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What Mothers Say: The Canadian Maternity Experiences Survey

Canada

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— Public Health Agency of Canada

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Suggested Citation:
Public Health Agency of Canada. What Mothers Say: The Canadian Maternity Experiences Survey. Ottawa, 2009.

Cat.: HP5-74/2-2009E-PDF
ISBN: 978-1-100-10828-5

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Acknowledgements

The Maternity Experiences Survey (MES) is the product of the efforts and commitment of many individuals. The Public Health Agency of Canada wishes to acknowledge the members of the Maternity Experiences Study Group, who are listed on pages 5–7. Since the formation of the group in 1999, these valued colleagues have contributed innumerable hours of their time, providing expertise and guidance to the MES project. We thank them for their tremendous contribution. In particular, we thank Beverley Chalmers, Co-Chair of the Study Group, for her vision, leadership and dedication to the MES.

The Agency also wishes to thank Statistics Canada, especially staff in the Special Surveys Division, for their collaboration on the MES.

Most importantly, we are grateful to the many women who, in the months after having given birth, generously made time to share their maternity experiences.

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Message from the Chief Public Health Officer

I am pleased to introduce *What Mothers Say: The Canadian Maternity Experiences Survey*, a report on a survey of new mothers from across the country.

The Maternity Experiences Survey is one of several health surveillance activities that the Public Health Agency of Canada carries out to promote and improve the health of Canadian mothers and their babies. More specifically, it is a project of our Canadian Perinatal Surveillance System, which monitors and reports on determinants and outcomes of perinatal health in Canada. The survey provides national information about maternity experiences, as reported by women themselves, for the first time in Canada.

This report presents rich information on a wide spectrum of important topics relating to women's perceptions, practices and experiences before pregnancy; during pregnancy, labour and birth; and, in the early months of parenthood. The analyses and findings described in the report help to better understand the strengths and challenges of current maternal health policies and practices. Thus, the survey results will contribute to the evidence base for improved maternity care and maternal and infant health in Canada.

The Public Health Agency of Canada has also produced a booklet specifically intended for women: *Mothers' Voices. . . What women say about pregnancy, childbirth and early motherhood*. It highlights key results from the survey and presents some of the relevant research and recommendations. The information provided in the booklet can be used by women to discuss their choices with their health care providers and to better plan their approach to their maternity experience.

I want to personally thank the over 6,000 women who, during such a busy period in their lives, took the time to share their experiences.

Dr. David Butler-Jones
Chief Public Health Officer
Public Health Agency of Canada

Executive Summary

The Maternity Experiences Survey (MES) is a national survey of Canadian women's experiences, perceptions, knowledge and practices before conception and during pregnancy, birth and the early months of parenthood. The MES is a project of the Public Health Agency of Canada's Canadian Perinatal Surveillance System (CPSS), which monitors and reports on determinants and outcomes of maternal, fetal and infant health in Canada. The routine sources of data for the CPSS are administrative databases, such as national vital statistics and hospital discharge abstracts, and population health surveys. However, these sources of data either do not capture, or capture incompletely, women's perceptions and behaviours regarding pregnancy, birth and the postpartum period. Yet, women's maternity experiences are of great importance in understanding perinatal health and evaluating and improving perinatal policies, programs and practices. The MES was designed to address this gap.

In 1999, the Steering Committee of the CPSS convened a specialized task group, the Maternity Experiences Study Group, to develop and oversee the implementation of the MES. In addition to collecting data from Canadian women across the country, the Study Group was particularly interested in the experiences of younger mothers (15–19 years), recent immigrant mothers, and First Nations, Inuit and Métis mothers, as these women are believed to be at increased risk for adverse pregnancy outcomes.

The MES population consisted of birth mothers 15 years of age and older who had a singleton live birth in Canada during a three-month period preceding the 2006 Canadian Census of Population and who lived with their infant at the time of data collection. Using the 2006 Canadian Census, a stratified random sample of 8,244 women estimated to be eligible was identified. Of these women, 6,421 (78%) completed a 45-minute interview at five to 14 months after the birth of their baby, conducted primarily by telephone. The interviews were administered by female Statistics Canada interviewers on behalf of the Public Health Agency of Canada. The MES population excluded First Nations women living on reserve and institutionalized women. A more detailed description of the survey's design and sample is contained in the Methods section of this report.

The MES includes more than 300 questions covering such topics as socio-economic and demographic information; reproductive history; folic acid use; prenatal care; smoking, alcohol and street drug use; stress and support; physical and sexual abuse; information received about pregnancy, birth and postpartum issues; interventions during pregnancy, labour and delivery; postpartum health and care; postpartum depression; and infant feeding.

This report presents findings on all major topics covered by the MES, grouped in three chapters covering pregnancy, labour and birth, and postpartum. In addition to national results, provincial and territorial level analyses are reported. Findings by maternal age, maternal education, parity (i.e., primiparous or multiparous), type of birth (i.e., vaginal or cesarean) and household income level (i.e., at or below vs. above the low income cut-off) are also presented. Specific results from the perspective of younger mothers (15–19 years), recent immigrant mothers and Aboriginal mothers are not contained in this report but will be disseminated by way of upcoming focused publications.

The complete MES questionnaire and data tables corresponding to the findings presented in this report are available on compact disc (CD) and on the Public Health Agency of Canada website at http://www.publichealth.gc.ca/mes. Two papers providing an overview of the survey methodology and findings have been published in the *Journal of Obstetrics and Gynaecology Canada*.[1,2]

As the first survey of its kind in Canada, the MES joins other national and large-scale regional surveys that have explored women's views and experiences in the United States,[3,4] England and Scotland,[5–9] Australia,[10,11] Sweden,[12] the Russian Federation,[13–16] Lithuania[17] and Azerbaijan.[18] By adding to our understanding of women's maternity experiences and perspectives, the MES contributes to identifying areas of strength and areas that can be improved within the Canadian public health and health care systems.

Findings

Chapter 1: Pregnancy

Reaction to Conception Half (49.5%) of women indicated that the timing of their conception was just right, about a quarter (23.4%) would have preferred to conceive earlier, 20.0% later and 7.1% not at all. Most women reported that they were "very happy" (80.9%) or "somewhat happy" (12.1%) when they first realized that they were pregnant.

Prenatal Care Provider The majority of women received their prenatal care from an obstetrician/gynecologist (58.1%) or family physician (34.2%). An additional 6.1% and 0.6% of women received prenatal care from a midwife or nurse/nurse practitioner, respectively.

Prenatal Care Most women (94.9%) initiated prenatal care in the first trimester of pregnancy. Women attended 12.9 prenatal care visits on average with only 1.1% of women having four or fewer prenatal care visits. The proportion of women who indicated that they did not get prenatal care as early as they wanted varied considerably among provinces and territories. The two most common reasons for not getting prenatal care as early as wanted were: "doctor/health care provider unavailable" and "doctor/health care provider would not start care earlier."

Prenatal Classes About one-third of primiparous women did not attend prenatal classes, although they were more likely to attend than were multiparous women (65.6% vs. 6.0%). Younger women (15–19 years) were more likely to attend prenatal classes while women living in a household at or below the low income cut-off were less likely to attend classes.

Prenatal Information Women reported their most useful sources of pregnancy-related information to be their health care provider (32.2%), books (22.3%) and a previous pregnancy (17.1%). Most women reported that they had received enough information on pregnancy-related topics, but this varied by region and maternal age.

Folic Acid Supplementation The proportion of women who took supplements containing folic acid was 57.7% in the three months before pregnancy and 89.7% during the first three months of pregnancy. Almost a quarter (22.4%) of women did not know, prior to pregnancy, that taking folic acid before pregnancy could help prevent some birth defects.

Prenatal Ultrasound Almost all women (99.8%) reported having at least one prenatal ultrasound, with an average of three ultrasounds per woman. The proportion of women who had more than one prenatal ultrasound was 84.2%. On average, the first ultrasound occurred at approximately 14 weeks, with 66.8% of women having their first ultrasound prior to 18 weeks.

HIV Testing Approximately three-quarters (74.3%) of women reported having a blood test for HIV during their pregnancy. In provinces and territories that recommend that HIV testing be explicitly offered to all women ("opt-in" approach), 77.4% of women reported having an HIV test. In provinces and territories where HIV testing is routinely done unless women request not to have it ("opt-out" approach), 70.3% of women reported having an HIV test. A larger proportion of women in the "opt-out" provinces and territories (11.2%) did not know if they had an HIV test compared with those in the other jurisdictions (8.4%).

Maternal Body Mass Index and Weight Gain During Pregnancy More than one-third of women had a high pre-pregnancy body mass index (BMI), with 21.0% categorized as overweight and another 13.6% as obese. Six percent (6.1%) of women were categorized as underweight before pregnancy. The average weight gain during pregnancy was 15.7 kilograms. Women who were underweight or normal weight prior to pregnancy gained more weight during pregnancy than other women. In general, women's BMIs had not returned to their pre-pregnancy levels at the time of the interview (five–14 months postpartum).

Smoking Fewer women smoked daily or occasionally during the last three months of pregnancy (10.5%) than before pregnancy (22.0%). Although many women stopped smoking during pregnancy, almost half (47.0%) of those who quit had resumed smoking at the time of the interview. Women aged 24 years and younger, women with less than a high school education and women living in a household at or below the low income cut-off reported higher rates of smoking during pregnancy. During their pregnancy, about one-quarter (23.4%) of women reported living with someone who smoked.

Alcohol Use The proportion of women who reported drinking alcohol during pregnancy was 10.5%, compared with 62.4% of women who reported drinking alcohol during the three months prior to pregnancy. During pregnancy, 92.3% of women living in a household at or below the low income cut-off reported not drinking alcohol compared with 88.2% of women living in a household above the low income cut-off.

Street Drug Use Seven percent (6.7%) of women reported using street drugs in the three months prior to pregnancy and 1.0% reported using street drugs during pregnancy. Younger women and women living in a household at or below the low income cut-off were more likely to use street drugs both prior to and during pregnancy.

Physical Abuse The proportion of women who reported physical or sexual abuse in the past two years was 10.9%. Women aged 24 years or younger, women with less than a high school education, and women living in a household at or below the low income cut-off were more likely to experience abuse. Compared with before pregnancy, the level of violence during pregnancy decreased for 47.0% and increased for 5.4% of women who reported abuse. The level of violence after the birth of the baby decreased for 51.6% and increased for 16.3% of women who reported abuse.

Stress and Social Support Almost one-fifth (17.1%) of women reported experiencing three or more stressful life events in the 12 months prior to the birth of their baby. Stressful life events were more prevalent among younger mothers (15–19 years), women with less than a high school education, and women living in a household at or below the low income cut-off. Almost 13% (12.5%) of women reported that most days were very stressful in the 12 months before their baby was born. The majority (86.9%) of women had support available to them all or most of the time during their pregnancy.

Chapter 2: Labour and Birth

Place of Birth Nearly all births (97.9%) occurred in hospitals or clinics; only 1.2% and 0.8% took place in a private home or in a birthing centre, respectively. Older women and multiparous women had higher proportions of out-of-hospital births.

Travel to Place of Birth One-quarter (25.6%) of women travelled to another city, town or community to give birth. Overall, 2.5% of women travelled more than 100 kilometres to give birth. This proportion was much higher in the territories than in the provinces.

Birth Attendant Over two-thirds (69.6%) of women were attended at birth by an obstetrician/gynecologist, 14.6% by a family physician, 4.7% by a nurse/nurse practitioner and 4.3% by a midwife. One-half (49.4%) of women had the same provider during pregnancy and at birth, and the majority (88.4%) of these women believed that it was important to have the same provider. Among women who did not have the same provider during pregnancy and at birth, 42.3% believed that it would have been important to have the same provider.

Type of Birth About three-quarters (73.7%) of women gave birth vaginally. Cesarean births (26.3%) were more frequent in older women, primiparous women, women with higher levels of education and women living in a household above the low income cut-off. Few women (8.1%) requested a cesarean birth from their health care provider at any point during their pregnancy. This includes 5.3% who were multiparous women with a previous cesarean birth.

Position for Birth Almost half (47.9%) of women who delivered vaginally reported lying flat on their back at the time of birth. More than half (57.0%) of women with a vaginal birth who were not lying on their side at the time of birth reported having their legs in stirrups.

Starting or Speeding Up Labour Among women with a vaginal birth or who attempted a vaginal birth, 44.8% reported that their health care provider tried to start their labour with medication or other techniques and 37.3% indicated that their health care provider tried to speed up their labour. Almost two-thirds (65.0%) of women who delivered by cesarean after attempting a vaginal delivery had medication or other techniques to start their labour.

Fetal Heart Rate Monitoring Among women with a vaginal birth or who attempted a vaginal birth, 90.8% reported having electronic fetal monitoring (EFM) at some time during labour and 62.9% reported having continuous use of EFM. The use of EFM decreased with increasing maternal age

and was higher for primiparous than for multiparous women. A small proportion (6.5%) of women experienced exclusive auscultation of the fetal heart rate during labour by stethoscope, Doppler or fetoscope (i.e., EFM was not used at any time during labour).

Shaving, Enemas and Pushing on the Abdomen Among women with a vaginal birth or who attempted a vaginal birth, almost one in five women (19.1%) reported a pubic or perineal shave and 5.4% had an enema. Thirteen percent (13.2%) of women experienced pushing on the top of their abdomen to help push the baby down during vaginal birth. Primiparous women, women with lower educational levels and those living in a household at or below the low income cut-off were more likely to report these procedures.

Episiotomy and Perineal Stitches One in five women (20.7%) with a vaginal birth or who attempted a vaginal birth experienced an episiotomy. Two-thirds (64.1%) of women reported having perineal stitches near the opening of the vagina to repair a tear or cut. Primiparous women, women with higher educational levels and those living in one of the provinces were more likely to have these procedures. Just over one-third (35.9%) of women with a vaginal birth or who attempted a vaginal birth reported that they had neither an episiotomy nor stitches.

Pain Management Among women with a vaginal birth or who attempted a vaginal birth, breathing exercises (74.1%) and changing position (69.5%) were the most frequently used medication-free techniques for pain management in labour or birth. Baths or showers were the medication-free technique with the highest helpfulness rating. Almost 55% (54.8%) of users considered baths or showers to be "very helpful." Epidural or spinal anesthesia was the most frequent medication-based pain-management technique, reported by 57.3% of women who delivered or attempted to deliver vaginally. Most women (81.1%) who had an epidural or spinal anesthesia believed that it was "very helpful." There were considerable differences in the use of epidural or spinal anesthesia between the provinces and the territories. About three-quarters (77.0%) of women reported that, prior to labour, they had received enough information on pain-management techniques.

Support in Labour and Birth The majority of women had their husband or partner with them during labour (94.6%) and birth (92.3%). About one-third (35.5%) of women had a companion other than their husband or partner present during labour or the birth. Younger women (15–19 years) and women living in a household at or below the low income cut-off were more likely to have a companion other than their husband or partner with them during labour or the birth. The majority of women were very satisfied with the support received from their husband or partner, or their companion.

Mother-Infant Contact at Birth Almost three-quarters (71.9%) of women held their baby for the first time immediately or within five minutes after giving birth. About one-third (31.1%) of women reported holding their baby skin-to-skin at this first contact and fewer than half (45.3%) had the baby in their bed for the first hour after giving birth. Mother-infant contact after birth varied among provinces and territories.

Birth Experiences and Satisfaction with Care Eighty percent of women reported that their overall experience of labour and birth was either "very positive" (53.8%) or "somewhat positive" (26.2%). More women (71.1%) attended by midwives at birth reported being "very positive" about their overall experience of labour and birth than those attended by other health care providers.

About three-quarters of women were "very satisfied" with the respect shown to them (78.5%), the perceived competence of the health care providers (75.9%), the concern shown for their privacy and dignity (75.6%), and with their personal involvement in decision making (72.6%). About two-thirds of women were "very satisfied" with the compassion and understanding shown to them (65.4%) and the information given to them (61.8%) by their health care providers throughout the entire pregnancy, labour and birth.

Chapter 3: Postpartum

Length of Maternal Stay in Hospital One-third (33.6%) of women with a vaginal birth reported a short hospital stay (i.e., less than two days) and more than half (53.0%) of women with a cesarean birth reported a short stay (i.e., less than four days) following the birth of their baby. Seventy percent (69.5%) of women reported their hospital stay as "about right" regardless of the length of their stay.

Breastfeeding Rates Although the majority (90.3%) of women initiated breastfeeding, the proportion of women reporting either exclusive (14.4%) or any (53.9%) breastfeeding at six months postpartum was much lower. Breastfeeding rates were higher in western than in eastern Canada, increased with maternal age and educational level, and were higher among women living in a household above the low income cut-off.

Baby-Friendly Hospital Initiative (BFHI) Most mothers (80–90%) reported having enough information about breastfeeding, being given information about community breastfeeding resources and being assisted with initiating breastfeeding. Practices not supportive of breastfeeding and the BFHI steps were also reported. These included: 50.2% of breastfeeding babies not being fed solely on demand in the first week after the birth, 44.4% of breastfeeding babies being given a pacifier during the first week after the birth, 35.8% of mothers being given or offered free formula samples, 35.0% of babies being away from the mother's room for more than one hour in the first 24 hours after the birth and 19.8% of babies commencing breastfeeding too early (i.e., within five minutes of birth).

Home Contact and Satisfaction with Postpartum Care The majority (93.3%) of women reported being contacted at home by a health care provider after giving birth. On average, women were contacted at about seven days after birth and among those with a hospital or clinic birth, at about four days after discharge. This varied considerably among provinces and territories. Two-thirds (66.0%) of women reported being "very satisfied" with the health care they received after birth, while 74.5% of women reported being "very satisfied" with their infant's health care after birth.

Postpartum Information Women reported their most useful source of postpartum information to be health care providers (29.4%), family and friends (20.5%), books (18.9%) and previous pregnancy (18.5%). Women reported that they had enough information on basic infant and maternal care (e.g., car seats, birth control, postpartum depression), but seemed somewhat less informed on issues related to the transition to parenthood (e.g., sexual changes, physical demands on the mother's body after having a baby, effect on relationship with partner).

Maternity Leave About three-quarters (78.6%) of women reported working at a paid job or business at some point during their pregnancy. About two-thirds (68.3%) of women worked during their pregnancy and received some maternity or parental benefits, although this varied across provinces and territories. Of the mothers who worked during their pregnancy, 11.6% had returned to work within six months of the birth.

Maternal Postpartum Health Although 42.3% of all women reported having "a great deal of a problem" with at least one postpartum health issue during the first three months after the birth, most women (72.5%) reported their health as either excellent (33.6%) or very good (38.9%) at the time of the interview. Less than 3% (2.5%) of women were readmitted to hospital during the first three months following the birth. Just over a quarter (27.9%) of women reported a non-routine postpartum health care visit.

Postpartum Depression, Previous Depression and Support Using the Edinburgh Postpartum Depression Scale, 7.5% of women scored 13 or higher, suggesting depression at the time of the MES interview. Higher proportions of scores of 13 or higher were observed in women aged 15–19 years (14.0%), women living in a household at or below the low income cut-off (13.7%), and women with less than a high school education (13.5%). The proportion of women who had been prescribed anti-depressants or been diagnosed with depression prior to their pregnancy was 15.5%. Most women (84.0%) reported having support in the postpartum period either all the time (51.1%) or most of the time (32.9%).

Infant Health Most infants (93.8%) were born at 37 completed weeks of gestation or more. Few (3.6%) infants were readmitted to hospital within one month and 6.7% were readmitted within five months of birth. The majority (92.8%) of women reported that their infant was either in excellent (70.8%) or very good (22.0%) health at the time of the interview. Women living in a household at or below the low income cut-off, women with less than a high school education and younger mothers (15–19 years) were less likely to report that their baby was in excellent health.

Infant Sleep Position The majority (90.2%) of women reported receiving enough information about sudden infant death syndrome. This varied by province and territory, household income level and maternal education. Overall, about three-quarters (77.4%) of women reported putting their baby to sleep on their back. Younger women, multiparous women, women with lower levels of education and women living in a household at or below the low income cut-off were less likely to report infant back sleeping position.

Male Circumcision About one-third (31.9%) of women reported having their male baby circumcised. This proportion varied widely among provinces and territories.

