pregnancy (Feig and Naylor, 1998). Health care providers are referred to the most recent clinical practice guidelines now that weight-gain recommendations are being re-examined in light of this evidence.

There are several categories of women who may be nutritionally at increased risk of having low birth weight babies. These are adolescents, women with eating disorders, immigrant women who are undernourished and may therefore suffer from delayed growth, and women who are socioeconomically disadvantaged.

As important as gestational weight gain is as a monitoring tool, practitioners report that an overemphasis on weight gain and weighing is counterproductive.

CREATIVE STRATEGIES FOR PRENATAL NUTRITION

Creative strategies are needed to assist communities in developing or improving comprehensive prenatal nutrition programs for pregnant women. Canada has many such programs under way. They address such issues as food supplementation; nutrition assessment and counselling; social support; interagency referral; and education on lifestyle issues such as smoking, substance abuse, family violence, and stress. The programs are often designed to help organizations and community groups address the needs of pregnant Aboriginal women; pregnant women living in poverty; pregnant teens; and pregnant women who are geographically, socially, or culturally isolated. (See, for example, *The Canada Prenatal Nutrition Program: Guide for Applicants,* Health Canada, 1994c.)

Continuing Care

Pregnancy, Birth, and Postpartum Planning

Through consultation and collaboration, women and health care providers can design plans for pregnancy, birth, and the postpartum period. Issues for discussion would include prenatal testing, inclusion of father or partner during birth, comfort or pain management, medical interventions, place of birth, concerns and fears, newborn care, possible emergencies, infant feeding, postpartum family support and community resources, and other issues of the woman's choosing. (See Chapter 5 for details on planning for birth.)

Continuing Assessment

Continuing assessment during prenatal visits should focus on different issues appropriate to the woman's needs and to the gestational age of the unborn baby. During assessments, health care providers should explain what is being done and how the information might be used; they should also provide relevant education about the procedures, thereby enabling the woman to be a partner in her care. Ongoing adherence to the practice of women-held records facilitates this process. Health care providers are referred to the document *Healthy Beginnings: Guidelines for Care During Pregnancy and Childbirth* (SOGC, 1998a) for practice guidelines for continuing assessment.

Discomforts of Pregnancy

Many healthy women experience a variety of symptoms or discomforts during pregnancy. Most of these accompany the normal physiological changes of a woman's body as it adapts to pregnancy. Whereas some of the symptoms continue throughout pregnancy, others are temporary. Care providers should provide women with information as to potential discomforts in advance, and offer practical solutions. The causes and strategies of coping with these discomforts are addressed in Appendix 5.

Education to Recognize Some of the Important Complications of Pregnancy

Women will want to understand any signs or symptoms that might signal a problem during pregnancy. Health care providers can assist them by sharing the relevant information. For example, pregnant women should be advised to contact their care provider at once if any of the signs listed below appear. Such signs could indicate pregnancy loss, antepartum hemorrhage, preterm labour and pre-labour rupture of membranes, hypertensive disorders of pregnancy, post-term pregnancy, infection, or hyperemesis gravidarum. The signs include:

- bleeding from the vagina, including spotting;
- fluid leaking from the vagina at any time before labour begins;
- sudden swelling or puffiness of the face, hands, or feet (particularly if swelling becomes worse or changes);
- dizziness, lightheadedness, fainting spells, or loss of consciousness;
- headaches that are severe and last for a prolonged period of time;

- visual disturbances such as blurring, spots, flashes, or double vision;
- abdominal pain;
- chest pain;
- pain or burning when passing urine;
- chills, fever, or a rash following a fever;
- nausea or vomiting that lasts throughout the day;
- absence or decrease of fetal movement after the 24th week of pregnancy;
- signs of preterm labour (especially for women having a multiple pregnancy) (See Table 4.7.);
- exposure to infectious diseases, including rubella, measles, hepatitis B, and sexually transmitted diseases including HIV; and
- jaundice or dark-coloured urine.

Women need to be familiar with the signs of preterm labour. They need to know what to do should they occur. This information is summarized in Table 4.7.

Table 4.7 Signs of Preterm Labour

Any one or more of:

- regular contractions or tightening of the uterus
- increase or change in vaginal discharge (watery, mucousy, or bloody)
- menstrual-like cramps or low, dull backache
- sensation of the baby pushing down in the pelvis
- an unusual need to urinate, urgently or often
- abdominal cramps, with or without diarrhea

What a woman should do if she suspects that she is in preterm labour:

- stop whatever activity she is doing and rest
- call the obstetrical unit where she is planning to deliver her baby and describe her symptoms to a nurse

The woman should go immediately to the nearest emergency room if:

- her water breaks
- she is bleeding
- she is in pain
- she is having regular contractions that are coming closer together and getting stronger

Source: SOGC, *Healthy Beginnings: Your Handbook for Pregnancy and Birth,* Ottawa, 1998b.

Prenatal Education

Out of respect for the principles of family-centred care, health care providers should strive to make learning and sharing of information a component of every contact with the woman and her family. Prenatal education is offered to support healthy lifestyles; improve self-esteem or the sense of self-competence; enhance the family relationship, including communication between the woman and her partner; enable childbirth preparation; allow for a smooth postpartum adjustment; promote successful infant feeding (focusing on breastfeeding as the optimal choice); increase communication between the woman and her health care providers; and nurture the appreciation that birth is a normal, healthy event. There are a variety of strategies for providing prenatal education.