Emerging Issues

In general, most Canadian women in this survey reported a positive overall experience of labour and birth. They also reported high levels of satisfaction with the care they received from their health care providers throughout pregnancy, labour and birth, and with the care that they and their baby received after the birth. Canadian women's reports of their maternity experiences have also underscored a number of important issues. These include:

Pregnancy, Labour and Birth Interventions A number of interventions for which current evidence recommends use "on indication" but not routine use are being reported with considerable frequency by women in Canada. For example, most women had more than one prenatal ultrasound and many women reported continuous use of electronic fetal monitoring despite evidence supporting intermittent auscultation in normal labour. Episiotomies, as well as starting and speeding up labour, were also frequently reported. In addition, some practices were reported that are not supported by clinical evidence, including a supine position for birth and the use of stirrups, enemas, shaving and pushing on the abdomen to help push the baby down during vaginal birth. Increased implementation of evidence-based clinical practices is required to address the overuse of these procedures.

Breastfeeding Exclusive breastfeeding rates for the first six months after birth, as per Canadian public health recommendations, are much lower than desirable. Preparation of mothers for breastfeeding and breastfeeding initiation rates are relatively high. However, these occur alongside practices that are not consistent with the BFHI, including providing mothers with free formula samples, giving pacifiers to babies, schedule-feeding babies, not following optimal rooming-in recommendations and initiating breastfeeding too early after the birth. Greater effort to support breastfeeding is required, including promoting adherence to the BFHI, which has been shown to increase breastfeeding duration and exclusivity.

Regional Variation The MES findings show marked differences among the provinces and territories regarding several aspects of women's experiences during pregnancy, birth and postpartum. For example, the use of medical interventions and technology, such as electronic fetal monitoring, labour induction and medication-based pain management in labour and birth, was higher in the provinces than in the territories. Further research is required to determine whether this is due to health care policies in these regions, local practices or beliefs that promote or discourage more traditional/less interventionist births, variation in the availability and distribution of health care resources, socio-demographic characteristics or other reasons.

Mothers in Nunavut Women in Nunavut constituted a small proportion of all the women who participated in the MES. Nevertheless, a number of the findings for Nunavut are of concern. For instance, women in Nunavut reported having less information on pregnancy-related topics, more smoking, more abuse, and more symptoms suggesting postpartum depression than other women. They reported less satisfaction with their maternity experiences, less folic acid supplementation in the periconceptional period and less use of a supine sleep (back to sleep) position for their baby. Women in Nunavut were also less likely to have a husband or partner present during labour and birth, or to report that their baby was in excellent health. The extent to which factors such as younger maternal age, lower socio-economic status and geographic isolation contribute to these findings is as yet unquantified. At the same time, some maternity experiences reported by women

in Nunavut are encouraging. For instance, they reported relatively high rates of maternal-infant contact and skin-to-skin contact within five minutes of birth as well as exclusive breastfeeding at six months after the birth. Given the lower than anticipated MES response rate in Nunavut, further study of women's experiences in this territory is needed to validate and explore these findings.

Younger Mothers (15–19 years) and Mothers of Low Socio-economic Status Also of concern are younger mothers, mothers with lower educational levels and mothers living in a household at or below the low income cut-off. For instance, compared with other women, these women frequently reported less favourable maternity experiences, such as abuse, stress during pregnancy and symptoms suggestive of postpartum depression. Women in these groups were also more likely to report not having enough information about maternity-related topics. Younger mothers and mothers with low socio-economic status should be given particular attention when developing maternal health policies and programs.

Awareness of Healthy Practices Compared with before pregnancy, lower reported rates of smoking, alcohol and street drug use during pregnancy indicate that women in general are aware that these behaviours pose a risk to their developing baby. Women were also well informed about sudden infant death syndrome and placing their baby to sleep on their back. In contrast, more than one-third of women had a high body mass index before becoming pregnant, and women seemed less informed about the benefits of folic acid supplementation prior to conception in reducing some birth defects. Women need to continue receiving information and support in these areas.

Conclusion

The MES provides a unique opportunity for women's perspectives on their maternity experiences to complement traditional sources of data for perinatal health surveillance. By better informing policies, programs and practices, the findings of the MES will contribute to improved maternity care and maternal and infant health in Canada.

The MES indicates that, in general, most Canadian women have high levels of satisfaction with the maternity care they received and rated their overall maternity experience as positive. Nonetheless, women's reports also underscore important issues. Some of these issues relate to maternity care interventions and practices whose routine use is not supported by current evidence, while others involve significant regional and socio-demographic disparities. Further collaborative investigation is warranted to validate and explore these findings. In addition, efforts are needed to fill gaps in information, such as the maternity experiences of First Nations women living on reserve as well as other women who were not included in the survey.

The MES findings can also be explored in light of existing maternity hospitals' policies and practices, as reported in the *Canadian Hospital Maternity Policies and Practices Survey 2007*,[19] and in conjunction with the *Canadian Perinatal Health Report, 2008 Edition*.[20]

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Methods

Susie Dzakpasu, Janusz Kaczorowski

The Maternity Experiences Survey (MES) was developed and implemented by the Public Health Agency of Canada (PHAC) in collaboration with Statistics Canada (StatCan). The primary objective of the survey was to provide representative, pan-Canadian data on women's experiences during pregnancy, birth and the postpartum period. The Maternity Experiences Study Group (MESG) of the Canadian Perinatal Surveillance System guided all phases of the MES, including the development of the questionnaire and sampling methods, pilot testing, interviewer training, data collection and processing, and data analysis and reporting. The PHAC-StatCan Project Team, guided by the PHAC-StatCan Project Steering Committee and the MESG, was responsible for the day-to-day implementation of the survey. A description of the survey's design and methods has been published,[1] and is summarized here.

Questionnaire

The development of the MES questionnaire involved an extensive discussion and consultation process, literature review, focus group testing and two pilot studies. The final questionnaire drew from questions used in other maternity surveys[2–8] and from validated instruments.[9,10] It includes more than 300 questions covering a broad range of topics surrounding pregnancy, birth and postpartum. The English and French versions of the questionnaire are available on compact disc (CD) and also at http://www.publichealth.gc.ca/mes.

Interviewer Training

The training of female StatCan interviewers was conducted in two phases. In the first phase, StatCan regional program managers and some project supervisors were trained at StatCan's Head Office in Ottawa. In the second phase, these managers and supervisors trained interviewers at their regional offices. MESG members were present at both phases of the training.

The training of interviewers included:

- an overview of the MES objectives and methods;
- a detailed review of the questionnaire;
- a review of the pronunciation and definitions of terms used on the survey; and
- how to approach sensitive topics (e.g., fertility problems, postpartum depression, abuse) and difficult situations arising during the interview.

During the training, interviewers were advised to be non-judgmental, noncommittal and professional, but not impersonal, when dealing with these topics. In the case of reported abuse, if a respondent asked for help, interviewers provided her with a toll-free number for victims of family violence. Interviewers who encountered difficult situations were able to seek mental health services through StatCan's Employee Assistance Program.

Data Collection

Women were initially mailed an introductory letter and survey pamphlet asking for their participation in the MES. Interviews were subsequently conducted primarily by telephone between October 23, 2006 and January 31, 2007, using a computer-assisted telephone interview (CATI) application. Most (96.9%) women were interviewed at five to nine months' postpartum, with the timing ranging from five to 10 months for women in the provinces and from nine to 14 months for women in the territories. The interviews began with a set of questions to determine eligibility. They lasted on average 45 minutes and were conducted in English, French and 13 non-official languages. Item non-response was low and few data errors were identified during data processing. Identified errors or inconsistencies related to a particular set of results are described in the "Limitations" of the corresponding section in this report.

MES Sample

Birth mothers 15 years of age and older who had a singleton live birth in Canada, between February 15, 2006 and May 15, 2006 in the provinces or between November 1, 2005 and February 1, 2006 in the territories, and who lived with their infant at the time of data collection were eligible to participate in the survey. These three-month cohorts were chosen because they immediately preceded enumeration for the 2006 Canadian Census of Population, from which the sample was drawn. This enabled asking questions about postpartum issues while minimizing recall error concerning pregnancy and birth events.

Mothers under 15 years of age at the time of giving birth and mothers living on First Nations reserves or living in institutions at the time of the survey were excluded for operational reasons. Any mother who had a multiple birth (e.g., twins, triplets), stillbirth, had experienced an infant death or was no longer living with her baby was also excluded, as it was not possible to include questions in the survey specific to these experiences.

A stratified random sample of 8,542 women was selected without replacement, using recent births drawn from a Census-based sampling frame. The primary strata were province or territory at the time of the Census and maternal age at the time of birth (i.e., 15–19 years, 20 years or older). Additional strata were whether a mother lived in a census metropolitan area or not, and whether there were other children in the household or not. The sample size was calculated to produce reliable estimates at provincial and territorial levels, based on an expected response rate of 75% in the provinces and 70% in the territories.

Of the 8,542 women, it was not possible to determine eligibility in 1,605 cases, either because no contact was made or because screening was incomplete. The number of eligible cases among these women was estimated by applying the proportion of eligible cases among those screened (96%) to the unscreened, resulting in an estimated 8,244 eligible cases. Of these, 6,421 completed enough of the questionnaire to be considered respondents, giving a 78% response rate. Table I presents the sample and response rate by province and territory.

Table I **Response rates, by province/territory, Maternity Experiences Survey, Canada, 2006–2007**

	Eligible		Not eligible	Eligibility undetermined	Total	Estimated eligible	Response rate (%)
	Respondents	Non-respondents					
Newfoundland and Labrador	279	13	12	44	348	335	83.4
Prince Edward Island	184	5	4	32	225	220	83.5
Nova Scotia	344	8	16	48	416	398	86.4
New Brunswick	303	22	10	65	400	388	78.0
Quebec	1,256	31	27	253	1,567	1,534	81.9
Ontario	1,858	133	68	563	2,622	2,534	73.3
Manitoba	341	15	14	95	465	448	76.1
Saskatchewan	341	3	9	79	432	421	81.0
Alberta	651	16	12	135	814	799	81.5
British Columbia	631	29	22	189	871	841	75.0
Yukon	61	0	1	18	80	79	77.5
Northwest Territories	89	3	15	29	136	117	76.0
Nunavut	83	4	24	55	166	130	64.0
Canada	**6,421**	**282**	**234**	**1,605**	**8,542**	**8,244**	**77.9**

In consideration of the sample design and non-response, each responding woman was assigned a sampling weight calculated within weighting classes, which generally corresponded to the strata used to draw the sample. Additional post-strata, based on the mother's first language and Aboriginal status, were also used. The 6,421 respondents were thus weighted to represent 76,508 women.

Comparison of demographic characteristics of non-respondents and respondents (comparing columns 1 and 2, Table II) shows that younger mothers, mothers reporting a first language other than English or French, mothers living in Toronto and single mothers were less likely to participate in the survey. However, after weighting, a comparison of the respondent distribution to the sampling frame (comparing columns 3 and 4, Table II) shows a close approximation on all characteristics, suggesting that the MES sample is representative of the MES population.

Table II **Distribution (%) of census demographic characteristics of non-respondents and respondents, Maternity Experiences Survey, Canada, 2006–2007**

	Unscreened and non-respondents (design weights) n=1,887	Respondents (design weights) n=6,421	Respondents (MES weights) n=6,421	MES Frame (Census weights) n=58,972
Maternal age (years)				
15–19	5.3	2.6	3.2	3.3
20–29	47.0	44.4	45.3	44.6
30–39	41.7	49.4	48.0	47.4
≥40	6.1	3.6	3.6	4.7
First language				
English	58.3	61.4	61.6	61.0
French	14.7	23.6	21.6	21.7
Other	27.0	15.0	16.9	17.2
Place of residence				
Toronto	25.3	15.4	17.5	17.8
Other census metropolitan area	47.3	50.9	50.1	50.0
Non-census metropolitan area	27.4	33.7	32.5	32.2
Legal marital status				
Never legally married	34.8	30.4	29.6	30.8
Married	59.2	65.8	66.7	65.2
Divorced, widowed, separated	6.0	3.8	3.7	4.0
Number of adults in household (aged ≥18 years)				
<2	11.8	4.2	4.2	5.7
≥2	88.2	95.8	95.8	94.3
Other children in household (aged 0–15 years)				
No	40.1	42.9	42.8	42.3
Yes	59.9	57.1	57.2	57.7
Baby's gender				
Male	52.4	51.8	51.7	51.6
Female	47.6	48.2	48.3	48.4

Cross-cultural Validity

The cross-cultural validity of the MES questionnaire and data collection methods for subpopulations such as Inuit women was not tested. It is therefore uncertain whether the MES methods may have led to biased responses from women from particular subpopulations.

Data Analysis

This report presents descriptive statistics, primarily proportions and occasionally means, calculated for all questions based on the weighted sample of 76,508 women. The variances associated with these statistics were calculated using a set of replicate "bootstrap" weights[11,12] to capture the variability introduced by the sample design and weighting adjustments. Ninety-five percent confidence intervals (95% CI) are reported with each estimate and are included in the tables corresponding to the figures (tables available on compact disc (CD) and also at http://www.publichealth.gc.ca/mes). Coefficients of variation (CVs) were also calculated using bootstrap weights. Estimates with CVs of 16.6% or greater are considered by StatCan to be of marginal (CV between 16.6% and 33.3%) or low (CV greater than 33.3%) quality and have been flagged as per StatCan recommendations.[13] Statistics based on cell sizes of less than five (i.e., numerator with fewer than five cases) were suppressed as per StatCan disclosure control rules. No statistical tests were conducted. Therefore, variations between estimates among subgroups are not necessarily statistically significant differences and should be interpreted with caution.

Missing data (i.e., refusals, don't knows and valid skips) were usually excluded from analyses. One exception to this approach was in the analysis of the question asking whether a respondent had an HIV test. "Don't know" responses are reported for this question as women should be informed about having an HIV test and a "don't know" is therefore relevant in assessing how often they report not being informed. Due to the low level of item non-response on the MES, exclusion of records with missing data had minimal impact on results. As a result, the effective sample size varied somewhat across questions.

Throughout the report results are presented nationally, and by province and territory, when the sample size permits. Data were also analyzed by the following secondary variables: parity (i.e., primiparous: women whose baby was the first birth vs. multiparous: women who had a previous birth); maternal age; maternal education; household low income cut-off status (i.e., at or below low income cut-off vs. above low income cut-off); and type of birth (i.e., vaginal vs. cesarean birth). Table III presents the secondary variables and the MES variables that were used to derive them.

The primary questions analyzed for each section are listed at the end of the corresponding section in this report.

Table IV shows the low income cut-offs that were used in the MES.

Table III **Description of secondary variables, Maternity Experiences Survey, Canada, 2006–2007 §**

Secondary variable	MES variable(s) used	Derivation applied
Province/territory	MOM_PROV: province or territory of the respondent at the time of the 2006 Census	Variable used as in dataset, no derivation applied
Parity (includes MES baby)**	BIRTH: How many times have you given birth to a live baby? STILLBIRTH: How many pregnancies ended in the birth of a stillborn baby?	**Primiparous:** BIRTH + STILLBIRTH = 1 **Multiparous:** { (BIRTH + STILLBIRTH >1) and BIRTH ≠ 99 and STILLBIRTH ≠ 99 } or { (BIRTH >1 and BIRTH ≠ 99) or (STILLBIRTH >1 and STILLBIRTH ≠ 99) }
Maternal age	AGEGRBTH: age of respondent at time of birth	Variable used as in dataset, with 40–44, 45–49 and 50+ age categories grouped into one 40+ category
Maternal education	SDDEDUC: mother's highest level of completed education	Used as in dataset with the following groupings: **Less than high school:** Grade 8 or lower, Grade 9–10, Grade 11–13 non–graduate **High school graduate:** Grade 11–13 graduate, some post-secondary **Post-secondary diploma:** trade certificate/diploma, community college, CEGEP, university certificate below bachelor's **University graduate:** bachelor's degree, graduate degree
Household low income cut-off	AREA SIZE: size of area of residence in which the respondent lives (e.g., urban, population <30,000) WA_Q09: What is your best estimate of the total income, before taxes and deductions, of all household members from all sources in the past 12 months? WA_Q10: Including yourself and your baby, how many people live in this household?	Household low income cut-off status was determined in three steps: 1. Each respondent was assigned a household low income cut-off value according to the values indicated in Table IV, based on her response to WA_Q10 and her AREA SIZE. 2. Because the MES recorded household income (WA_Q09) in ranges, respondents with a household income in a range below the highest low income cut-off ($54,987) were assigned the mid-point of that range as their household income. Assessment of an alternative approach distributing all respondents within the low income cut-off range randomly across that range showed minimal impact on the results. 3. Each respondent's assigned household income was then compared with her household low income cut-off value in order to classify her as being at/below or above the low income cut-off.
Type of birth	LB_Q18: Did you have a vaginal or cesarean birth?	Variable used as in dataset, no derivation applied.

§ MES dataset variable names are in capital letters.
** A value of 99 corresponds to "not stated."

Table IV **2005 low income cut-offs (retrieved from CANSIM on August 28, 2007)**

Area size	Number of people in the household (WA_Q10)						
	1	2	3	4	5	6	≥7
Rural	$14,303	$17,807	$21,891	$26,579	$30,145	$33,999	$37,853
Urban, population <30,000	$16,273	$20,257	$24,904	$30,238	$34,295	$38,679	$43,063
Urban, population 30,000 to 99,999	$17,784	$22,139	$27,217	$33,046	$37,480	$42,271	$47,063
Urban, population 100,000 to 499,999	$17,895	$22,276	$27,386	$33,251	$37,711	$42,533	$47,354
Urban, population ≥500,000	$20,778	$25,867	$31,801	$38,610	$43,791	$49,389	$54,987

Figures and Tables

All figures are presented on either a 25%, 50% or 100% scale, depending on the highest calculated proportion. In figures other than those presenting provincial and territorial data, the "all women" bar excludes cases when there were missing data on the primary variable being analyzed, but includes cases with missing information on the secondary variable. For example, the "all women" bar for "proportion of women initiating prenatal care after the first trimester, by maternal age" (Figure 3.2) excludes women with missing information on the timing of their first prenatal visit (i.e., primary variable), but includes women with missing information on maternal age (i.e., secondary variable).

MES tables present the weighted estimate with its corresponding 95% confidence interval, as well as footnotes for estimates with CVs of 16.6% or greater. In some cases, percentages in tables do not add up to 100 due to rounding.

Recall Issues

Studies have suggested that women's recall of some pregnancy and birth events, and their evaluation of maternity care, may change over time.[14–16] Therefore, it is possible that for some questions, the accuracy of women's recall and their perception of past events may have been influenced by the timing of the interview, which ranged between five and 14 months postpartum. The varied timing of the interview also means that information on issues such as breastfeeding duration and length of maternity leave are more likely to be unavailable for women who were interviewed earlier (i.e., more likely to still be breastfeeding or on maternity leave) compared with those interviewed later in the postpartum period (i.e., less likely to still be breastfeeding or on maternity leave).

Provincial and Territorial Distribution of Demographic Characteristics

There are considerable variations across provinces and territories in the distribution of the MES secondary variables (table available on CD and also at http://www.publichealth.gc.ca/mes). The provincial and territorial estimates presented in this report have not been adjusted for these differences in underlying demographic characteristics, and should therefore be interpreted with caution.

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Chapter 1: Pregnancy

1 Reaction to Conception

Janusz Kaczorowski

Introduction

Most of the literature regarding the reaction of women to conception focuses on the concept of whether the pregnancy was intended or not. The terms "intended" or "unintended," "planned" or "unplanned," and "wanted" or "unwanted" have been used interchangeably to assess reactions of women to pregnancy.[1] Intention to become pregnant is an important concept because studies have consistently described an association between unintended pregnancies and adverse infant and maternal health outcomes.[2,3]

Recent research suggests that intention to become pregnant and the reaction to being pregnant are two distinct concepts.[4] Some population-based surveys characterize reactions to conception in terms of optimal timing; however, the concept of "mistiming" can vary greatly, reflecting different circumstances related to a woman's stage in life.[1,2,5] Unfortunately, varying methodologies and inconsistent definitions in this area present challenges to meaningful comparisons across studies.[1,3,4]

The 1995 National Survey of Family Growth in the United States indicated that in 25% of "unintended" pregnancies (pregnancy was due to contraceptive failure and women themselves defined the pregnancy as unintended), the reactions of women to the pregnancy were either happy or very happy.[2] In another study that asked women who were waiting for their pregnancy test results—and for whom a pregnancy would be unintended—how they would react if their test was positive, almost half of these women indicated that they would be happy if pregnant.[4]

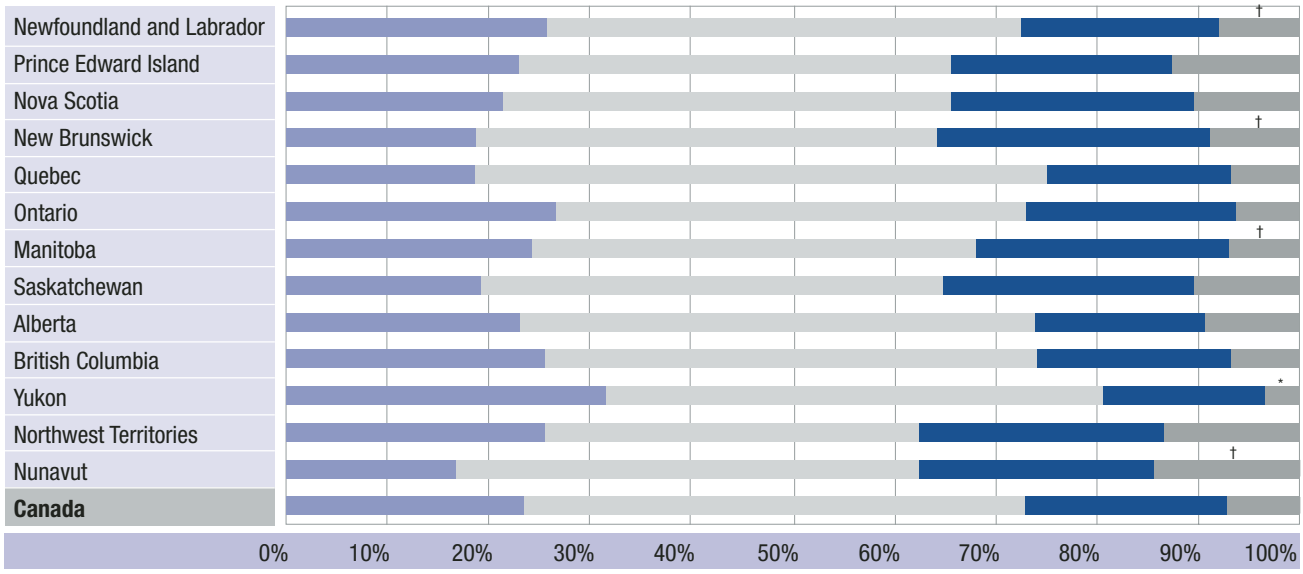
The MES asked women to think back to the time just before becoming pregnant and to indicate whether they would say that they had wanted to be pregnant or not at that particular point in their lives. Women were also asked how they felt when they first realized that they were pregnant.

Results

- Overall, 49.5% (95% CI: 48.3–50.8) of women indicated that the timing of the conception was just right, and 23.4% (95% CI: 22.3–24.5) indicated that they would have preferred to conceive sooner. Twenty percent (20.0%, 95% CI: 19.0–21.0) indicated that they would have preferred to become pregnant later, and 7.1% (95% CI: 6.4–7.7) indicated that they did not want to become pregnant at all. Responses to this question varied by province and territory, with 56.6% (95% CI: 54.0–59.1) of women in Quebec and 50.9% (95% CI: 47.1–54.7) in Alberta indicating that the timing of the conception was just right. This was also the case for 42.7% (95% CI: 38.4–46.9) of women in Prince Edward Island and 37.1% (95% CI: 31.6–42.7) of women in the Northwest Territories (Figure 1.1).

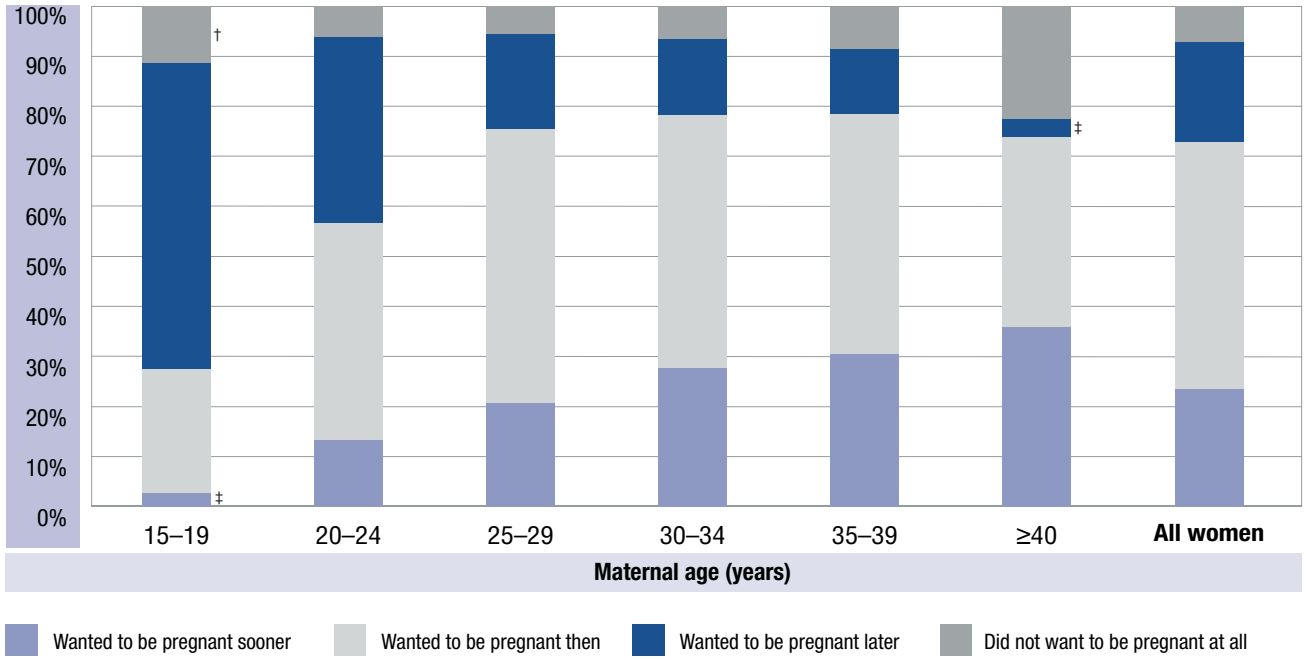
- Responses to this question were strongly influenced by maternal age. Younger women (15–19 years) would have preferred to conceive later whereas older women would have preferred to conceive earlier. Women under 20 years of age and women 40 years and older were most likely to indicate that they would have preferred not to be pregnant at all (Figure 1.2).
- Primiparous women were less likely (46.9%, 95% CI: 45.0–48.8) to indicate that the timing of the conception was just right than multiparous women (51.7%, 95% CI: 49.9–53.4).
- The proportion of women who indicated that the timing of the conception was just right increased with the maternal level of education. The timing was just right for 37.6% (95% CI: 33.2–42.0) of those with less than high school education and 53.5% (95% CI: 51.3–55.7) of university graduates (Figure 1.3).
- Women living in a household at or below the low income cut-off were less likely (37.9%, 95% CI: 35.1–40.7) to indicate that the timing of the conception was just right than women living in a household above the low income cut-off (52.9%, 95% CI: 51.4–54.4) (Figure 1.4).
- Overall, 80.9% (95% CI: 79.9–81.8) of women indicated that they were "very happy" and 12.1% (95% CI: 11.3–13.0) were "somewhat happy" when they first realized that they were pregnant. In Yukon, 86.9% (95% CI: 83.0–90.8) of women indicated that they were "very happy", as did 86.2% (95% CI: 84.4–88.1) of women in Quebec compared with 71.0% (95% CI: 67.0–75.0) of women in Nova Scotia and 64.5% (95% CI: 57.6–71.4) in Nunavut (Figure 1.5).
- Fewer women under 20 years of age indicated that they were "very happy" (36.4%, 95% CI: 30.7–42.1) compared with women in any other age group (Figure 1.6).
- Primiparous women were as likely as multiparous women to indicate that they were "very happy" (81.8%, 95% CI: 80.4–83.2, and 80.1%, 95% CI: 78.7–81.5, respectively).
- Women with less than high school education (65.1%, 95% CI: 61.0–69.2) and women living in a household at or below the low income cut-off (67.4%, 95% CI: 64.6–70.1) were less likely to indicate that they were "very happy" compared with women with higher levels of education or women living in a household above the low income cut-off.

Figure 1.1 Distribution of women's reactions to timing of pregnancy, by province/territory, Canada, 2006–2007



* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.

Figure 1.2 Distribution of women's reactions to timing of pregnancy, by maternal age, Canada, 2006–2007



† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.

Figure 1.3 **Distribution of women's reactions to timing of pregnancy, by maternal education, Canada, 2006–2007**

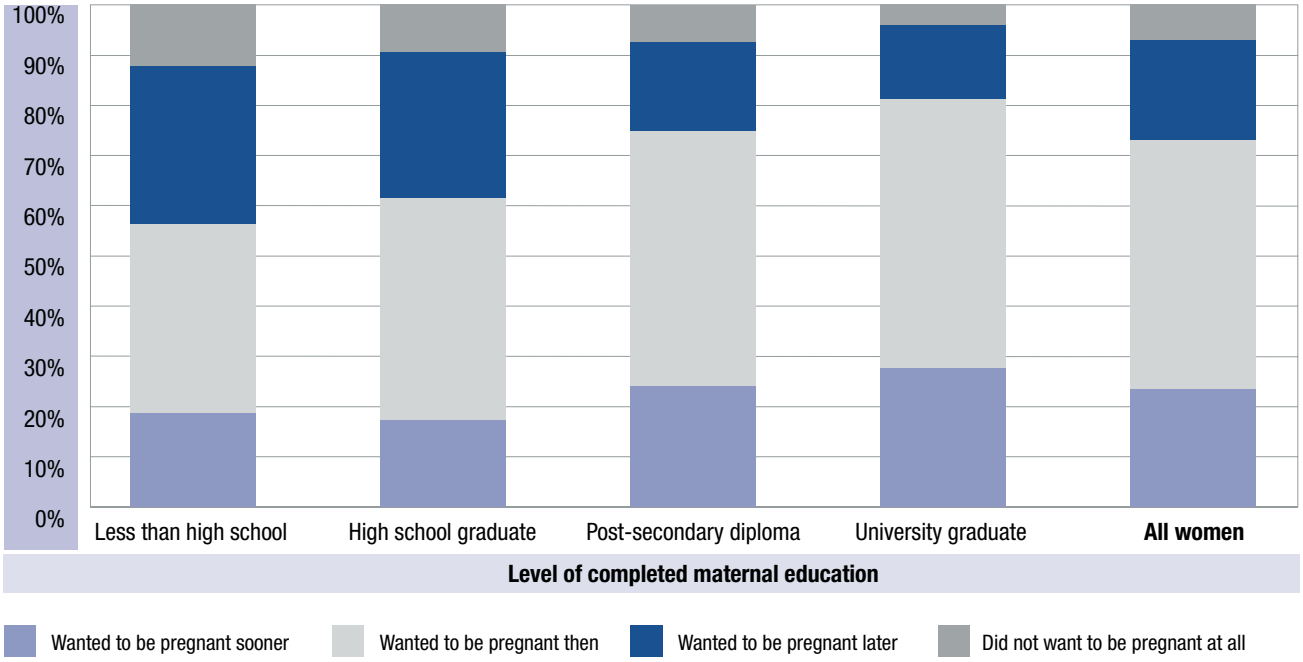


Figure 1.4 **Distribution of women's reactions to timing of pregnancy, by low income cut-off (LICO), Canada, 2006–2007**

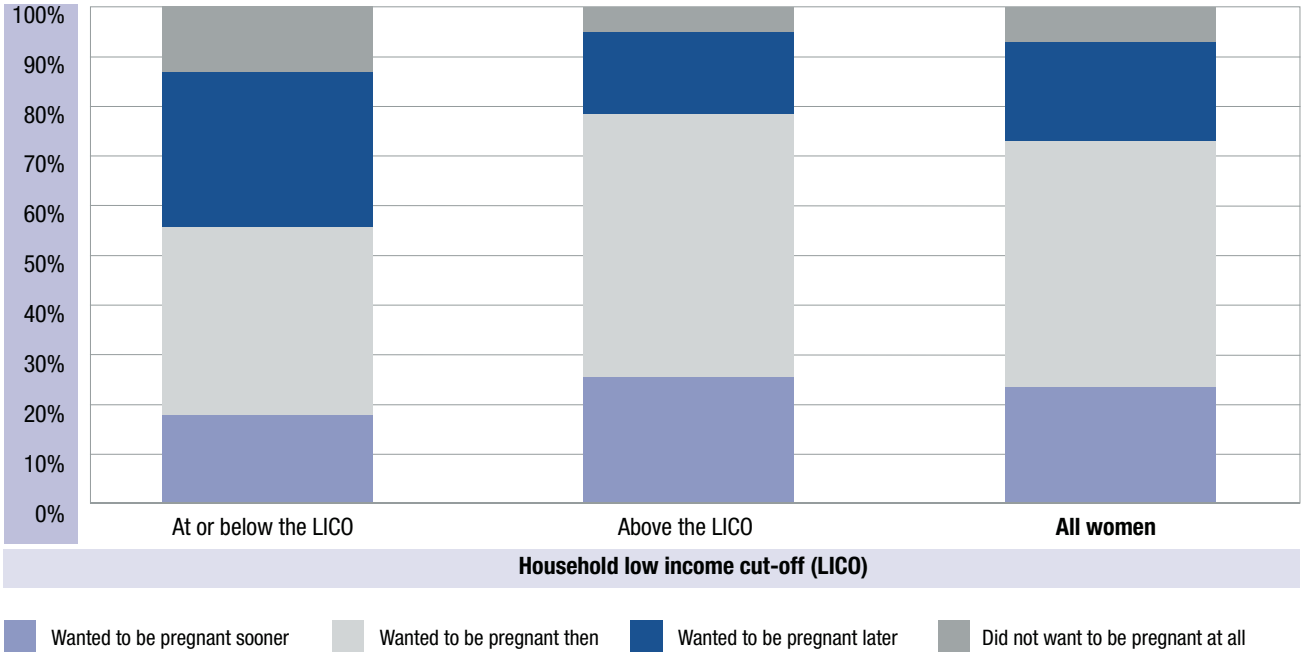
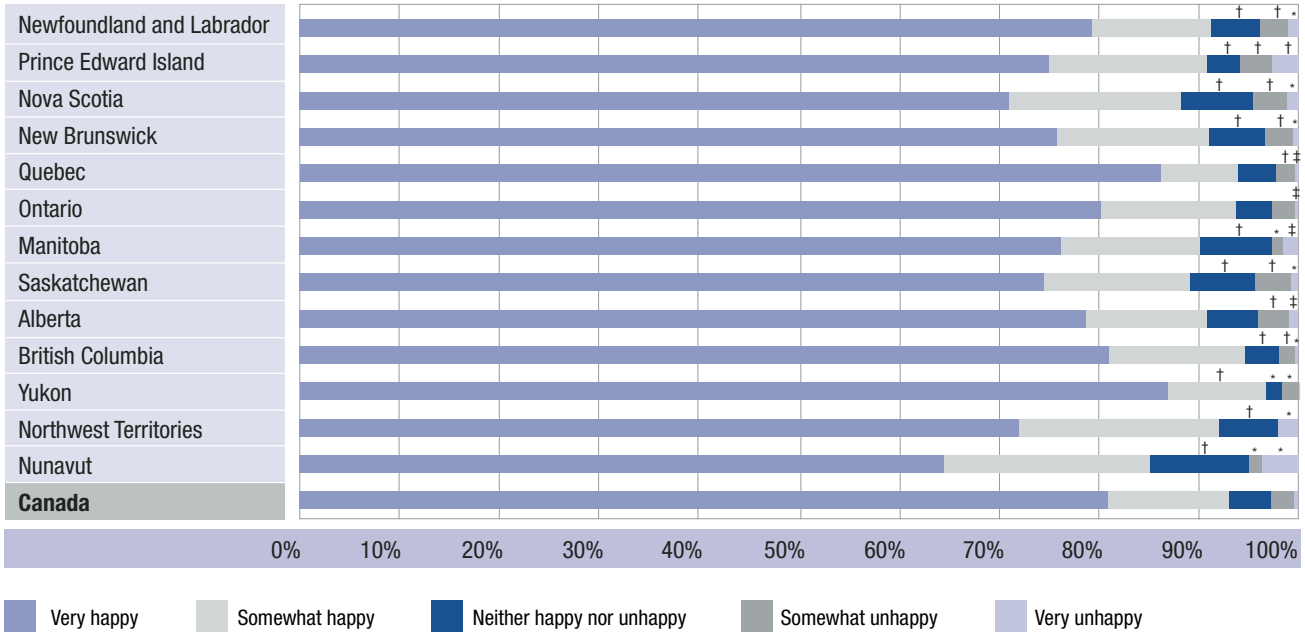
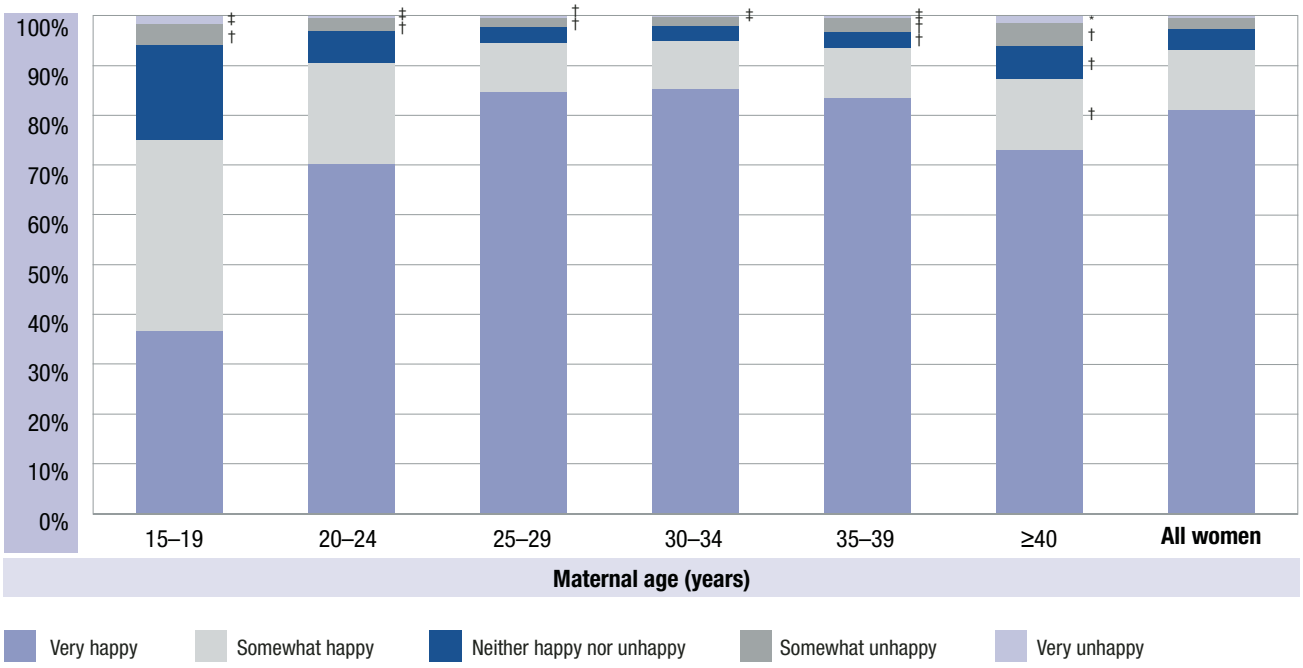


Figure 1.5 Distribution of women's reactions to pregnancy, by province/territory, Canada, 2006–2007



* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.

Figure 1.6 Distribution of women's reactions to pregnancy, by maternal age, Canada, 2006–2007



* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.

Summary

Half (49.5%) of women indicated that the timing of their conception was just right; 23.4% would have preferred to conceive earlier and 20.0% later. Seven percent (7.1%) would have preferred not to become pregnant at all. Most women indicated they were "very happy" (80.9%) or "somewhat happy" (12.1%) when they first realized that they were pregnant. Women with higher educational levels and those living in a household above the low income cut-off were more likely to report that the timing of their pregnancy was just right and were more likely to indicate that they were "very happy" when they realized they were pregnant.