Many women and families choose to participate in group prenatal education programs. Such programs take place in a wide variety of settings: hospitals, public health units, physician's and midwife's offices, community health centres, community agencies, offices of consumer groups, colleges, the educator's place of private practice, and the client's or educator's home. Each setting has advantages and disadvantages. No setting is ideal for every family.

The benefits of participation in prenatal education are difficult to document in a systematic manner. The widespread popularity of prenatal education testifies to the desire of expectant parents for prenatal education (Enkin et al., 1995). Enkin states that "it is possible that the actual existence of prenatal classes is more important than the details of what is taught — that 'the medium is the message'" (Enkin et al., 1995). Indeed, benefits have been demonstrated in terms of reduced amounts of analgesic medication used and increased satisfaction with birth. However, the full impact of childbirth education cannot be assessed solely by its effect on the individual woman giving birth, for there may be indirect effects that engender significant changes in the birth ambience for all women (Enkin et al., 1995). Offering a variety of different types of programs, with explicitly stated aims, may enable a woman (or couple) to choose the program most likely to meet the needs at hand.

Wherever "prenatal education" takes place, the guiding principles should be those of adult learning theory or a learner-centred perspective. The educator, as facilitator rather than teacher, should emphasize the

validity of the learner's background and experiences, share control of both the content (what the learner should or needs to know, so that content means something to the learner) and the process (how the learner will learn it), emphasize interdependence in the learning situation, and facilitate the learner's development by meeting the learning needs. In essence, both facilitator and learner share responsibility for the learning situation.

Role of the Prenatal Educator

Prenatal educators are but one member of a woman's health care circle. They work in collaboration with, and not directed by, others. They must therefore:

- act as teachers, providing information about the physical, emotional, and social aspects of pregnancy, birth, and early parenting;
- enable the woman and her support people to develop skills to cope with pregnancy, birth, and early parenting;
- skill build on the woman's innate knowledge of how to give birth; and
- serve as advocates for child-bearing families and family-centred maternity care.

BACKGROUND AND COMPETENCIES

Prenatal education combines aspects of the art and science of many disciplines, including nursing, midwifery, physiotherapy, social work, and education. No single academic background is a prerequisite for the role of prenatal educator. As in any profession, competencies vary.

Prenatal educators should be enthusiastic, sensitive, respectful of others, and view parents as peers capable of making decisions pertaining to their care. The educators should be able to do the following:

- present information in a clear, concise, non-authoritarian manner;
- develop a learner-centred curriculum;
- prepare and meet objectives;
- choose and use appropriate audiovisual material;
- employ the principles of adult education;
- use a variety of teaching methods that will appeal to the varied ways in which individuals learn — that is, lecture; role play; buzz groups; small or large group discussions; videos or slides; and other audiovisual means such as posters, models, visual aids, demonstration/return demonstration, reading material, and so on;
- employ the principles of group process and facilitation;

- self-evaluate;
- distinguish between personal beliefs and scientific fact;
- maintain familiarity with current findings and changes in obstetrics;
- refer women and families to community resources;
- help parents develop realistic goals for pregnancy, birth, and early parenting;
- promote collaboration and cooperation between the health care providers; and
- support the right of the woman to make informed choices based on a knowledge of benefits, risks, and alternatives.

Education Issues in the Prenatal Period

CONTENT

All issues involved in pregnancy, labour, and birth that may affect a woman and her family should be dealt with in a proactive way, within the context of prenatal education. In its broadest definition, prenatal education topics touch on preparation for pregnancy, labour, birth, early parenting, infant feeding, changing roles and relationships, sexuality, and family planning. The content should be offered at the appropriate time during pregnancy. One series may include all of this information. Alternatively, programs can focus on the different phases: early pregnancy, labour and birth preparation, and the postpartum period.

Content should include information on the natural physiological and psychological patterns of pregnancy, labour, birth, and the postpartum period. The following aspects should be dealt with:

- anatomy and physiology of the male and female reproductive systems, and human sexuality;
- changes during pregnancy: physical and emotional;
- fetal growth and development;
- prenatal screening and diagnostic tests: purpose and use;
- teratogenic and iatrogenic influences in pregnancy;
- variations of normal and warning signs;
- complications of pregnancy and ways of coping with high-risk pregnancy;
- maternal and infant nutrition, focusing on breastfeeding as the optimal means of infant feeding;
- normal labour and birth;
- cesarean birth and vaginal birth after cesarean (VBAC);

- common medical interventions and procedures, including the indications, risks, benefits, and alternatives for each;
- a baby's characteristics and behaviour;
- role of the labour support person(s);
- anticipatory guidance for the postpartum period, including breastfeeding, care of the baby, normal changes to expect, and emotional and physical support for the woman;
- early warning signs of postpartum complications for the woman and her baby; and
- coping methods for labour: relaxation techniques (progressive relaxation, touch relaxation, visualization, imagery, music); breathing (either in a pattern or as a natural response to the forces of labour); comfort measures (massage, effleurage, counterpressure, heat/cold or water therapy, nourishment, etc.); positioning and movement for comfort and efficiency during labour; and exercises for body awareness and conditioning.

FAMILIARIZATION WITH THE PLACE OF BIRTH

Prenatal educators usually include, or suggest, a visit to a birth facility for expectant mothers and their partners. A tour of the birth facility serves many purposes: it allays fears and anxieties about the hospital or birth place; it allows the educator to introduce new material in a concise manner; and it enables the educator to provide concrete demonstrations.