Limitations

Women may have been reluctant to report negative reactions to conception.

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Question numbers: CB_Q02–Q03

2 Prenatal Care Provider

Maureen Heaman, Beverley O'Brien

Introduction

Prenatal care in Canada is provided by a variety of health care professionals, including obstetricians/gynecologists, family physicians, midwives, nurses and nurse practitioners. The availability of type of provider varies by province and territory. For example, midwifery care is currently legislated in eight jurisdictions (Ontario, Alberta, British Columbia, Quebec, Manitoba, Saskatchewan, Nova Scotia and the Northwest Territories)[1] and publicly funded in five (Ontario, British Columbia, Quebec, Manitoba and the Northwest Territories).[2,3] In Nunavut, registered midwives from any province may practise and be remunerated in a birth centre in Rankin Inlet.[2]

A shortage of maternity care providers has been identified both internationally and within Canada.[4,5] In Canada, this shortage is particularly acute in rural and remote areas.[6] Unique challenges faced by providers in these communities include long distances to access facilities and specialized equipment, lack of peer support and coverage for their practice, and the need for expanded or specialized skills.[7] Nurses in rural and remote northern parts of Canada often provide primary care due to the absence of physicians.

In an effort to help address the shortage of maternity care providers, the Society of Obstetricians and Gynaecologists of Canada has developed *A National Birthing Initiative for Canada*, which calls for the development and implementation of inter-professional models for delivery of maternity care services across Canada. This initiative also supports the integration of regulated, publicly funded midwifery care in all provinces and territories.[8]

A systematic review that assessed the relationship between prenatal care (as measured by frequency of visits and type of provider) and maternal and neonatal outcomes among low-risk women found no differences in outcomes based on frequency of visits.[9] The review also indicated that women receiving prenatal care from a midwife or general practitioner were slightly more satisfied with their care than those receiving care from an obstetrician.[9]

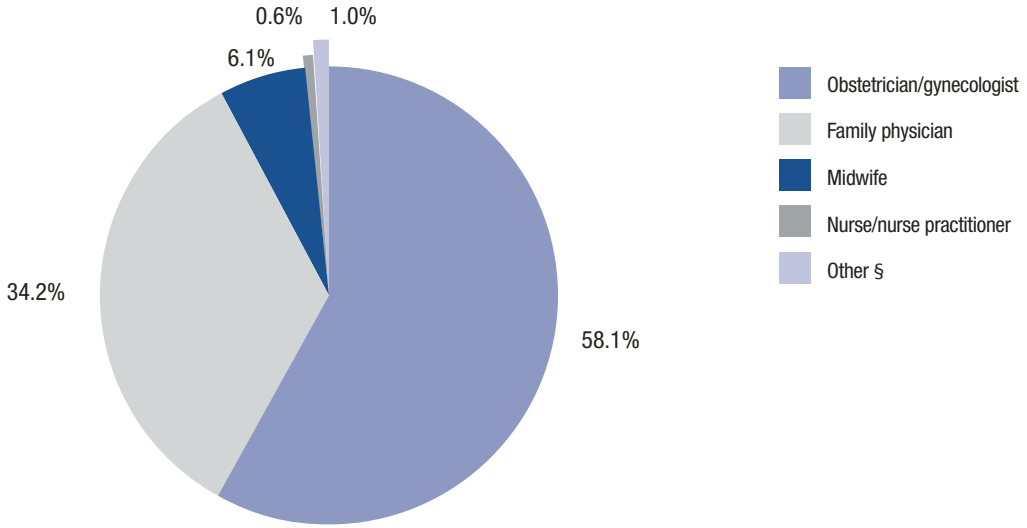
The MES asked women from which type of health care provider they received most of their prenatal care.

Results

- Overall, women reported receiving most of their prenatal care from an obstetrician/gynecologist (58.1%, 95% CI: 56.9–59.3) or a family physician (34.2%, 95% CI: 33.1–35.3). Midwives provided prenatal care to 6.1% (95% CI: 5.4–6.7) of women, and 0.6% (95% CI: 0.4–0.7) of women reported receiving their care from a nurse or nurse practitioner (Figure 2.1).
- There were regional variations in the type of primary prenatal care provider. The proportion of women whose prenatal care provider was an obstetrician/gynecologist ranged from 89.1% (95% CI: 86.5–91.6) in Prince Edward Island, 67.2% (95% CI: 64.7–69.7) in Quebec and 66.0% (95% CI: 64.0–68.1) in Ontario to 9.9%† (95% CI: 6.3–13.6) in Yukon, 9.8%† (95% CI: 6.5–13.2) in the Northwest Territories and 6.0%† (95% CI: 2.5–9.4) in Nunavut (Figure 2.2).
- The proportion of women who reported a family physician as their primary prenatal care provider ranged from 83.1% (95% CI: 78.4–87.7) in Yukon and 64.4% (95% CI: 59.9–68.9) in Saskatchewan to 22.4% (95% CI: 16.2–28.5) in Nunavut and 9.3% (95% CI: 6.8–11.7) in Prince Edward Island (Figure 2.2).
- The proportion of women who received care from a midwife ranged from 9.8% (95% CI: 7.7–11.9) in British Columbia, 9.4% (95% CI: 6.5–12.3) in Manitoba and 9.2% (95% CI: 8.0–10.5) in Ontario to 2.6%† (95% CI: 1.8–3.5) in Quebec and 2.5%† (95% CI: 1.2–3.7) in Alberta (Figure 2.2).
- Regional variations exist in the proportion of women who reported a nurse or nurse practitioner as their primary prenatal care provider. The proportion ranged from 58.5% (95% CI: 51.4–65.7) in Nunavut and 30.8% (95% CI: 25.4–36.2) in the Northwest Territories to 3.7%† (95% CI: 1.9–5.5) in Newfoundland and Labrador, 1.6%† (95% CI: 0.3–2.8) in Nova Scotia and 0.4%† (95% CI: 0.1–0.6) in Ontario. This variation corresponds with the presence of nurses and nursing stations in remote northern communities (Figure 2.2).
- The proportion of women with a university degree who received care from a midwife was 8.9% (95% CI: 7.6–10.2) compared with 3.9% (95% CI: 2.7–5.0) of those with a high school education. Two percent (2.2%†, 95% CI: 1.4–3.1) of women with less than a high school education received prenatal care from a nurse or nurse practitioner compared with 0.8%† (95% CI: 0.4–1.2) of those with a high school education (Figure 2.3).

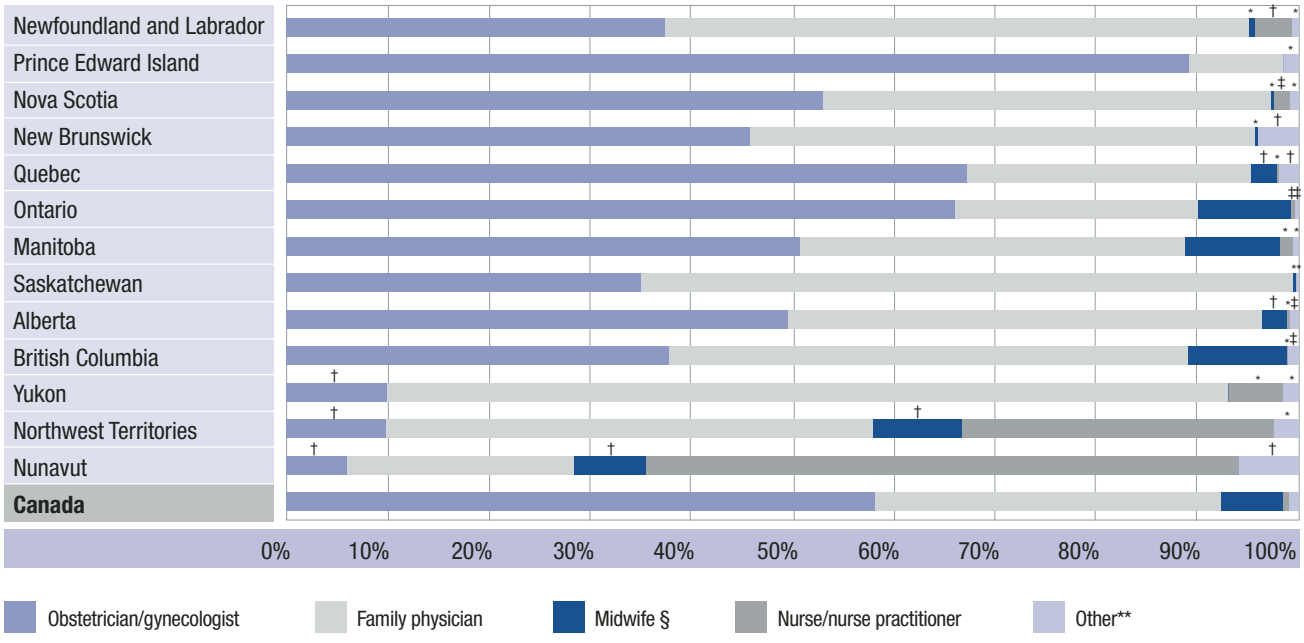
† Coefficient of variation between 16.6% and 33.3%.
† Coefficient of variation >33.3%.

Figure 2.1 Distribution of type of primary prenatal care provider, Canada, 2006–2007



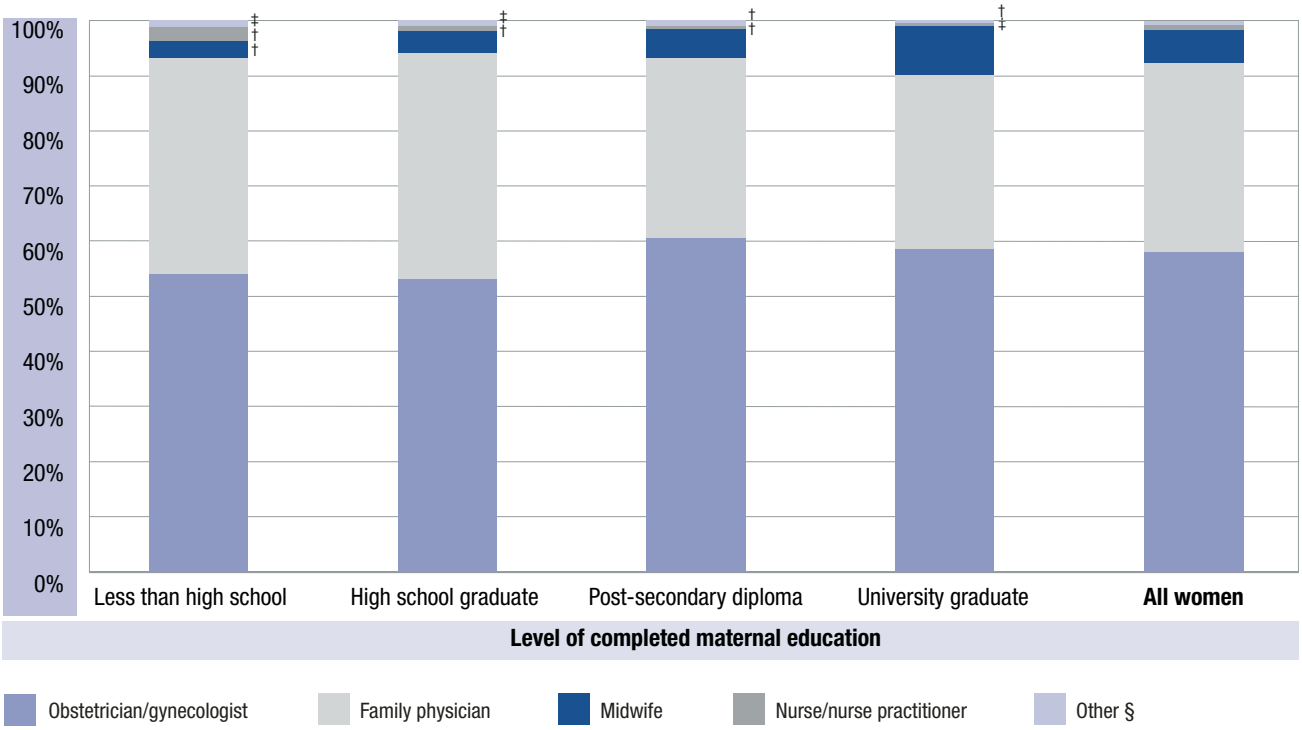
§ Includes those care providers whose type was unspecified by mothers, including physicians of unspecified specialization.

Figure 2.2 Distribution of type of primary prenatal care provider, by province/territory, Canada, 2006–2007



* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.
§ Midwifery care is currently legislated in eight jurisdictions (Ontario, Alberta, British Columbia, Quebec, Manitoba, Saskatchewan, Nova Scotia and the Northwest Territories)[1] and publicly funded in five (Ontario, British Columbia, Quebec, Manitoba and the Northwest Territories).[2,3] In Nunavut, registered midwives from any province may practise and be remunerated in a birth centre in Rankin Inlet.[2]
** Includes those care providers whose type was unspecified by mothers, including physicians of unspecified specialization.

Figure 2.3 **Distribution of type of primary prenatal care provider, by maternal education, Canada, 2006–2007**



† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.
§ Includes those care providers whose type was unspecified by mothers, including physicians of unspecified specialization.

Summary

Most women received their prenatal care from an obstetrician/gynecologist (58.1%) or family physician (34.2%). An additional 6.1% and 0.6% of women received prenatal care from a midwife or nurse/nurse practitioner, respectively. The type of prenatal health care provider was associated with province or territory of residence and level of education. As would be expected, midwives were more commonly reported as a primary prenatal care provider in regions where midwifery is legislated and publicly funded. Nurses or nurse practitioners were more likely to be providers of prenatal care in the territories than in the provinces.

Limitations

Because women were asked to specify the type of health care provider from whom they received most of their prenatal care, information on the proportion receiving shared or collaborative care from two or more types of health care providers is not available. Furthermore, women defined the specialty of their physician using a variety of titles. In some cases, the type of medical specialty was not reported. The term midwife is a protected title in provinces where midwifery practice is legislated, but many women who hire unregulated practitioners for home births may also refer to them as midwives. Foreign-trained nurse-midwives have long been hired to work in remote northern communities and may have been referred to as either nurses or midwives.

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Question numbers: PC_Q05A–Q05B

3 Prenatal Care

Maureen Heaman

Introduction

Prenatal care has important implications for maternal health and ongoing health care for women, infants and families.[1,2] It involves three major components: risk assessment, treatment for medical conditions or risk reduction and education.[3,4] By identifying and mitigating potential risks and helping women to address behavioural factors, such as tobacco and alcohol use, prenatal care is effective in detecting, treating and preventing conditions that can result in poor maternal or infant health outcomes.[3,4]

Prenatal care is more likely to be effective if women begin receiving care early in pregnancy, starting in the first trimester, and continue it at regular intervals throughout pregnancy.[4] The Canadian standard for prenatal care, as recommended by the Society of Obstetricians and Gynaecologists of Canada, consists of visits with a health care provider every four to six weeks in early pregnancy, every two to three weeks after 30 weeks' gestation, and every one to two weeks after 36 weeks' gestation.[5] However, the effectiveness of this standard for low-risk pregnancies has not been assessed through rigorous scientific testing and no standard of prenatal care for women with high-risk pregnancies has been determined.[1] In the United States, an expert panel recommended a reduction in the number of visits for routine pregnancy care, linked to more comprehensive care and "front loading" of care earlier in pregnancy.[6] Similarly, recent United Kingdom guidelines recommend seven prenatal visits for multiparous women and 10 for primiparous women.[7] Debate continues regarding the appropriate number of prenatal visits, as well as the ideal timing and content of these visits.[8]

To date, limited information has existed on utilization of prenatal care by Canadian women. One study in Manitoba indicated that women had an average of 11.2 prenatal visits during their pregnancies. Overall, 90% of these women initiated care by the 13th week of gestation.[9] Another study from Manitoba found that women who did not receive adequate prenatal care, defined using a combination of timing of first visit and number of visits, were more likely to live in poverty, experience highly stressed lives, have low levels of self-esteem and be Aboriginal.[10]

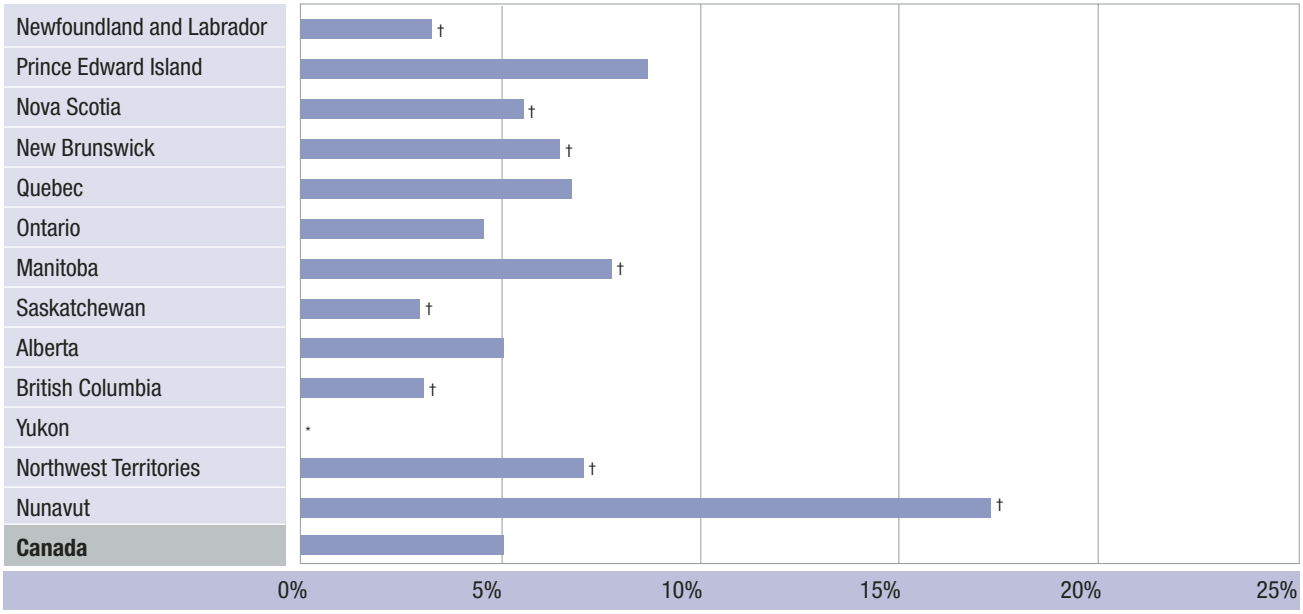
The MES asked women about the timing of initiation of prenatal care, the number of prenatal care visits, whether they received prenatal care as early as they wanted and the reasons for not getting prenatal care as early as they wanted.

Results

- All women had at least one prenatal care visit; 1.1% (95% CI: 0.8–1.3) reported one to four visits, 31.7% (95% CI: 30.4–32.9) had five to 10 visits, 50.5% (95% CI: 49.2–51.8) had 11 to 15 visits, 12.9% (95% CI: 12.0–13.8) had 16 to 20 visits, and 3.9% (95% CI: 3.4–4.4) had 21 or more visits. The proportion of women who received inadequate prenatal care, defined as having four or fewer visits, varied by province and territory, ranging from 7.7%† (95% CI: 3.4–12.0) in Nunavut to 0.9%† in Quebec (95% CI: 0.3–1.4).
- The average number of prenatal care visits for Canada was 12.9 (95% CI: 12.8–13.0). The average ranged from 10.6 (95% CI: 9.9–11.3) in Nunavut and 11.3 (95% CI: 10.9–11.7) in the Northwest Territories to 14.6 (95% CI: 13.9–15.2) in Newfoundland and Labrador and 14.8 (95% CI: 14.2–15.4) in Nova Scotia.
- The first prenatal visit occurred on average at 7.5 weeks' gestation (95% CI: 7.4–7.6); 74.1% (95% CI: 73.1–75.2) of women had their first visit prior to 10 weeks. Most women (94.9%, 95% CI: 94.3–95.4) initiated care in the first trimester (at 13 weeks' gestation or earlier). Although only 5.1% (95% CI: 4.6–5.7) of women initiated care late (after the first trimester), proportions of late initiation of care varied across the provinces and territories, from 3.0%† (95% CI: 1.3–4.7) in Saskatchewan and 3.1%† (95% CI: 1.8–4.4) in British Columbia to 8.7% (95% CI: 6.2–11.1) in Prince Edward Island and 17.3%† (95% CI: 11.7–23.0) in Nunavut (Figure 3.1).
- Younger women (15–19 years) were more likely to start prenatal care after the first trimester (15.3%, 95% CI: 11.1–19.5) compared with women in older age groups (Figure 3.2). Women with less than a high school education (12.8%, 95% CI: 9.9–15.6) were more likely to start care after the first trimester than women with a university degree (3.4%, 95% CI: 2.5–4.2); as were women living in a household at or below the low income cut-off (9.3%, 95% CI: 7.6–11.0) compared with those living in a household above the low income cut-off (3.8%, 95% CI: 3.3–4.4).
- The majority of women (88.7%, 95% CI: 87.9–89.5) indicated they obtained prenatal care as early as they wanted. For the remaining 11.3% (95% CI: 10.5–12.1) of women, the two most common reasons for not getting prenatal care as early as they wanted were: "doctor/health care provider unavailable" (53.0%, 95% CI: 49.0–56.9) and "doctor/health care provider would not start care earlier" (30.2%, 95% CI: 26.7–33.7).
- There was considerable variation among the provinces and territories in the proportion of women who indicated they did not get prenatal care as early as they wanted (Figure 3.3). The proportions ranged from 26.4% (95% CI: 21.4–31.4) in the Northwest Territories and 18.6% (95% CI: 14.8–22.4) in Manitoba to 7.0%† (95% CI: 4.6–9.4) in Nova Scotia and 4.7%† (95% CI: 2.5–6.8) in Newfoundland and Labrador. Nine percent (9.2%†, 95% CI: 4.8–13.6) of women in Nunavut indicated that they did not get prenatal care as early as they wanted, although 17.3%† of women in this territory had late initiation of prenatal care. There was also variation by maternal age. Younger mothers (15–19 years) were more likely to report that they did not get prenatal care as early as they wanted (17.6%, 95% CI: 12.9–22.3) compared with other age groups (Figure 3.4).

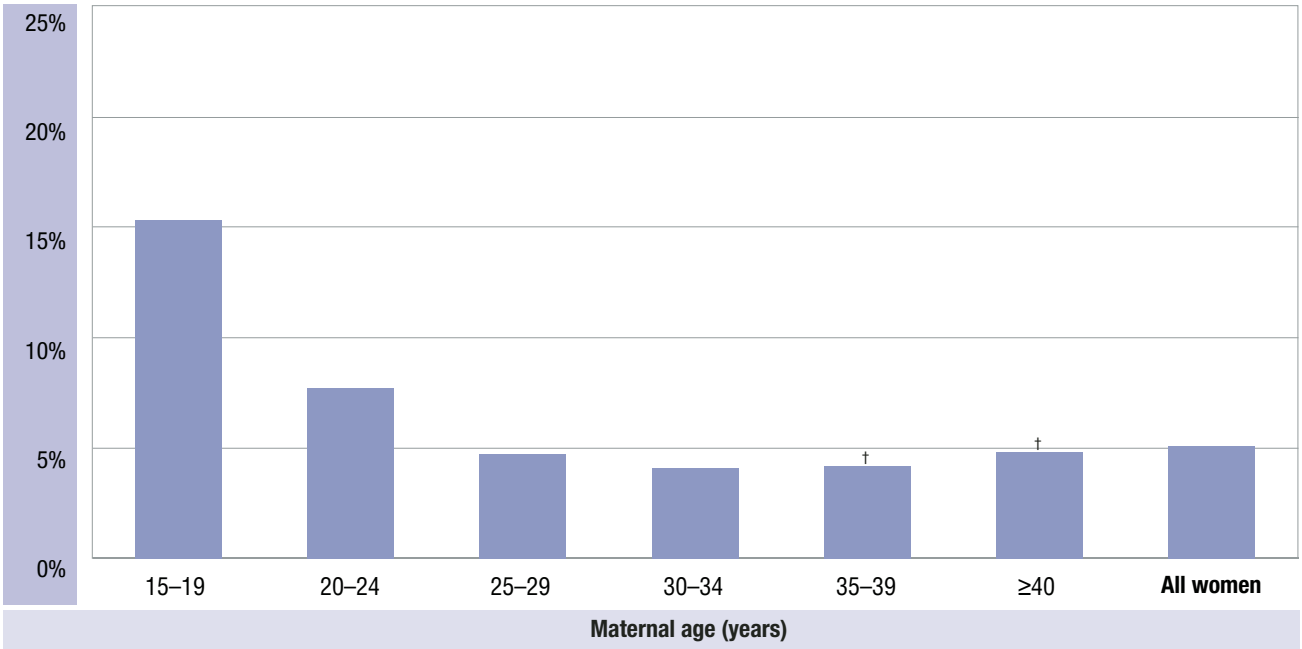
† Coefficient of variation between 16.6% and 33.3%.

Figure 3.1 **Proportion of women initiating prenatal care after the first trimester (at 14 or more weeks' gestation), by province/territory, Canada, 2006–2007**



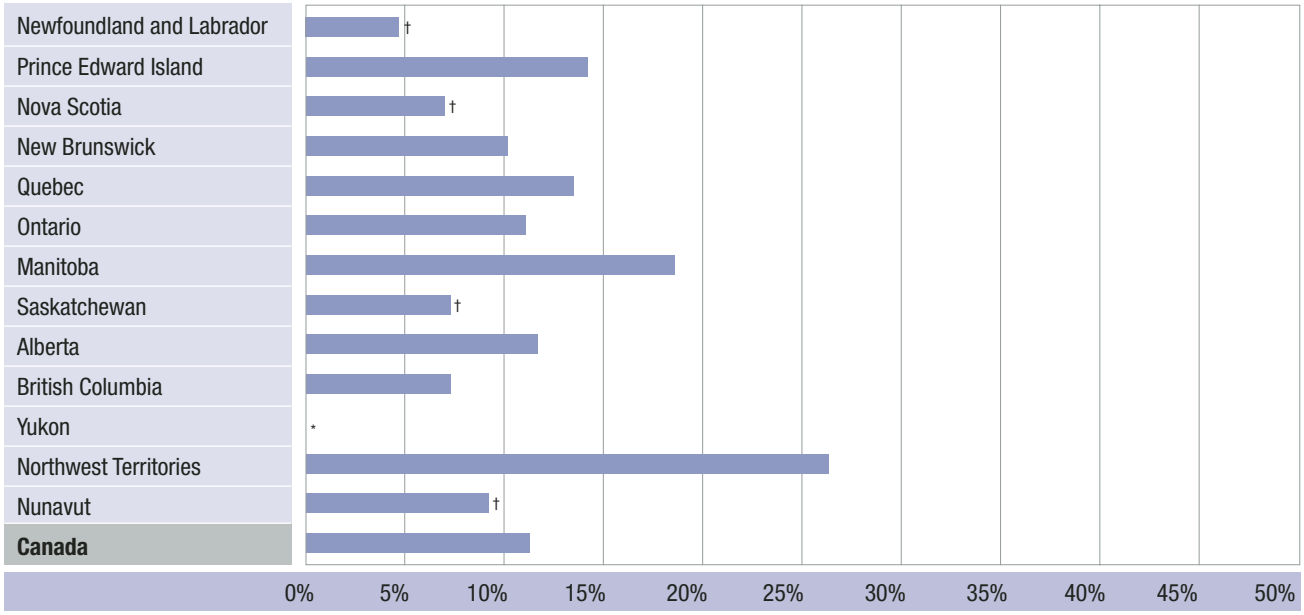
* Estimate not shown because unweighted numerator was less than 5.
† Coefficient of variation between 16.6% and 33.3%.

Figure 3.2 **Proportion of women initiating prenatal care after the first trimester (at 14 or more weeks' gestation), by maternal age, Canada, 2006–2007**



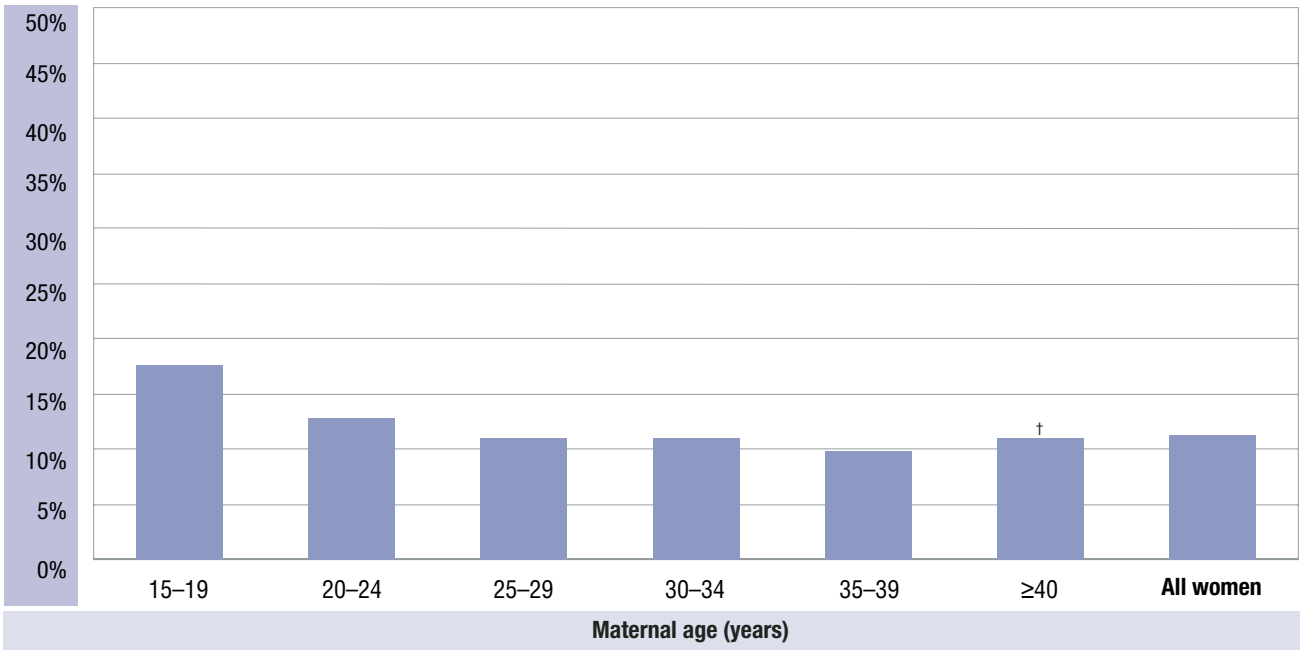
† Coefficient of variation between 16.6% and 33.3%.

Figure 3.3 **Proportion of women not getting prenatal care as early as they wanted, by province/territory, Canada, 2006–2007**



* Estimate not shown because unweighted numerator was less than 5.
† Coefficient of variation between 16.6% and 33.3%.

Figure 3.4 **Proportion of women not getting prenatal care as early as they wanted, by maternal age, Canada, 2006–2007**



† Coefficient of variation between 16.6% and 33.3%.

Summary

Canadian women had good access to prenatal care, with 94.9% initiating care in the first trimester. The average number of prenatal care visits for Canada was 12.9 with only 1.1% of women having four or fewer prenatal care visits. However, younger mothers (15–19 years), women with less than a high school education and women living in a household at or below the low income cut-off were more likely to initiate prenatal care after the first trimester. There was considerable variation among the provinces and territories in the proportion of women who indicated they did not get prenatal care as early as they wanted. The two most common reasons for not getting prenatal care as early as wanted were: "doctor/health care provider unavailable" (53.0%) and "doctor/health care provider would not start care earlier" (30.2%).

Limitations

The MES questions on the number and timing of prenatal care visits explore only utilization of care and do not necessarily reflect the content or quality of such care. The question regarding the timing of the first prenatal care visit asked women to include the first time their pregnancy was confirmed by a health care provider. This may have resulted in women reporting a prenatal visit that consisted only of confirmation of pregnancy. Some women had difficulty recalling the number of prenatal visits they had, which may have affected the accuracy of these findings.

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Question numbers: PC_Q01–Q04

4 Prenatal Classes

Beverley Chalmers, Dawn Kingston

Introduction

Prenatal education classes were initially provided to teach pain management in labour and preparation for birth in the hospital environment. The goals of these classes have expanded to include providing an opportunity to prepare women and their families for pregnancy, labour and birth, care of the newborn and adjustment to family life. Classes are offered by a variety of professionals in a variety of settings, such as hospitals and clinics or in the private sector, and vary in the number of sessions and content.

The benefits of prenatal classes are difficult to assess because of the diversity in providers, objectives, content, duration and settings. Classes may improve women's self-esteem and self-confidence, enhance family relationships, promote breastfeeding and improve communication between the woman and her health care providers. Their popularity worldwide indicates that women appreciate them. Benefits may include the reduced need for analgesic medication in labour and increased satisfaction with birth.[1]

The Canadian *Family-Centred Maternity and Newborn Care: National Guidelines* [2] and the World Health Organization[3] recommend providing prenatal education classes for women and their families.

The MES asked women whether they attended prenatal or childbirth education classes, and if so, where they attended them.

Results

- Overall, about one-third (32.7%, 95% CI: 31.7–33.7) of women attended prenatal classes. The proportion of women attending classes ranged from 46.7% (95% CI: 41.8–51.6) in Newfoundland and Labrador to 28.4% (95% CI: 26.8–30.1) in Ontario (Figure 4.1).
- About two-thirds (65.6%, 95% CI: 63.8–67.4) of primiparous women reported attending prenatal classes compared with 6.0% (95% CI: 5.2–6.8) of multiparous women.
- Younger women (15–19 years) were more likely to attend classes (49.5%, 95% CI: 43.1–55.8) than women in all other age groups (Figure 4.2).
- Women living in a household at or below the low income cut-off were less likely to attend classes (24.1%, 95% CI: 21.6–26.7) than women living in a household above the low income cut-off (34.7%, 95% CI: 33.5–35.9).

- Most women attended classes at hospitals (32.0%, 95% CI: 29.9–34.1), health clinics (27.1%, 95% CI: 25.1–29.0) or community centres (24.3%, 95% CI: 22.4–26.2). Some attended private classes (10.6%, 95% CI: 9.2–12.0), and 6.0% (95% CI: 5.0–7.1) reported "other" for location of classes.
- The location of classes varied considerably across the country. Attendance at hospitals ranged from 70.6% (95% CI: 63.4–77.8) in New Brunswick to 9.3% (95% CI: 6.6–12.0) in Quebec. Almost all women in Yukon attended classes in health clinics (91.5%, 95% CI: 86.3–96.7), and 63.3% (95% CI: 54.4–72.3) of women in the Northwest Territories attended classes at community centres. Attendance at private classes ranged from 13.4% (95% CI: 10.5–16.4) in Quebec and 13.0%† (95% CI: 8.8–17.2) in British Columbia to 5.5%† (95% CI: 2.6–8.4) in Alberta and 5.0%† (95% CI: 1.6–8.4) in New Brunswick (Figure 4.3). In Quebec, 12.8% (95% CI: 9.8–15.8) of women reported "other" for location of classes.

† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.

Figure 4.1 **Proportion of women who attended prenatal classes, by province/territory, Canada, 2006–2007**

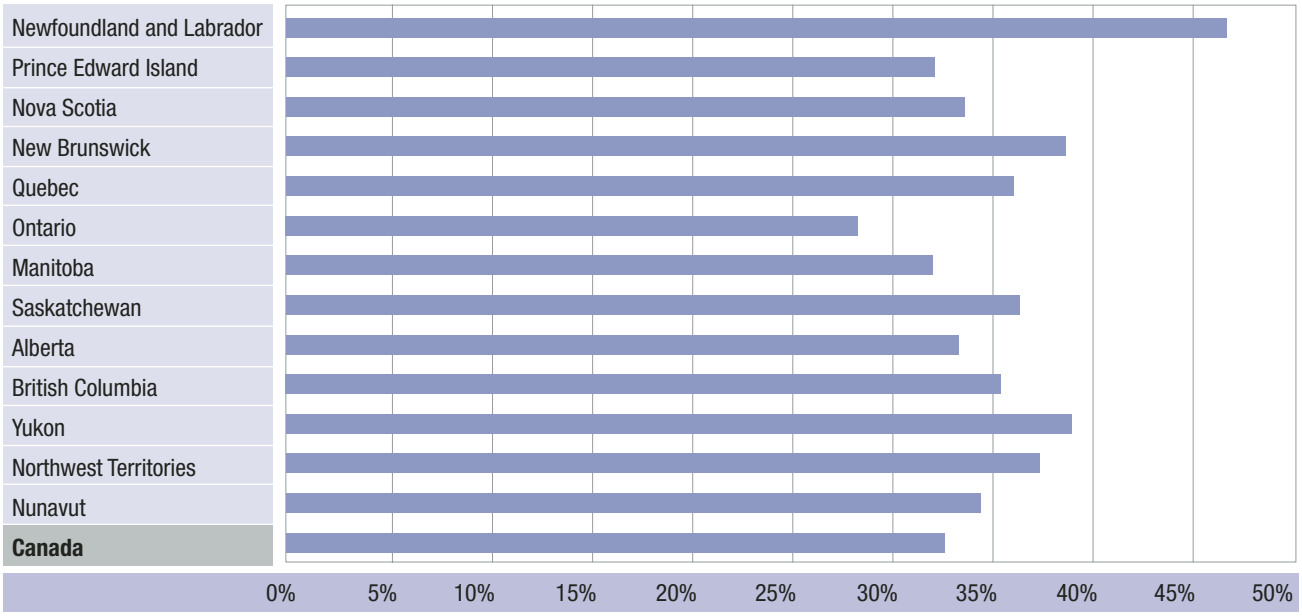


Figure 4.2 **Proportion of women who attended prenatal classes, by maternal age, Canada, 2006–2007**