These visits help to make the impending birth more real. The educator must be completely familiar with the setting, for the participants may need to be "walked" through the path they will take on arrival to give birth. As well, families may need to become familiar with such items as birthing beds, squatting bars, birth stools, monitors, warming beds or tables, isolettes, and so on. Policies such as visiting hours can also be outlined. Adequate time should be allowed for questions at the end of the visit.

GROUPS WITH SPECIAL NEEDS

Prenatal education is an integral part of prenatal care for *all* families. Some groups of women, however, such as adolescents, Aboriginal women, immigrant and refugee women, women with low incomes, incarcerated women, and women having a second or subsequent baby may never have used the existing services. Moreover, not all women feel comfortable in groups. Creative ways to provide prenatal education for all women, in consultation with them, need to be found. Such programs should be community-based

to give the women and their families ownership and responsibility in planning such programs.

Educators and care providers need to work with the community of women to identify barriers that discourage women's accessing of prenatal education and to find solutions. Women cite many reasons for not attending prenatal education programs. These include employment obligations; lack of child care; bad timing; inconvenient locations; differing cultural, ethnic, or religious orientations; excessive costs; and lack of awareness.

Prenatal education for adolescents need not differ in content, although the manner in which information is taught may indeed change. The goals of prenatal education can be attained if the teaching occurs in an atmosphere that is supportive, informal, and non-judgmental. Programs located within the adolescent's own community will increase their availability, accessibility, and comfort level (Altendorf and Klepacki, 1991). Starting a for-credit prenatal program as part of young people's regular school curriculum could be the ultimate way of reaching those young women who are still in school.

For all these groups, cost may be a factor. Some public health departments and community health centres provide services free or are able to waive fees. However, even when done with sensitivity, fee waiving can still be isolating and embarrassing for the woman, and thereby inhibit attendance.

Conclusion

The organization and provision of family-centred prenatal care gives women, their families, and their unborn babies the chance to move into the next phase of childbearing, labour, and birth with optimal opportunities for health and well-being. As well, working in partnership with women and families offers health care providers a significant opportunity to influence the health of future generations.

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APPENDIX 1

Example of a Woman-Held Prenatal Record

Doctors'/midwives' names and phone numbers:

.....

.....

.....

Labour support person: .....

Phone number: .....

Phone number of baby's doctor: .....

Other phone numbers: .....

.....

On-call System

Your doctor (or a designate) covers you 24 hours/day, 8:00 a.m. Monday to 5:00 p.m. Friday. Ask for your doctor or his/her designate by calling the pager operator at 000-0000.

Birth Plans

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Comments/Notes

.....

.....

.....

Prenatal classes:		Clinic appointments:	
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

Name:

.....

.....

Partner:

.....

.....

Age: .....

EDC: .....

LMP: .....

Height: .....

Pre-pregnant weight:

.....

Blood Work:

☐ Blood group

☐ Hepatitis screen

☐ Antibodies

☐ Glucose screen

☐ Rubella titre

☐ HIV

☐ Hemoglobin

☐ Syphilis

Other Tests :

☐ Ultrasound

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☐ Allergies

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Date	Weight	Blood pressure	Urine: Protein	Urine: Glucose	Gestational age in weeks	Height of fundus (cm)	Fetal heart rate and activity	Presentation and position	Remarks	Return to clinic

Source: BC Women's Family Practice Maternity Service, Vancouver, British Columbia; 1998.

APPENDIX 2

Screening

CHLAMYDIA

While still controversial, there is fair evidence to support screening pregnant women during their first trimester for chlamydia and to treat as required (Davies and Wang, 1996). Pregnant women may also be considered for chlamydia screening if they have any of the following criteria: are younger than 20, are unmarried, have a history of other sexually transmitted diseases, have multiple sexual partners, or have a partner with multiple sexual contacts.

GESTATIONAL DIABETES

There is ongoing controversy regarding the effectiveness of gestational diabetes screening programs. The available data do not support the broad recommendation that pregnant women should be screened for "gestational diabetes" (Enkin et al., 1995; Walkinshaw, 1995). However, clinical trials have been planned and centres are encouraged to become involved. Recent data indicate that consideration of women's clinical characteristics allows for efficient selective screening for gestational diabetes (Naylor et al., 1997). The Society of Obstetricians and Gynaecologists of Canada has made recommendations as well (SOGC, 1992). When centres do not have the opportunity to participate in clinical trials, they should refer to these guidelines and draw up an approach for their region.

GROUP B STREPTOCOCCUS

Controversy exists as to whether there should be routine screening for group B streptococcus (GBS). No good trials have yet been done to demonstrate the effectiveness of such screening (Smaill, 1995). Multicentred clinical trials are needed to evaluate the effectiveness of screening to prevent neonatal sepsis.

Although antibiotic treatment given intrapartum does reduce infant colonization and sepsis, the difficulty lies in identifying the high-risk colonized women at the onset of labour (Smaill, 1997). The Society of Obstetricians and Gynaecologists of Canada and the Canadian Paediatric Society have developed a consensus document, which states the following:

Until more specific information is available, two methods are acceptable to identify and manage women whose newborns might be at increased risk of GBS disease:

- *universal screening of all pregnant women at 35 to 37 weeks' gestation, using a single, combined vaginal-anorectal swab[1] and the offer of intrapartum chemoprophylaxis to all GBS-colonized women*
- *no universal screening, but intrapartum chemoprophylaxis for all women with identified risk factors. This strategy should also be used in cases where universal screening is the policy but either was not done or the test results are unavailable.*

Intrapartum chemoprophylaxis is recommended for the following risk factors:

- *preterm labour (greater than 37 weeks' gestation)*
- *term labour (greater than or equal to 37 weeks' gestation)*
- *prolonged rupture of membranes. Chemoprophylaxis should be given if the labour and/or ruptured membranes situation is likely to continue beyond 18 hours (neonatal benefits are optimally achieved if antibiotics are given at least 4 hours prior to birth).*
- *maternal fever during labour (greater than 38° Celsius, orally).*

(SOGC, 1997a)

MATERNAL SERUM MARKER SCREENING

Maternal serum marker screening determines whether a pregnant woman is at increased risk of carrying a baby with either Down syndrome or an open neural tube defect (NTD). The three serum markers measured are alpha fetoprotein, human chorionic gonadotrophin, and unconjugated estriol. This is an evolving program, and the availability of maternal serum marker screening varies across Canada. In some jurisdictions, not all three serum markers are measured. In some provinces, women are required to pay for this procedure.

The Canadian Task Force on the Periodic Health Examination states that there is fair evidence to offer triple-marker screening to women under 35 years of age within a comprehensive screening and prenatal diagnosis program, one that includes education, interpretation, and follow-up. However, concerns regarding these tests relate to limited sensitivity of the screening test, the number of women who receive false-positive results, and the number of women who receive positive results but do not subsequently

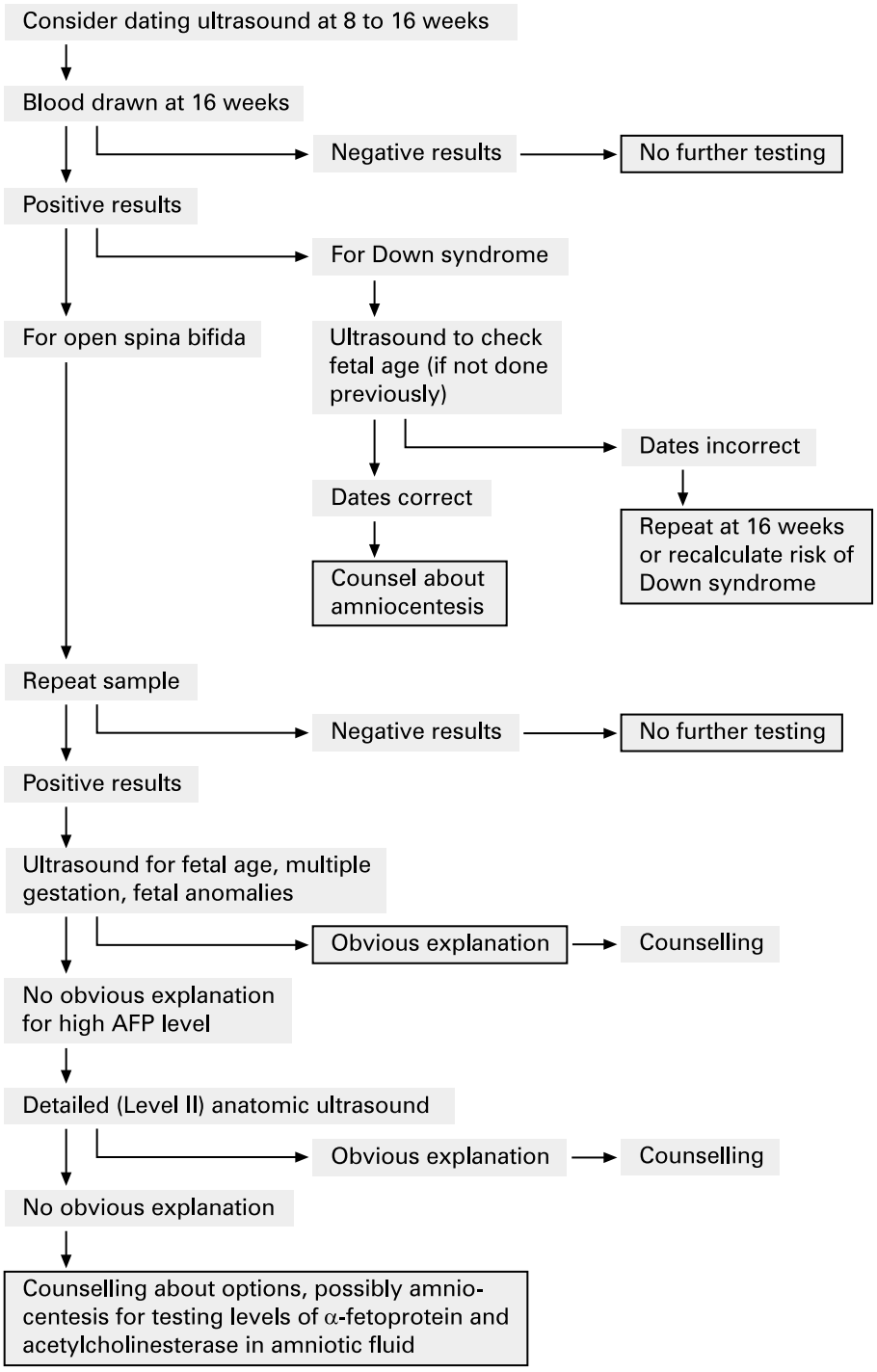
1. Women can be given the option of doing their own swab (Molnar et al., 1997).

undergo amniocentesis (Carroll, 1994; Dick, with the Canadian Task Force on the Periodic Health Examination, 1996). For women over 35 years, the evidence supports offering amniocentesis. Women may choose maternal serum screening as an alternative.