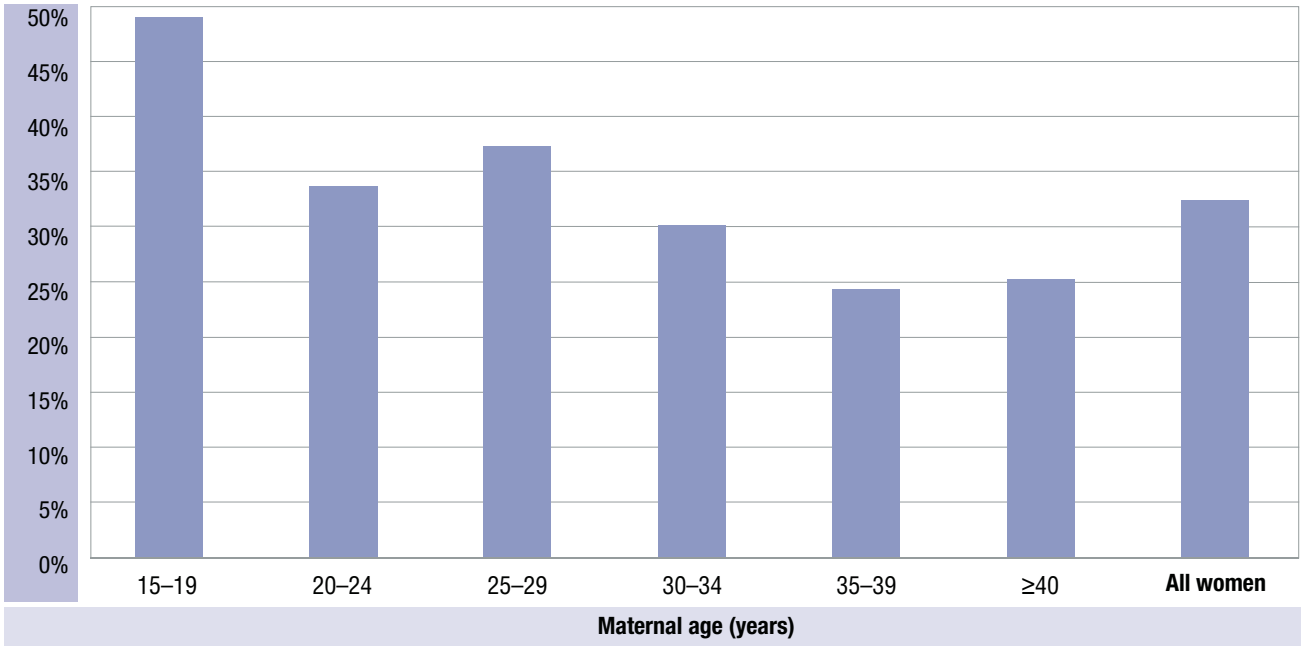
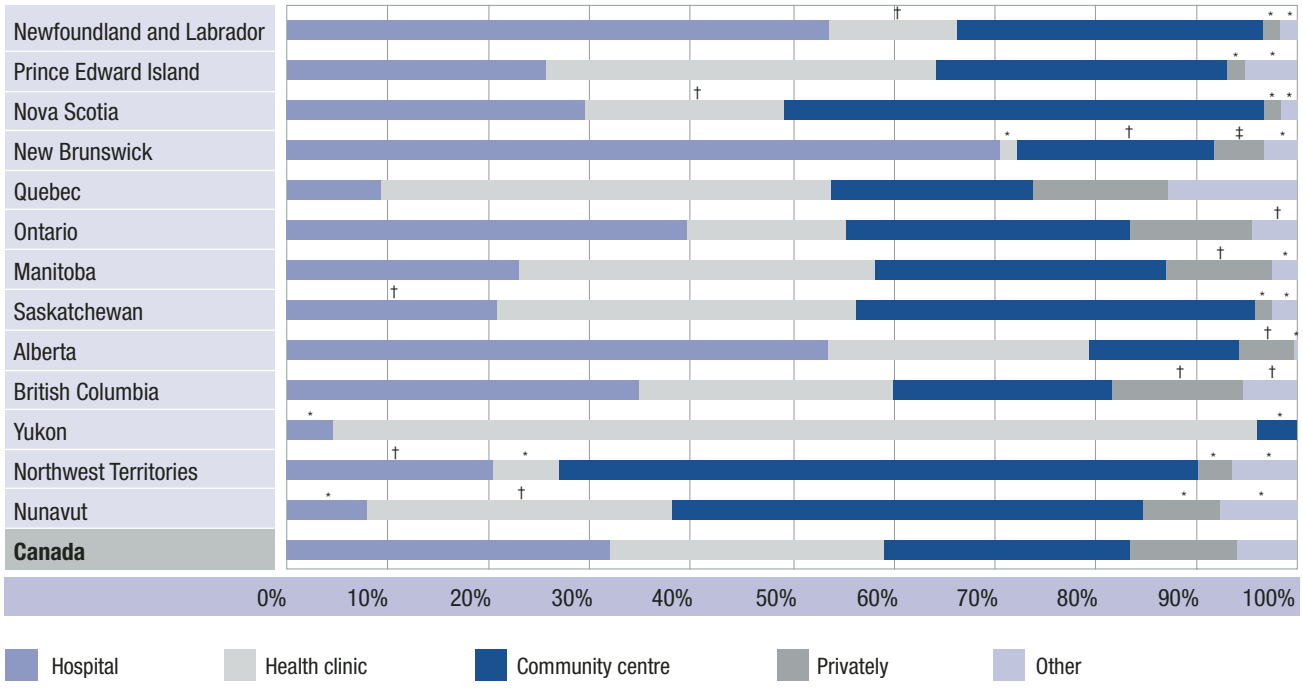


Figure 4.3 **Distribution of location of prenatal classes attended by women, by province/territory, Canada, 2006–2007**



* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.

Summary

About one-third of primiparous women did not attend prenatal classes, although they were more likely to attend than were multiparous women (65.6% vs. 6.0%). Younger women (15–19 years) were more likely to attend classes. Women living in a household at or below the low income cut-off were less likely to attend classes.

Limitations

The MES did not explore the nature of the prenatal education classes offered, whether prenatal classes were available to women in all regions or whether women were pleased with their classes. A high proportion of women in Quebec reported "other" for location of prenatal classes (12.8%); this may reflect alternate ways of providing prenatal classes that are unique to Quebec.

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Question numbers: PC_Q07–Q08, SI_Q10

5 Prenatal Information

Dawn Kingston, Beverley Chalmers

Introduction

Understanding pregnant women's information needs is important in assisting them to detect warning signs in pregnancy; build confidence regarding self-care, labour and delivery, and infant care; improve their overall health status; make informed choices during the perinatal period; and adopt healthy behaviours such as smoking cessation, healthy nutrition and exercise.[1]

Little research on women's information needs and sources of information has been done to date. Most studies have been observational and have not evaluated the independent effects of demographic characteristics (e.g., age, parity, region) on information needs, or maternal and infant outcomes associated with receiving pregnancy-related information. However, findings from existing studies suggest some important starting points. For instance, women seek information from different sources; they value obstetricians and doctors for factual information, midwives for information and reassurance, and friends and family for their experience.[2] Studies also indicate that women's perceptions of what they need to know during their pregnancy differ from what their providers believe they should know.[1]

The context of delivering information (e.g., the health care provider's warmth, communication skills, interpersonal style) is an important aspect in conveying and helping women to use health information.[3] Multiparous and primiparous women seek information from different sources. Multiparous women are more likely to rely on themselves or their previous experience as a source of information.[4,5]

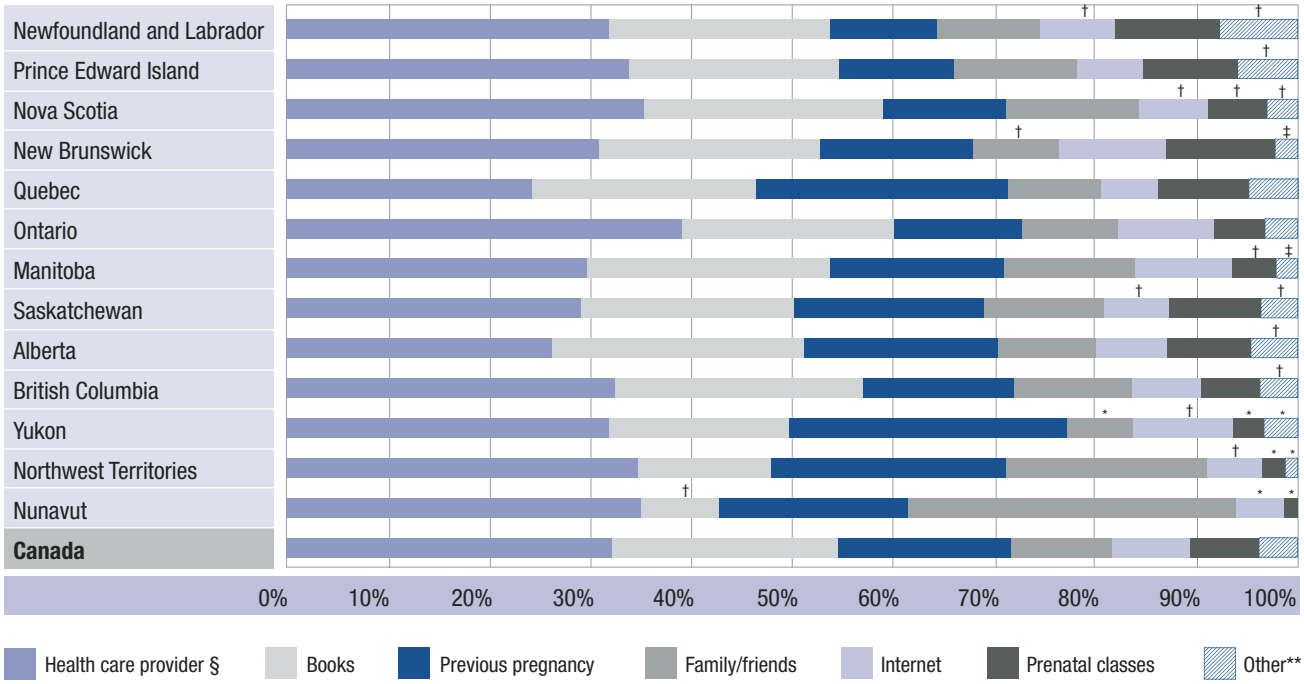
The MES asked women to describe their single most useful source of pregnancy-related information (e.g., books, previous pregnancy, Internet, health care provider, family and friends), and whether they felt that they had received enough information on specific topics, including physical and emotional changes during pregnancy, warning signs of pregnancy complications, the effect of medication on the baby, and prenatal tests and procedures.

Results

- Overall, the most useful sources of information were considered to be health care providers (32.2%, 95% CI: 31.0–33.4), books (22.3%, 95% CI: 21.3–23.3) and a previous pregnancy (17.1%, 95% CI: 16.1–18.0) (Figure 5.1).
- Wide variations in what women consider the most useful source of information were apparent across the provinces and territories. The proportion of women reporting their health care provider as their most useful source of information ranged from 39.1% (95% CI: 37.0–41.2) in Ontario and 35.3% (95% CI: 30.9–39.7) in Nova Scotia to 26.2% (95% CI: 22.9–29.5) in Alberta and 24.3% (95% CI: 22.0–26.5) in Quebec. The proportion of women reporting books as their most useful source of information ranged from 25.0% (95% CI: 21.9–28.2) in Alberta and 24.5% (95% CI: 21.2–27.8) in British Columbia to 13.2% (95% CI: 9.4–17.1) in the Northwest Territories and 7.8%† (95% CI: 4.1–11.6) in Nunavut (Figure 5.1).
- Among women who attended prenatal classes, 19.4% (95% CI: 17.7–21.1) viewed them as their most useful source of information.
- Age-related variations in what women consider the most useful source of information exist. Younger mothers (15–19 years) reported family or friends as their most useful source of information (31.0%, 95% CI: 25.4–36.7) followed closely by health care provider (30.0%, 95% CI: 24.3–35.6), whereas women 20 years of age and older reported their health care provider as their most useful source with age-group specific proportions ranging from 27.6% (95% CI: 24.3–30.9) to 38.3% (95% CI: 34.9–41.7); followed by books, with age-group specific proportions ranging from 18.8% (95% CI: 16.0–21.5) to 23.2% (95% CI: 21.3–25.1) (Figure 5.2).
- The most useful sources of information for primiparous women were books (29.3%, 95% CI: 27.6–30.9), health care provider (26.7%, 95% CI: 25.0–28.3), family or friends (16.4%, 95% CI: 15.0–17.7), and prenatal or childbirth classes (13.2%, 95% CI: 12.0–14.5). Multiparous women viewed their health care provider (36.7%, 95% CI: 35.1–38.4), previous pregnancy (30.7%, 95% CI: 29.2–32.3) and books (16.5%, 95% CI: 15.2–17.7) as their most useful sources (Figure 5.3).
- Most women reported that they had received enough information on physical (92.8%, 95% CI: 92.1–93.5) and emotional (89.4%, 95% CI: 88.7–90.2) changes during pregnancy, warning signs of pregnancy complications (83.7%, 95% CI: 82.8–84.7), effect of medication on the baby (93.9%, 95% CI: 93.3–94.5), and prenatal medical tests and procedures (91.8%, 95% CI: 91.2–92.5). Younger women (15–19 years of age) and women in Nunavut consistently reported lower proportions of having enough information on each pregnancy-related topic.

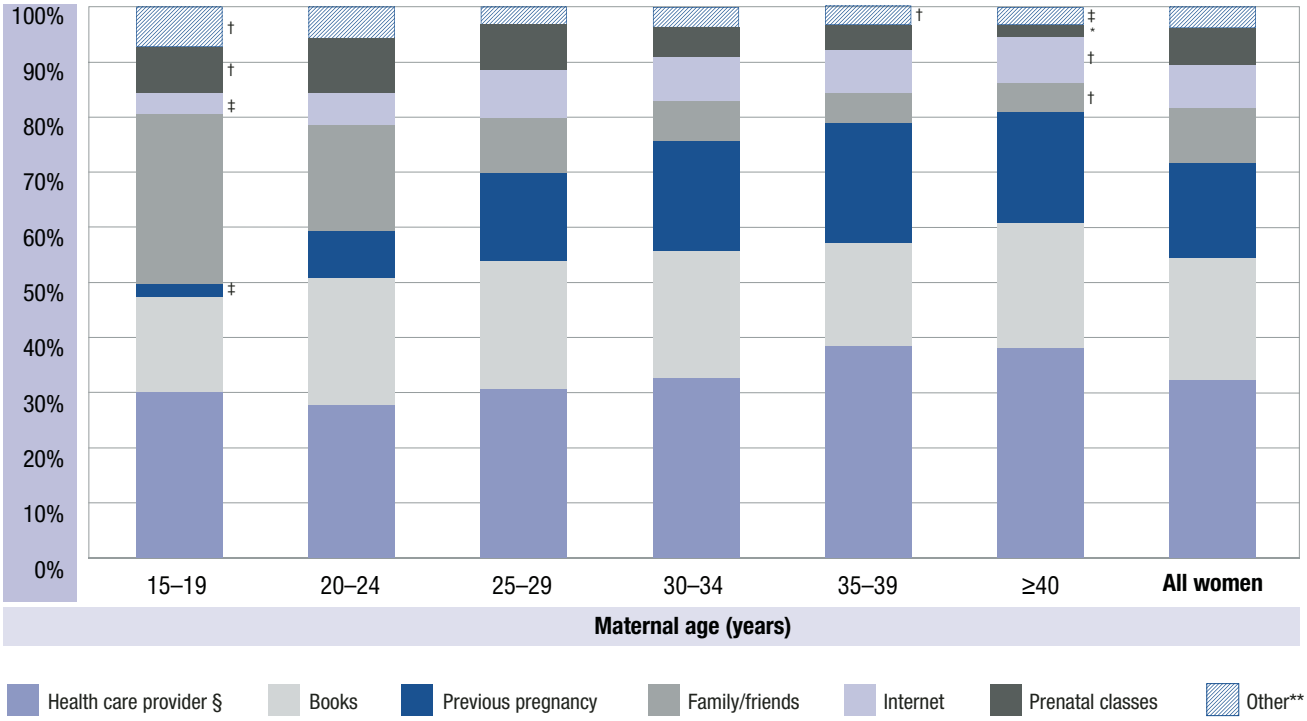
† Coefficient of variation between 16.6% and 33.3%.

Figure 5.1 **Distribution of sources of prenatal information considered by women as most useful during pregnancy, by province/territory, Canada, 2006–2007**



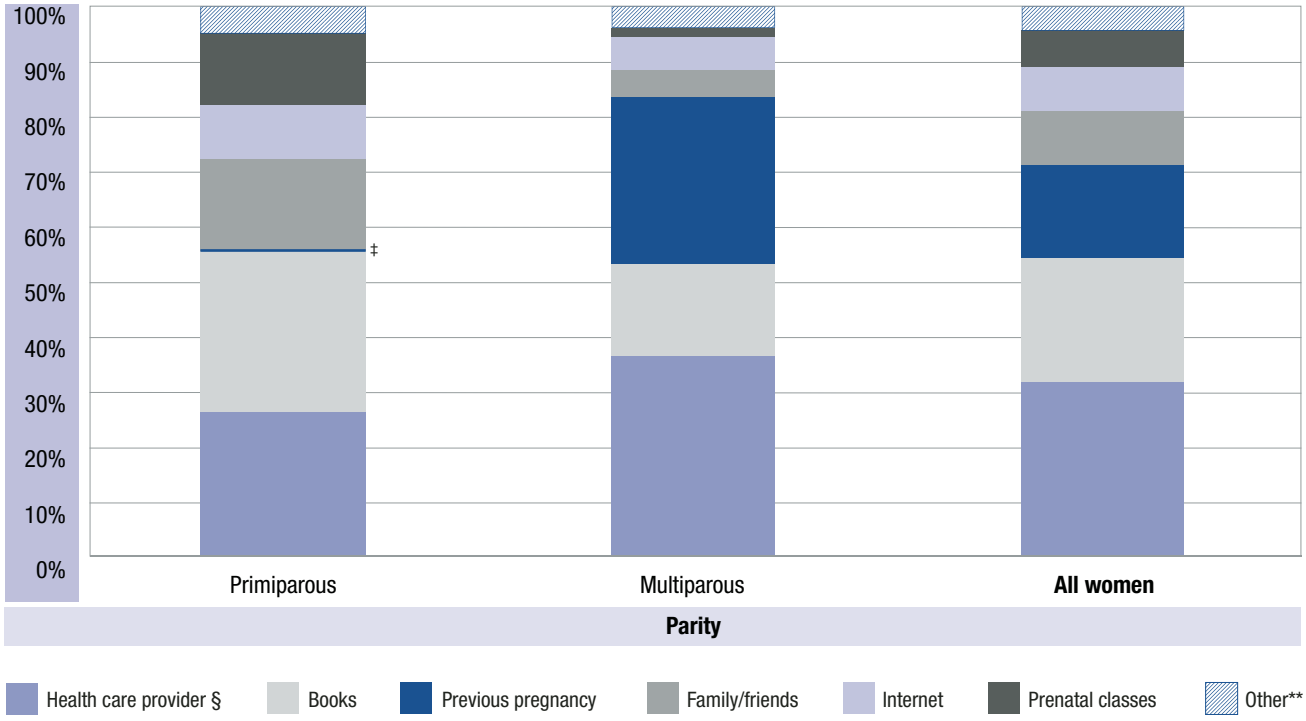
* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.
§ Obstetrician/gynecologist, family doctor/general practitioner, midwife and nurse/nurse practitioner.
** Includes doula.

Figure 5.2 **Distribution of sources of prenatal information considered by women as most useful during pregnancy, by maternal age, Canada, 2006–2007**



* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.
§ Obstetrician/gynecologist, family doctor/general practitioner, midwife and nurse/nurse practitioner.
** Includes doula.

Figure 5.3 **Distribution of sources of prenatal information considered by women as most useful during pregnancy, by parity, Canada, 2006–2007**



‡ Coefficient of variation >33.3%.
§ Obstetrician/gynecologist, family doctor/general practitioner, midwife and nurse/nurse practitioner.
** Includes doula.

Summary

Women reported their most useful sources of pregnancy-related information to be their health care provider (32.2%), books (22.3%) or their previous pregnancy (17.1%). The sources of information that women found most useful varied by age, parity and region, with younger mothers (15–19 years) reporting family or friends and their health care provider as most useful, older women preferring their health care provider and books, and multiparous women learning most from their health care provider and previous experience. Most women reported having received enough information about pregnancy-related topics, but this varied by region and maternal age.

Limitations

The MES did not explore variations in sources of information at different stages of pregnancy, the type of information received from different sources, the consistency of information received, or what other information women would like to receive. Also, the question was limited to asking women about the single most useful source of information. As such, sources of information that are not considered to be highly useful by women may represent information sources that are

poorly accessed, rather than sources that do not provide relevant information. It is unclear whether differences in most useful sources of information across the provinces and territories are related to availability of information sources.

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Question numbers: SI_Q01–Q11

6 Folic Acid Supplementation

Janusz Kaczorowski, Lily Lee

Introduction

Folic acid is the synthetic form of folate, a B vitamin found naturally in food. Folate and folic acid are considered to influence the normal structural development of the embryo, particularly in the early weeks of pregnancy.[1] Current evidence indicates that adequate folic acid supplementation combined with a healthy diet during the periconceptional period (the time just before and just after a woman becomes pregnant) substantially reduces the risk of congenital anomalies, particularly neural tube defects (NTDs).[2,3] NTDs are abnormalities of the spine and brain resulting from failure of neural tube closure within one month of conception. The most common of these NTDs are spina bifida, anencephaly and encephalocele.[1,3,4] A systematic review found that, compared with placebo, supplementation with folic acid in the periconceptional period significantly reduced the prevalence of NTDs.[3]

In response to this evidence, in 1998 the Government of Canada required that white flour, enriched pasta and cornmeal be fortified with folic acid.[5] A recent study conducted in seven Canadian provinces showed a 46% reduction in the prevalence rate of NTDs, decreasing from 1.58 per 1,000 births before fortification (1993–1997) to 0.86 per 1,000 births during the full-fortification period (1998–2002).[6] In addition, the Public Health Agency of Canada and Health Canada recommend that all women who could become pregnant take a daily multivitamin containing 0.4 mg of folic acid.[1] Women who are at an increased risk of having an NTD-affected baby, such as women with a previous NTD-affected pregnancy; those with a near relative who has an NTD; women taking certain anti-epileptic drugs; obese women; and women with poorly controlled diabetes are advised to consult their doctor before planning a pregnancy, as a higher dose of folic acid may be recommended.[1,7]

The 2005 Canadian Community Health Survey reported that 57.8% of women 15 to 55 years of age who had given birth in the preceding five years took vitamin supplements containing folic acid before their last pregnancy.[7,8]

The MES asked women if, in the three months prior to becoming pregnant, they had taken multivitamins containing folic acid or folic acid supplements, and if so, whether they were taken daily. The same two questions were asked about folic acid supplementation during the first three months of pregnancy. Women were also asked whether prior to their pregnancy they knew that taking folic acid before pregnancy could help prevent some birth defects.