Women should be told of all the requisite steps they will go through to confirm a positive test. Such screening, moreover, should only be offered within a comprehensive screening and prenatal-diagnosis program that includes education, interpretation, and follow-up (Dick, with the Canadian Task Force on the Periodic Health Examination, 1996). Women and families should be provided with the information regarding triple screening during pregnancy; they can then decide whether they want it or not. It is critical to inform fully all parents interested in screening. Some women find written material, such as brochures, helpful. Counselling about the test should also be provided, including possible outcomes, further testing, and risks. If the test is to be done, the serum sample should be drawn at 16 to 18 weeks' gestation — the test's optimal time of sensitivity. A counselling protocol should be followed. (See Table on next page.)

Offering maternal serum marker screening requires education of women and health care providers, accurate and prompt laboratory testing, competent counselling and support services, access to consultants for sonography and complex prenatal diagnosis, and available options for pregnancy termination. It lays a heavy burden of cost on the population, and puts stress on women (Carroll, 1994). Maternal serum marker screening is complex, both to explain and to understand. The difficulty lies in how to explain a screening test, the difference between it and a diagnostic test, and the interpretation of test results. Specifically, women may have difficulty understanding why an individual with a negative screening test for a condition may still have the condition, or how it is possible to have a positive screening test and yet be free of the disorder. In the context of triple screening, the initial cut-off is set very high and many individuals have positive results. This ensures that a high proportion of those women carrying a baby with Down syndrome or an NTD will be detected by the screening test. However, it also means that many women will have to go through the diagnostic test who do not, in fact, have a baby affected with one of these conditions (Nimrod and Stewart, 1997). Therefore, parental anxiety associated with this screening and the false-positive rate may be high. Clearly, better education of health care providers and women is needed (Carroll et al., 1997).

Maternal Serum Screening Protocol



Source: Carroll J. Maternal serum screening. *Canadian Family Physician* 1994;40:1760. Reproduced with permission of the *Canadian Family Physician*.

ULTRASOUND

Controversy surrounds the routine use of ultrasound during pregnancy. The controversy is based on the non-statistically significant overall impact of routine ultrasound on perinatal mortality, the issue being not the acknowledged ability of ultrasound to pick up certain congenital anomalies, but the fact that individual women and families are, at times, choosing not to take action based on this information. The other major use of a routine second trimester ultrasound has been to establish accurate gestational age. However, when women have accurate information on their last menstrual period, the routine ultrasound adds little. In fact, under those conditions, an estimate based on the last menstrual period is more accurate. The Cochrane Library states: "Routine ultrasound examination results in earlier detection of multiple pregnancies and reduced rates of induction of labour for 'post term' pregnancy, but there is no evidence that it improves substantive clinical outcomes" (Neilson, 1998). The Society of Obstetricians and Gynaecologists of Canada recommends that "… After appropriate discussion about the potential benefits, limitations and safety of the examination, women should be offered an ultrasound centred at 18 to 19 weeks gestation" (SOGC, 1999). The Canadian Task Force on the Periodic Health Examination (1992) states "There is fair evidence to support the inclusion of a routine single ultrasound examination in the management of women with no clinical indication for prenatal ultrasonography" (Canadian Task Force on the Periodic Health Examination, 1992).

In the face of this ambiguous information, clinicians and health planners will need to decide whether these results justify the expense of providing, and paying for, a routine ultrasound examination in early pregnancy (Neilson, 1998). Individual women will need to decide if the examination would lead to information that they can use in their decision-making process.

HIV/AIDS

Three factors support the concept of offering HIV testing to every pregnant woman during pregnancy: the increasing rates of HIV infection in women, the potentially devastating effect on the baby of vertical transmission from the mother, and the proven efficacy of AZT in reducing vertical transmission (SOGC, 1997b).

It is therefore recommended that HIV testing be offered to all pregnant women. This recommendation is supported by the Society of Obstetricians

and Gynaecologists of Canada (1997b), the Canadian Paediatric Society (1994), the College of Family Physicians of Canada (1993), and the Canadian Medical Association (1995). Women should be provided with information about HIV testing, including the risks and benefits of finding a positive result and the success of treatment in reducing vertical transmission. The testing should be carried out with the agreement of the woman and with due regard to confidentiality. Women who are found to be positive should be referred to an expert with special training in this area, and should be offered treatment with AZT as currently recommended (SOGC, 1997b).

Whenever HIV testing is done, comprehensive pre- and post-test counselling are essential.

APPENDIX 3

Antenatal Psychosocial Health Assessment (ALPHA)

Antenatal psychosocial problems may be associated with unfavourable postpartum outcomes. The questions on this form are suggested ways of inquiring about psychosocial health. Issues of high concern to the woman, her family, or the caregiver usually indicate a need for additional supports or services. When some concerns are identified, follow-up and/or referral should be considered. Additional information can be obtained from the ALPHA Guide*. *Please consider the sensitivity of this information before sharing it with other caregivers.*

Addressograph

ANTENATAL FACTORS	COMMENTS/PLAN
FAMILY FACTORS	
Social support (***CA, WA***, PD) How does your partner/family feel about your pregnancy? Who will be helping you when you go home with your baby?	
Recent stressful life events (***CA, WA, PD***, PI) What life changes have you experienced this year? What changes are you planning during this pregnancy?	
Couple's relationship (***CD, PD***, WA, CA) How would you describe your relationship with your partner? What do you think your relationship will be like after the birth?	
MATERNAL FACTORS	
Prenatal care (late onset) (***WA***) First prenatal visit in third trimester? (check records)	
Prenatal education (refusal or quit) (***CA***) What are your plans for prenatal classes?	
Feelings toward pregnancy after 20 weeks (***CA***, ***WA***) How did you feel when you just found out you were pregnant? How do you feel about it now?	

Associated postpartum outcomes

The antenatal factors in the left column have been shown to be associated with the postpartum outcomes listed below. ***Bold, Italics*** indicates ***good*** evidence of association. Regular text indicates fair evidence of association.

CA – Child Abuse **CD** – Couple Dysfunction **PI** – Physical Illness **PD** – Postpartum Depression **WA** – Woman Abuse

ANTENATAL FACTORS	COMMENTS/PLAN
Relationship with parents in childhood (***CA***) How did you get along with your parents? Did you feel loved by your parents?	
Self-esteem (***CA***, WA) What concerns do you have about becoming/being a mother?	
History of psychiatric/emotional problems (***CA, WA***, PD) Have you ever had emotional problems? Have you ever seen a psychiatrist or therapist?	
Depression in this pregnancy (***PD***) How has your mood been during this pregnancy?	
SUBSTANCE USE	
Alcohol/drug abuse (***WA***, CA) How many drinks of alcohol do you have per week? Are there times when you drink more than that? Do you or your partner use recreational drugs? Do you or your partner have a problem with alcohol or drugs? Consider CAGE (**C**ut down, **A**nnoyed, **G**uilty, **E**ye opener)	
FAMILY VIOLENCE	
Woman or partner experienced or witnessed abuse (physical, emotional, sexual) (***CA,*** WA) What was your parents' relationship like? Did your father ever scare or hurt your mother? Did your parents ever scare or hurt you? Were you ever sexually abused as a child?	
Current or past woman abuse (***WA***, CA, PD) How do you and your partner solve arguments? Do you ever feel frightened by what your partner says or does? Have you ever been hit/pushed/slapped by a partner? Has your partner ever humiliated you or psychologically abused you in other ways? Have you ever been forced to have sex against your will?	
Previous child abuse by woman or partner (***CA***) Do you or your partner have children not living with you? If so, why not? Have you ever had involvement with a child protection agency (i.e. Children's Aid Society?)	
Child discipline (***CA***) How were you disciplined as a child? How do you think you will discipline your child? How do you deal with your kids at home when they misbehave?	

FOLLOW-UP PLAN:

- ☐ Supportive counselling by provider
- ☐ Additional prenatal appointments
- ☐ Additional postpartum appointments
- ☐ Additional well-baby visits
- ☐ Public Health referral
- ☐ Prenatal education services
- ☐ Nutritionist
- ☐ Community resources/mothers' group
- ☐ Homecare
- ☐ Parenting classes/parents' support group
- ☐ Addiction treatment programs
- ☐ Smoking cessation resources
- ☐ Social worker
- ☐ Psychologist/Psychiatrist
- ☐ Psychotherapist/marital/family therapist
- ☐ Assaulted women's helpline/shelter/ counselling
- ☐ Legal advice
- ☐ Children's Aid Society
- ☐ Other: .....
- ☐ Other: .....
- ☐ Other: .....
- ☐ Other: .....

COMMENTS:

.....

.....

.....

.....

.....

.....

Date ..... Signature .....

* The ALPHA Guide is available through the Department of Family and Community Medicine, University of Toronto.

APPENDIX 4

Nutrients of Special Concern During Pregnancy

CALCIUM AND VITAMIN D

Pregnant women need calcium and vitamin D to maintain the integrity of their bones, while providing for the skeletal development of the unborn baby. The recommended daily intake is 1200 to 1500 mg of calcium, depending on age, and 5.0 μg or 200 IU of vitamin D for pregnant women (Health Canada, 1999).

Available data suggest that the average dietary calcium intake of Canadian women of childbearing age is lower than the recommendations. Certain groups may be at risk for low calcium intake, including those of low socio-economic status, members of some cultural groups, pregnant teenagers and vegans. Although overt signs of vitamin D deficiency in the general Canadian population are not widespread, certain groups may be at risk. These include those who consume no fluid, evaporated or powdered milk or margarine; those who have clothing habits that cover the skin; those who live in northern communities associated with limited sunlight exposure during the winter months; those who are indoors most of the time; and those people with dark skin pigmentation (Health Canada, 1999).