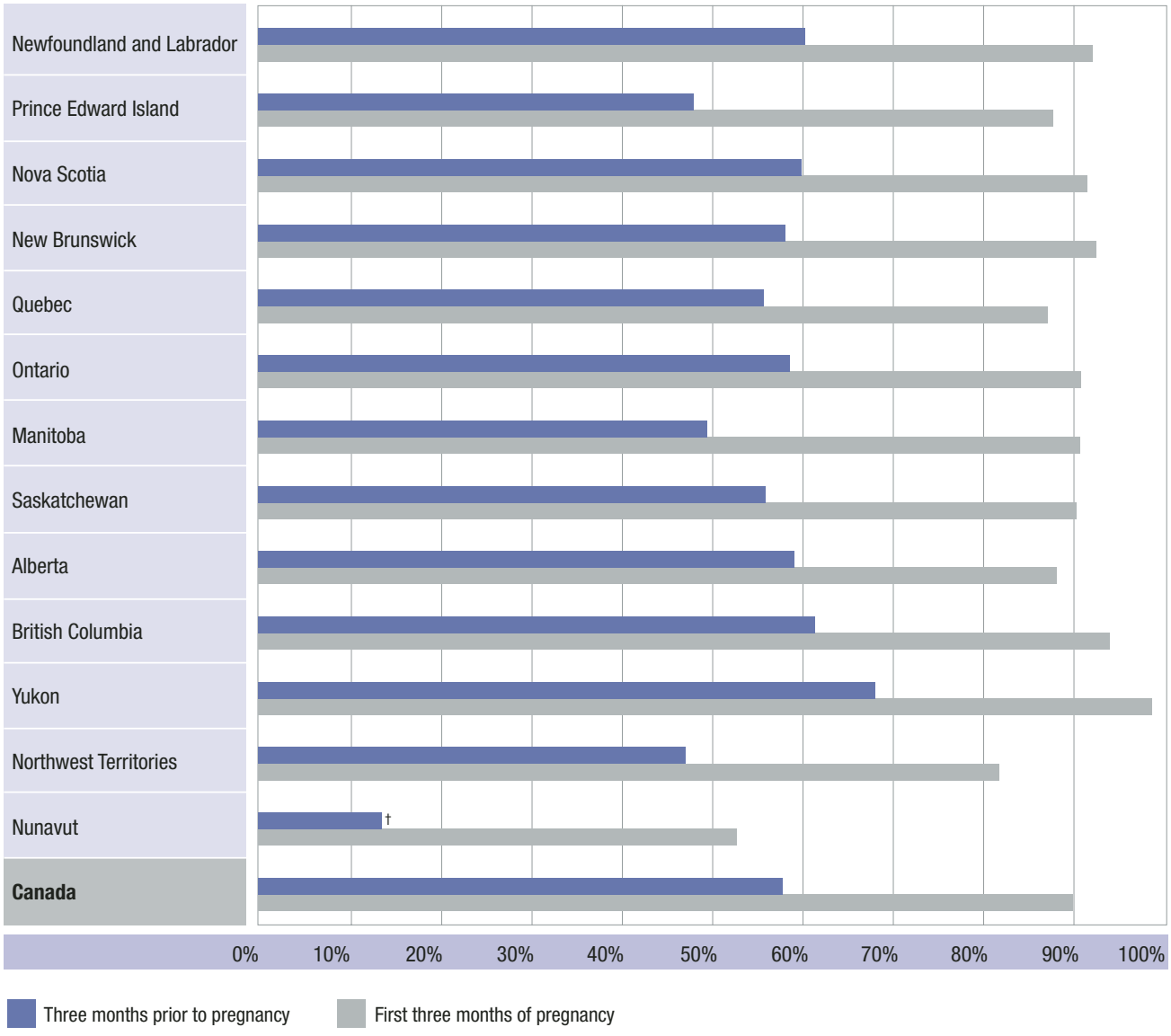
Results

- Overall, 57.7% (95% CI: 56.4–59.0) of women indicated that they were taking multivitamins containing folic acid or folic acid supplements in the three months prior to becoming pregnant. This proportion ranged from 67.9% (95% CI: 62.2–73.5) in Yukon and 61.3% (95% CI: 57.5–65.1) in British Columbia to 47.9% (95% CI: 43.8–52.1) in Prince Edward Island and 13.6%† (95% CI: 8.5–18.8) in Nunavut (Figure 6.1).
- Pre-pregnancy supplementation increased with maternal age. Nineteen percent (19.3%, 95% CI: 14.4–24.2) of women under 20 years of age reported taking supplements compared with 67.0% (95% CI: 63.8–70.3) of women aged 35–39 years.
- Women with lower levels of education and women living in households at or below the low income cut-off were less likely to report pre-pregnancy supplementation than were women with higher levels of education or women living in households above the low income cut-off.
- Among women who were taking supplements before becoming pregnant, 90.0% (95% CI: 89.1–91.0) reported taking them daily. Women aged 15–19 years (76.6%, 95% CI: 64.5–88.7), multiparous women (87.5%, 95% CI: 86.0–89.0), women with less than high school or high school education (84.8%, 95% CI: 78.7–90.9 and 87.5%, 95% CI: 84.6–90.4, respectively) and women living in a household at or below the low income cut-off (83.5%, 95% CI: 79.6–87.3) were less likely to report taking supplements daily.
- Overall, the proportion of supplementation during the first three months of pregnancy was 89.7% (95% CI: 88.9–90.5), ranging from 98.4% (95% CI: 97.0–99.9) in Yukon and 93.8% (95% CI: 92.0–95.6) in British Columbia to 86.9% (95% CI: 85.1–88.8) in Quebec and 52.7% (95% CI: 44.8–60.6) in Nunavut (Figure 6.1). The proportion of women taking supplements during the first three months of pregnancy increased with maternal age and level of education; it was slightly higher for primiparous women (91.6%, 95% CI: 90.5–92.6) than for multiparous women (88.2%, 95% CI: 87.1–89.4). Women living in a household at or below the low income cut-off were less likely to report taking supplements (81.0%, 95% CI: 78.6–83.3) than women who were above the low income cut-off (92.5%, 95% CI: 91.7–93.3).
- Among women who were taking supplements during the first three months of pregnancy, 92.2% (95% CI: 91.5–92.9) reported taking them daily; which is similar to the pre-pregnancy proportions. Younger women (15–19 years), women from Nunavut, women with less than high school education and multiparous women reported lower proportions of daily intake than their older counterparts, women residing elsewhere in Canada, women with higher levels of education and primiparous women.
- Overall, 77.6% (95% CI: 76.6–78.7) of women indicated that they knew before becoming pregnant that folic acid supplementation prior to pregnancy could help prevent some birth defects. Women under 24 years of age, women from the Northwest Territories and Nunavut (Figure 6.2), primiparous women, women with lower levels of education (Figure 6.3) and women living in a household at or below the low income cut-off reported lower levels of awareness.

- Awareness of the benefits of folic acid was associated with increased use of supplements both before and during the pregnancy. Among women who knew before their pregnancy that pre-pregnancy folic acid supplementation could help prevent some birth defects, 68.8% (95% CI: 67.5–70.1) took it during the pre-pregnancy period and 92.5% (95% CI: 91.7–93.2) during the first three months of pregnancy, compared with 17.8% (95% CI: 15.6–19.9) and 77.0% (95% CI: 74.7–79.2), respectively, among women who were not aware of the potential benefits (Figure 6.4).

† Coefficient of variation between 16.6% and 33.3%.

Figure 6.1 **Proportion of women who took folic acid supplements three months prior to pregnancy and the first three months of pregnancy, by province/territory, Canada, 2006–2007**



† Coefficient of variation between 16.6% and 33.3%.

Figure 6.2 **Proportion of women with pre-pregnancy knowledge that folic acid supplementation prior to pregnancy can help prevent some birth defects, by province/territory, Canada, 2006–2007**

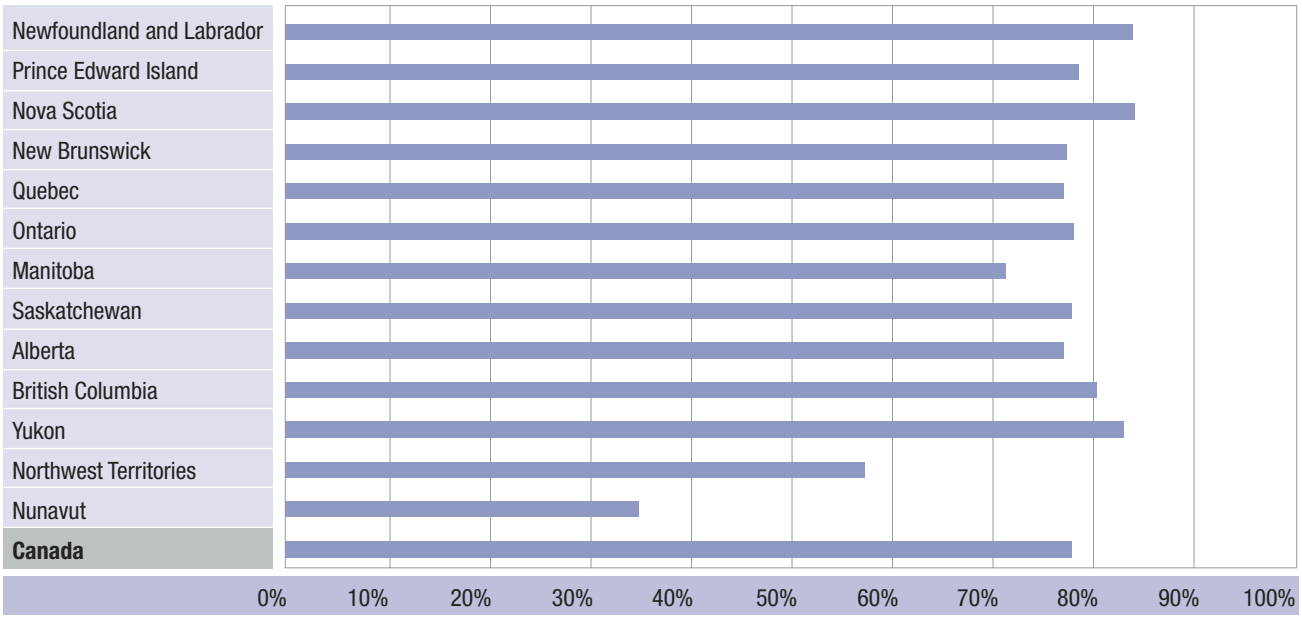


Figure 6.3 **Proportion of women with pre-pregnancy knowledge that folic acid supplementation prior to pregnancy can help prevent some birth defects, by maternal education, Canada, 2006–2007**

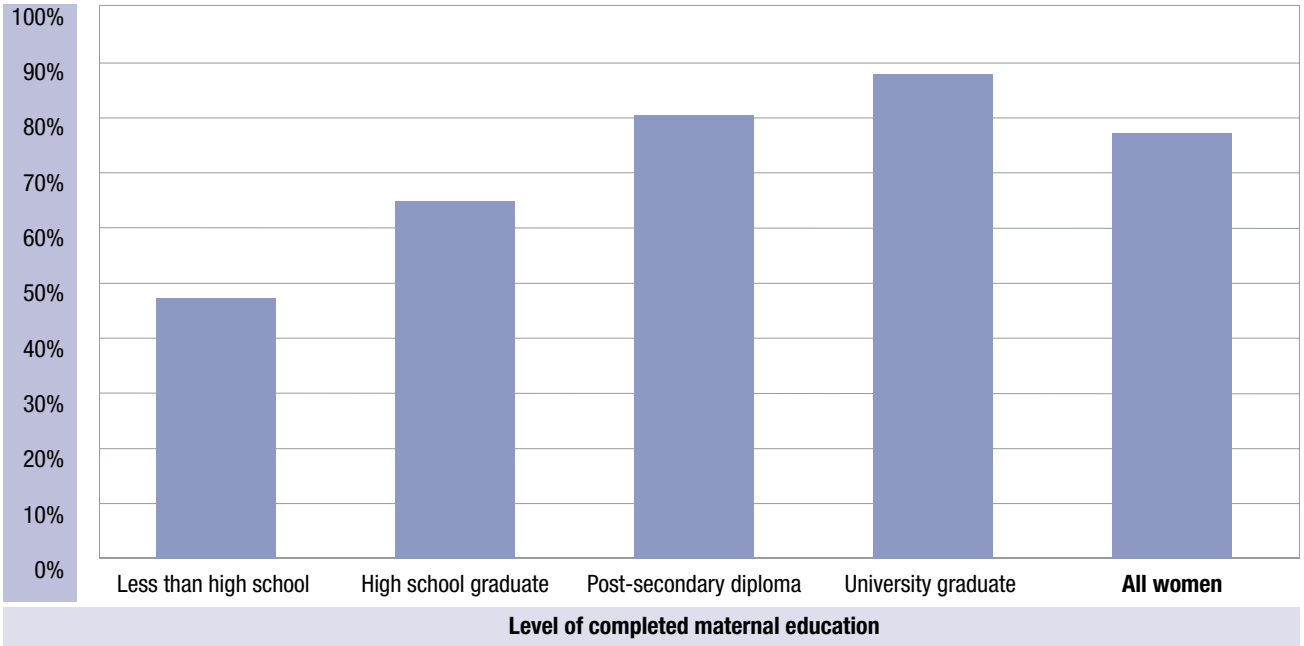
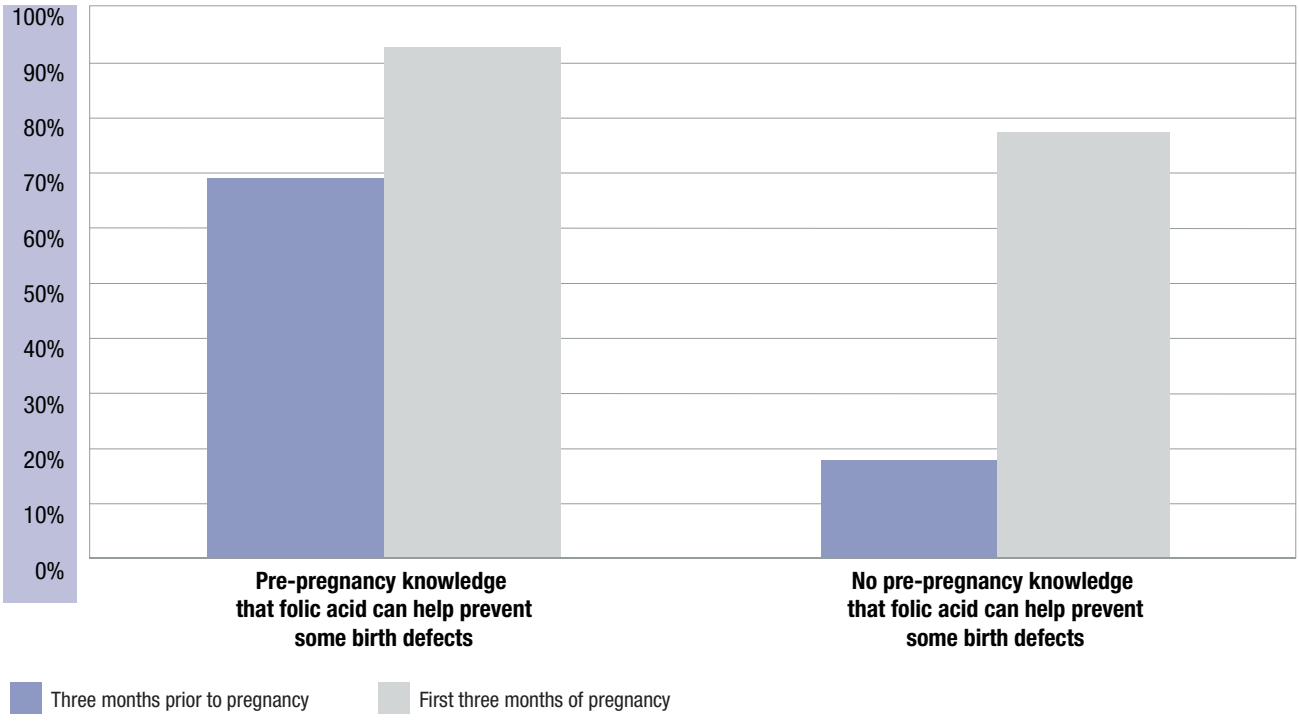


Figure 6.4 **Proportion of women taking folic acid supplements, by pre-pregnancy knowledge, Canada, 2006–2007**



Summary

The proportion of women taking folic acid supplements was 57.7% in the three months before pregnancy and 89.7% during the first three months of pregnancy. Prior to becoming pregnant, 77.6% of women were aware that taking folic acid prior to pregnancy could help prevent some birth defects. Increased pre-pregnancy awareness was associated with increased use of supplements both before and during the pregnancy. Younger women, primiparous women, women with lower levels of education and women living in a household at or below the low income cut-off were more likely to be unaware prior to pregnancy of the benefits of folic acid. There was considerable variation among the provinces and territories regarding the level of awareness.

Limitations

These data are based on self-reports and therefore might under- or overestimate the actual proportions of folic acid supplementation and daily intake both before and during pregnancy.

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Question numbers: CB_Q06–Q08

7 Prenatal Ultrasound

Beverley Chalmers, David Young

Introduction

Ultrasound may be used to determine fetal life, the presence of malformations, the size and growth of the fetus and gestational age, as well as to confirm multiple pregnancy and placental localization, and to assess amniotic fluid volume. Ultrasound is often used for ongoing fetal health surveillance (i.e., biophysical profile, Doppler blood flow).[1] An ultrasound between 10 and 14 weeks' gestation may be offered in a screening program for fetal aneuploidy,[2] lowering the possibility of false positive results and the consequent risk of raising unnecessary concerns.[3]

The value of routine obstetric ultrasound during pregnancy, rather than ultrasound on indication, has not been clearly determined.[4] Routine ultrasound leads to fewer inductions of labour for post-term pregnancy and fewer undiagnosed twins at 26 weeks. However, neither of these effects results in improved fetal outcome.[4] Trials of selective versus routine ultrasound in late pregnancy suggest an increased incidence of prenatal hospitalization and induction of labour in women with routine ultrasound, with no improvement in perinatal outcome.[4]

Fetal ultrasound for non-medical indications such as on maternal request and for the mother's or family's entertainment is becoming more common and accessible. Although no fetal or maternal abnormality has been conclusively linked to diagnostic ultrasound, it does involve an energy exposure that has a biologic effect and theoretical risk.[5] Professional and regulatory bodies recommend a complete ban on non-medical use of fetal ultrasound.[6]

For a normal pregnancy, guidelines in Canada support a single ultrasound to be offered at 18 to 19 weeks in conjunction with a discussion of its benefits, limitations and safety.[7–9] The World Health Organization recommends ultrasound on indication only, or one at about 18 weeks.[10] A recognized indication for pregnancy ultrasound may arise in any trimester.

The MES asked women how many ultrasounds they had. Women were also asked the gestational age at the first ultrasound.