Canada's Food Guide to Healthy Eating (1997) recommends that pregnant women consume three to four servings of milk products daily as sources of calcium and vitamin D. Milk products are the most concentrated dietary sources of highly absorbable calcium, and the vitamin D content of fluid milk, in particular, enhances calcium absorption. When eating patterns suggest inadequate intake of calcium and/or vitamin D and when exposure to sunlight is limited, adding more sources of these nutrients to the diet is the preferred solution. (See *Nutrition for a Healthy Pregnancy: National Guidelines for the Childbearing Years*, Health Canada, 1999 for sources of these nutrients.) For some women, calcium and/or vitamin D supplements may be appropriate.

IRON

Iron status is a significant factor in the outcome of pregnancy for both women and their babies. The recommended daily intake for women aged 19 to 49 years is 13 mg in the first trimester of pregnancy, 18 mg in the second trimester, and 23 mg in the third trimester. The increase in recommended iron intake during the second and third trimesters acknowledges the likelihood not only that women's stores of iron may be low but that it may be difficult to obtain this level of iron from dietary sources alone. All women should be assessed for iron status in the early weeks of pregnancy. Every effort should then be made to improve and/or maintain a good status throughout the course of pregnancy.

The Canadian Task Force on the Periodic Health Examination states that there is currently insufficient evidence to recommend for or against routine iron supplementation of all pregnant women. The Scientific Review Committee and the US Institute of Medicine, recognizing that many women have insufficient iron stores to meet the needs of pregnancy, advise daily low-dose iron supplementation to all women in the second and third trimesters (Health Canada, 1999).

FOLIC ACID

Studies provide strong evidence that preconception folic acid supplements can reduce the risk of a neural tube defect (NTD)-affected pregnancy (NTDs include spina bifida, anencephaly, and encephalocoele). It is generally accepted that all women who are planning a pregnancy, and those in the early weeks of pregnancy, should consume 0.6 mg of folate daily. (This is discussed in detail in Chapter 3.)

Women should be advised to take 0.4 mg of folic acid supplementation, starting at least one month prior to becoming pregnant and continuing through the early weeks of pregnancy, and to eat a healthy diet, according to *Canada's Food Guide to Healthy Eating* (1997), taking care to include folate-rich foods. Women at risk may require a higher dose.

ESSENTIAL FATTY ACIDS

It is important that pregnant women consume adequate amounts of essential fatty acids (EFAs), linoleic acid and ∝-linoleic acid in their daily eating patterns for proper neural and visual development of their unborn babies. The recommended nutrient intake for EFAs increases during pregnancy to meet the needs of the growing baby. To achieve the recommended intake,

pregnant women should be encouraged to increase their intake of EFAs. Pregnant women should be encouraged to include sources of essential fatty acids such as soy, canola oils and non-hydrogenated margarines, soy-based products (tofu, vegi burger) and salad dressings made of soy or canola oils in their daily eating pattern.

VITAMIN AND MINERAL SUPPLEMENTATION

Following a healthy eating pattern according to *Canada's Food Guide to Healthy Eating* (1997) is the preferred way to meet nutrient requirements during all life stages, including pregnancy. When inadequate nutrient intakes are suspected, vitamin or mineral supplementation may complement daily intakes to achieve the recommended intakes. Women who are taking multivitamin/multimineral supplements should be cautioned to take no more than one tablet per day to avoid exceeding intake of 10,000 IU of vitamin A per day. When taken in excess, vitamin A (retinol) is known to increase the risk of birth defects. Avoid bone meal and dolomite as supplemental calcium sources. Samples of both products have been known to be contaminated with lead (Health Canada, 1999).

APPENDIX 5

Common Discomforts of Pregnancy

Discomfort and Cause	Approach
Fatigue is due to growth and development of the placenta, which will not be completed until the end of the first trimester. The body is adjusting as well to the many other physical and emotional demands of pregnancy.	When placental development is complete, around the end of fourth month, and the woman's body has adjusted, women may return to more normal energy levels. Resting, eating well, decreasing workload and support by significant others during this time may help to alleviate fatigue.
Nausea and Vomiting/Morning Sickness: the cause is not known, but may be associated with hormonal changes. The condition occurs in many women, often beginning early in the pregnancy and subsiding about the 14th week. It can occur at any time of day. It is more likely to happen when blood sugar is low, usually in the morning.	There are many ways to alleviate symptoms and minimize effects, such as eating a diet high in protein and complex carbohydrates; drinking plenty of fluids; avoiding the sight, smell, and taste of foods that trigger nausea; employing acupressure; and eating often and before feeling hungry or nauseated.
Heartburn and Indigestion are due to the progesterone hormone mediation of early pregnancy. Gastrointestinal tract motility and digestion are slowed; peristalsis is reversed, and the cardiac sphincter of the stomach relaxes, allowing reflux of acid gastric contents.	Eat frequent small meals. Eliminate foods that cause gastrointestinal discomfort (hot, spicy, fried, fatty foods, processed meals; caffeine; alcohol). Avoid lying down immediately after eating. Avoid smoking. Rest or sleep with head and thorax elevated approximately six inches. Use antacids *only* after consultation with care providers.
Excessive Saliva: the cause is not known, but may be associated with reluctance to swallow saliva related to nausea.	Brushing teeth frequently, rinsing with mouthwash, or chewing gum may help to dry the mouth.
Constipation is related to progesterone hormone mediation. It causes reduced gastrointestinal motility, which results in increased absorption of water and hardening of the stool. Decreased physical activity can contribute to constipation too. Later in pregnancy, compression of the intestine by the enlarging uterus contributes as well.	Avoid constipating, refined foods. Increase roughage in the diet (high-fibre foods). Increase fluid intake, and exercise. Laxatives should not be used without consulting care providers.
Gas is due to progesterone-mediated reduced gastric motility.	Maintain regular bowel habits, eat slowly, avoid gas-producing foods, and exercise.

Discomfort and Cause	Approach
Hemorrhoids and Rectal Bleeding are due to the pressure of the pregnant uterus, and the untreated constipation that accompanies straining. Decreased activity may be a contributing factor.	Avoid constipation (through adequate nutrition and fluid intake). Sleep in a side-lying position and not on back (avoids pressure on the rectal veins). Avoid standing/sitting for prolonged periods. Avoid straining during bowel movements. In the postpartum period, use cold compresses or warm sitz baths for comfort. Use topical medications or suppositories. Kegel exercises may help to encourage venous return.
Urgency and Frequency of Urination are due to increased pressure on the bladder by the uterus, limiting its ability to fill in early pregnancy. This causes an increased urge to void. In late pregnancy when the uterus has risen in the pelvis, engagement of the presenting part places pressure on the bladder again, with the same results. Pregnant women should report any signs of burning or pain with urination to their care provider for investigation of urinary tract infection.	Ensure that bladder empties completely. Limit fluid intake before bedtime, but do not restrict fluids otherwise.
Stress Incontinence is due to increasing pressure of the enlarging uterus on the bladder, causing many pregnant women in their last trimester to leak urine when they cough, laugh, or sneeze.	Do Kegel exercises to strengthen pelvic floor muscles.
Varicose Veins are caused by increased venous pressure in the pelvis and lower extremities toward the end of pregnancy. Hormone mediation relaxes the wall of the veins. Fatigue and family history may contribute to the problem.	Prevent or minimize the symptoms. Wearing elastic support hose, resting, elevating feet and legs when sitting or lying (do not sit with legs crossed at the knee), avoiding restrictive clothing, and exercising (walking) to improve circulation are indicated. Varicosities of the vulva may occur and respond well to support.
Edema (Swelling) is caused by the slowing of circulation due to uterine pressure on the inferior vena cava. This usually occurs in the last trimester, causing feet and ankles to swell.	Do many of the same things mentioned for varicose veins. Pregnant women should be counselled to report edema that comes on suddenly or swelling of the hands and/or face.
Nosebleeds and Stuffiness result from increased circulation in the nasal area (influenced by the hormone, estrogen). Changes occur in the nasal turbinates with an accompanying edema, leading to congestion. This congestion and drying makes nosebleeds more common in pregnant women.	Use vaseline in nares to relieve dryness and prevent nosebleeds. Increase humidity to provide moisture. In the event of nosebleed, control the bleed using conventional first aid. If bleeding persists or is difficult to control, the care provider should be consulted. Adequate dietary vitamin C keeps veins healthy and elastic.

Discomfort and Cause	Approach
Changes in Skin Pigmentation and Complexion: due to melanocyte-stimulating hormone action resulting from influence of progesterone and estrogen. Skin pigmentation deepens; skin may become oily or acne exacerbate. Pruritis may also be a problem (abdominal region); while the cause is unknown, it may be due to stretching of skin and increased excretory function of skin. These are not preventable and women should be reassured that these conditions usually resolve themselves after pregnancy.	The following strategies may maintain moisture and relieve problems of the skin: drink plenty of fluids, apply moisturizers while skin is still damp, keep rooms humidified, decrease the number of baths taken, and use a mild soapless cleanser. Avoid scratching as this will only damage tissue. Avoid excessive sunlight and wear a sunblock of SPF 15 or more in the sun.
Breast Changes: due to changes in the levels of estrogen and progesterone that cause changes in the ductular-lobular-alveolar growth.	Women may choose to wear a support bra if it makes them feel more comfortable. A bra worn at night can provide additional support for larger breasts. Because it is a drying agent, soap should be avoided on the nipples.
Headaches: thought to be due to the increased nasal swelling and congestion (sinuses); also thought to be induced by fatigue and stress.	Relax, rest, eat regularly, and apply alternating hot and cold packs for sinus or tension headaches. Applying ice to the back of the neck can also help. Notify care providers if headaches are accompanied by a fever, visual disturbances, or edema of hands and face.
Backache: usually a result of pressure and weight of enlarging uterus and relaxation of ligaments (hormone mediation). Poor posture and obesity may also be contributory.	Keep weight gain within recommended parameters. Avoid shoes without proper support. Lift and carry objects correctly. Sleep on a firm mattress. Practise pelvic tilt and dromedary droop exercises daily. Massage may also bring relief and relaxation.
Abdominal Pain: occasional and non-persistent pain is due to stretching of muscles and ligaments supporting the uterus.	Rest in a comfortable position. If accompanied by fever, chills, bleeding, increased vaginal discharge, contractions, faintness, or other unusual symptoms, the care provider should be contacted immediately.
Leg Cramps: are caused by uterine pressure on the blood vessels and the abdominal nerves. Impaired circulation to the legs caused by increased venous pressure can also lead to leg fatigue and cause painful cramps (usually at night).	Wear elastic support hose. Elevate feet. For cramps, straighten the leg and flex the ankle and toes upwards. Avoid massaging a cramp. Contact the care provider if the pain persists (possibility of thrombus).
Overheating: is due to increased hormone circulation.	Bathe and dress in layers. Drink fluids to replace those lost through perspiration.