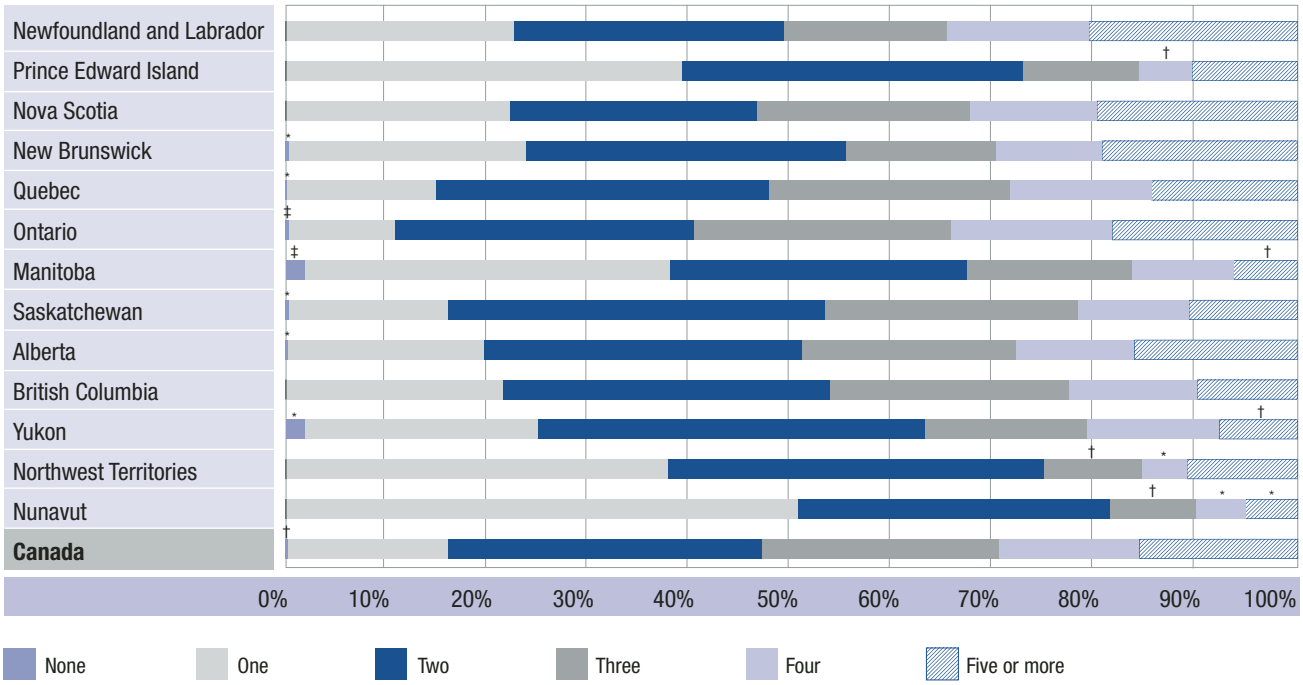
Note: Although the recommendations for first ultrasound are 18 to 19 weeks, the calculations for this section were based on 18 to 20 weeks to allow for conversion of women's responses in months to weeks, and to accommodate possible digit preference by mothers.

Results

- On average, women reported 3.1 (95% CI: 3.1–3.2) ultrasounds during pregnancy; 15.8% (95% CI: 15.0–16.7) experienced one, 31.1% (95% CI: 29.9–32.3) had two, 23.4% (95% CI: 22.3–24.5) had three, 13.9% (95% CI: 13.0–14.8) had four and 15.5% (95% CI: 14.6–16.4) had five or more. Very few women had no ultrasounds (0.2%†, 95% CI: 0.1–0.4) (Figure 7.1).
- There were wide variations in the number of ultrasounds women received across Canada. The proportions of women having one ultrasound ranged from 50.6% (95% CI: 43.1–58.2) in Nunavut and 39.1% (95% CI: 35.0–43.3) in Prince Edward Island to 14.7% (95% CI: 12.7–16.6) in Quebec and 10.4% (95% CI: 9.0–11.7) in Ontario. Three ultrasounds were reported by 25.5% (95% CI: 23.6–27.3) of women in Ontario, 25.0% (95% CI: 20.8–29.1) in Saskatchewan, 23.8% (95% CI: 21.4–26.2) in Quebec and 23.6% (95% CI: 20.5–26.7) in British Columbia. Approximately one in five women in Newfoundland and Labrador (20.5%, 95% CI: 16.3–24.7), Nova Scotia (19.8%, 95% CI: 16.2–23.5) and New Brunswick (19.2%, 95% CI: 15.3–23.1) had five or more ultrasounds during pregnancy (Figure 7.1).
- On average, women had their first ultrasound at 14.1 (95% CI: 13.9–14.2) weeks' gestation. Almost a quarter of women (22.8%, 95% CI: 21.7–23.9) had their first ultrasound prior to 10 weeks of pregnancy.
- The proportion of women reporting their first ultrasound prior to 18 weeks was 66.8% (95% CI: 65.6–68.0). Peaks occurred at 12 weeks (17.1%, 95% CI: 16.1–18.1) and 20 weeks (12.0%, 95% CI: 11.1–12.8) with 7.5% (95% CI: 6.8–8.2) of women reporting that they had their first ultrasound after 20 weeks (Figure 7.2).
- First ultrasounds prior to 18 weeks were reported by 77.0% (95% CI: 75.1–78.9) of women in Ontario and 70.2% (95% CI: 65.6–74.8) in Saskatchewan (Figure 7.3).
- Overall, 25.7% (95% CI: 24.6–26.8) of women reported having their first ultrasound at 18 to 20 weeks. This proportion was 50.5% (95% CI: 44.8–56.2) in the Northwest Territories and 43.7% (95% CI: 39.3–48.1) in Prince Edward Island (Figure 7.3).
- Primiparous women were more likely to have their first ultrasound before 18 weeks' gestation (70.3%, 95% CI: 68.7–72.0) than were multiparous women (63.9%, 95% CI: 62.2–65.6).

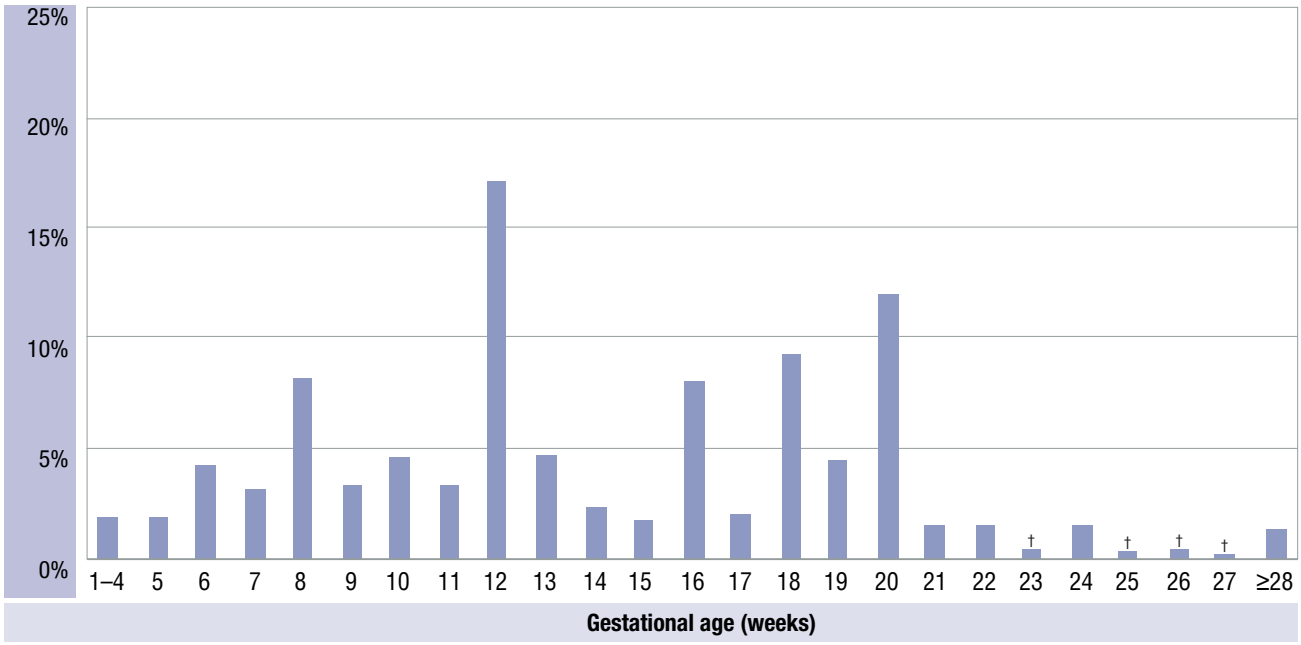
† Coefficient of variation between 16.6% and 33.3%.

Figure 7.1 **Distribution of number of prenatal ultrasounds, by province/territory, Canada, 2006–2007**



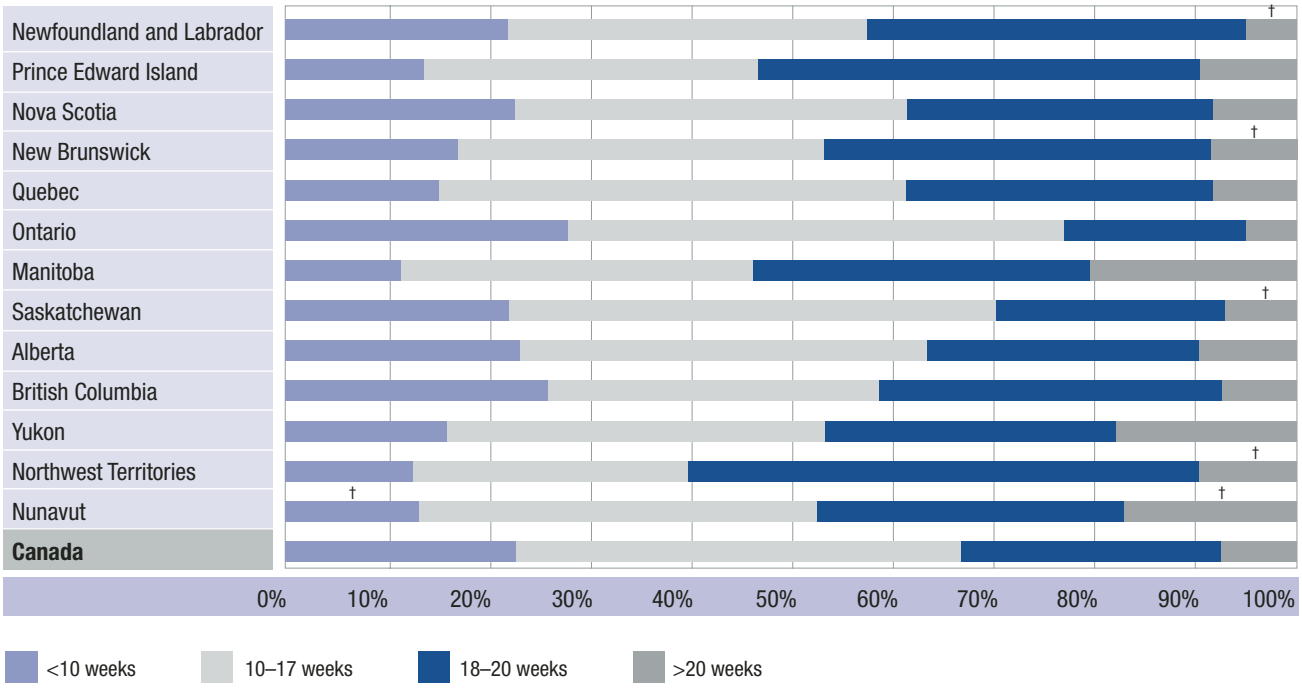
* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.

Figure 7.2 **Distribution of timing of first prenatal ultrasound, by week of gestation, Canada, 2006–2007**



† Coefficient of variation between 16.6% and 33.3%.

Figure 7.3 **Distribution of timing of first prenatal ultrasound, by province/territory, Canada, 2006–2007**



† Coefficient of variation between 16.6% and 33.3%.

Summary

Almost all women (99.8%) reported having at least one prenatal ultrasound, with an average of three ultrasounds per woman. The proportion of women who had more than one prenatal ultrasound was 84.2%. On average, the first ultrasound occurred at approximately 14 weeks, with 66.8% of women having their first ultrasound prior to 18 weeks. There were wide variations in the number of ultrasounds that women received across Canada.

Limitations

The MES did not explore women's perceptions of their experience of ultrasound or their preferences regarding the number or timing of them. With respect to timing of ultrasound, some women provided their responses in months, which were then converted to weeks. This may have contributed to some of the peaks observed. Since the MES asked women only about the timing of their first ultrasound, the overall frequency of the recommended 18- to 19-week ultrasound cannot be evaluated. The MES did not ask about reasons for the ultrasounds. The reasons for having more than one ultrasound may be medical (including fetal health surveillance) or non-medical.

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Question numbers: PT_Q01–Q03

8 HIV Testing

Patricia O'Campo, Janusz Kaczorowski

Introduction

HIV infection among women in Canada, including women of childbearing age, continues to rise. Heterosexual contact is the leading method of transmission for HIV infection among women.[1] Infants can acquire HIV infection from their mothers during the pregnancy or delivery or through breastfeeding.

As a result of the rise in HIV infection among women of childbearing age, fetal exposure to HIV during pregnancy has also been on the rise in Canada.[1] Antiretroviral treatment during pregnancy and/or labour reduces the likelihood of vertical HIV transmission from mother to infant from 15%–30% to 1%–2%.[2,3] Thus, screening pregnant women for HIV represents an important opportunity for prevention of perinatal transmission. Routine HIV screening has been found to be cost-effective even in low-prevalence settings.[4,5]

Prenatal HIV testing is offered to all pregnant women in Canada; however, the approach to testing varies by province and territory. Regardless of the approach, HIV testing is the woman's choice and it is important that she receive proper information on which to base her decision. Testing approaches can be grouped into "opt-in" or "opt-out" categories. "Opt-in" programs give all women prenatal HIV counselling and explicitly offer the opportunity to take the test; only those who agree will receive HIV testing. Canadian provinces and territories with opt-in strategies are: Prince Edward Island, Nova Scotia, Ontario, Saskatchewan, British Columbia and Yukon.[1] With "opt-out" programs, prenatal HIV testing becomes a routine part of prenatal care for all pregnant women. All women in opt-out settings receive the HIV test unless they explicitly request not to be tested. The following provinces and territories have adopted opt-out strategies: Newfoundland and Labrador, New Brunswick, Quebec, Manitoba, Alberta, the Northwest Territories and Nunavut.[1] Although neither approach has perfect adherence, studies suggest that opt-out practices yield higher rates of HIV testing.[6–8]

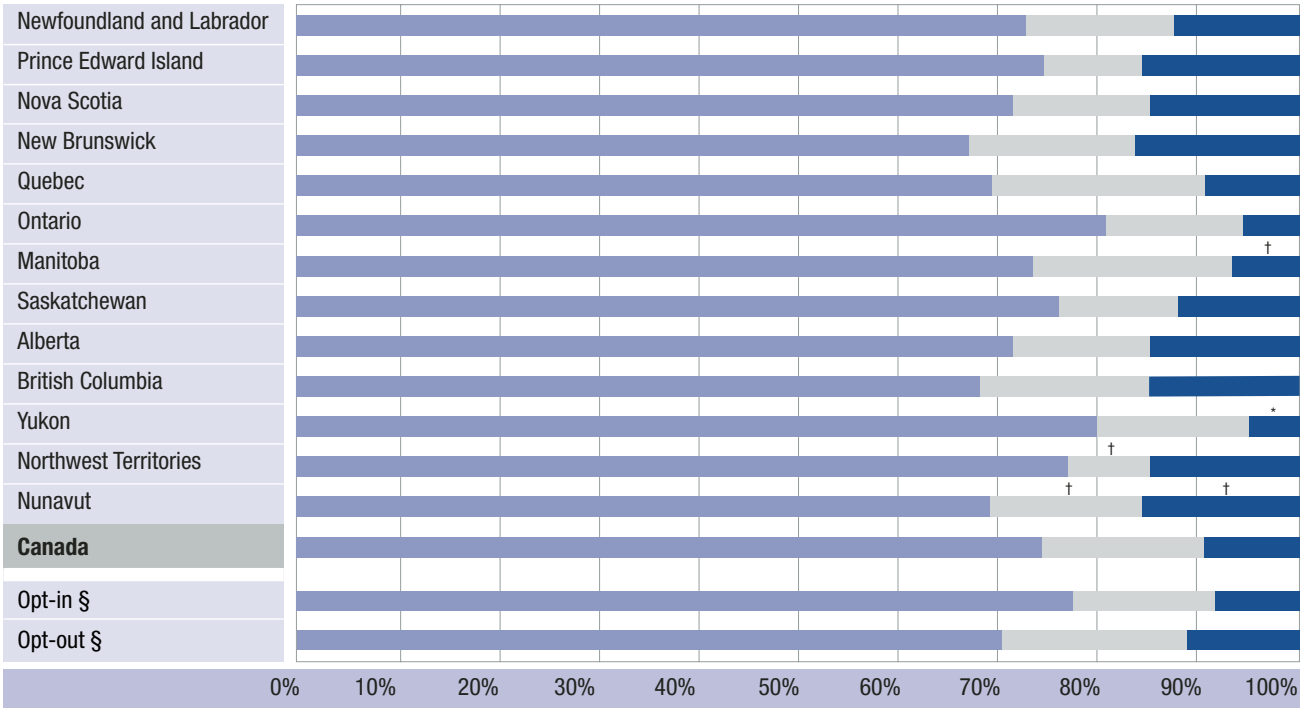
The MES asked women whether they had a blood test for HIV during pregnancy and how involved they were in deciding whether to have an HIV test during pregnancy. Women from provinces and territories with opt-in policies were grouped and compared with women from provinces and territories with opt-out policies.

Results

- Three-quarters (74.3%, 95% CI: 73.2–75.4) of women reported having a blood test for HIV during pregnancy. Another 9.6% (95% CI: 8.9–10.4) reported not knowing if they were tested for HIV during pregnancy, and 16.1% (95% CI: 15.1–17.0) reported not being tested (Figure 8.1).
- The proportion of women who reported having a blood test for HIV ranged from 80.7% (95% CI: 79.0–82.4) in Ontario and 79.8% (95% CI: 75.1–84.6) in Yukon to 68.1% (95% CI: 64.6–71.7) in British Columbia and 67.0% (95% CI: 62.2–71.8) in New Brunswick. For those women who did not know whether they were tested for HIV, the proportions ranged from 16.4% (95% CI: 12.7–20.1) in New Brunswick and 15.7%† (95% CI: 10.3–21.1) in Nunavut to 6.8%† (95% CI: 4.4–9.2) in Manitoba and 5.7% (95% CI: 4.6–6.8) in Ontario (Figure 8.1).
- In deciding whether or not to have the test, 36.7% (95% CI: 35.5–38.0) of women reported being very involved, 21.9% (95% CI: 20.8–23.0) reported being somewhat involved and 41.4% (95% CI: 40.1–42.6) reported not being involved (Figure 8.2).
- The proportion of women who reported being very involved in the decision to have the test ranged from 63.0% (95% CI: 57.0–69.0) in Yukon and 44.7% (95% CI: 38.4–50.9) in the Northwest Territories to 31.5% (95% CI: 26.6–36.5) in Newfoundland and Labrador and 29.5% (95% CI: 26.9–32.0) in Quebec (Figure 8.2).
- Grouped together, 77.4% (95% CI: 76.0–78.8) of women who resided in opt-in provinces and territories reported having an HIV test compared with 70.3% (95% CI: 68.5–72.0) of women who resided in opt-out provinces and territories. A larger proportion of women in the opt-out provinces and territories (11.2%, 95% CI: 10.0–12.5) did not know if they had an HIV test compared with those in the opt-in provinces and territories (8.4%, 95% CI: 7.5–9.4) (Figure 8.1).
- Women residing in opt-out provinces and territories reported higher proportions of not being involved in the decision to have an HIV test (44.4%, 95% CI: 42.5–46.4) compared with those in the opt-in provinces or territories (39.1%, 95% CI: 37.3–40.8) (Figure 8.2).
- Women living in a household at or below the low income cut-off had a higher proportion of HIV testing compared with those living in a household above the low income cut-off: 79.7% (95% CI: 77.4–82.1) and 73.1% (95% CI: 71.8–74.5), respectively.
- Proportions of women receiving an HIV test and involvement in decision making varied by maternal age. Women aged 15–19 years had the highest proportion of testing: 80.8% (95% CI: 76.2–85.4) compared with the lowest proportion of testing of 73.0% (95% CI: 70.0–76.1) for women aged 35–39 years (Figure 8.3). The proportion of women who reported that they were not involved in the decision to have an HIV test ranged from 42.9% (95% CI: 39.2–46.5) for those aged 35–39 years and 42.8% (95% CI: 34.5–51.1) for those aged 40 years and older to 34.9% (95% CI: 28.8–40.9) for those aged 15–19 years (Figure 8.4).

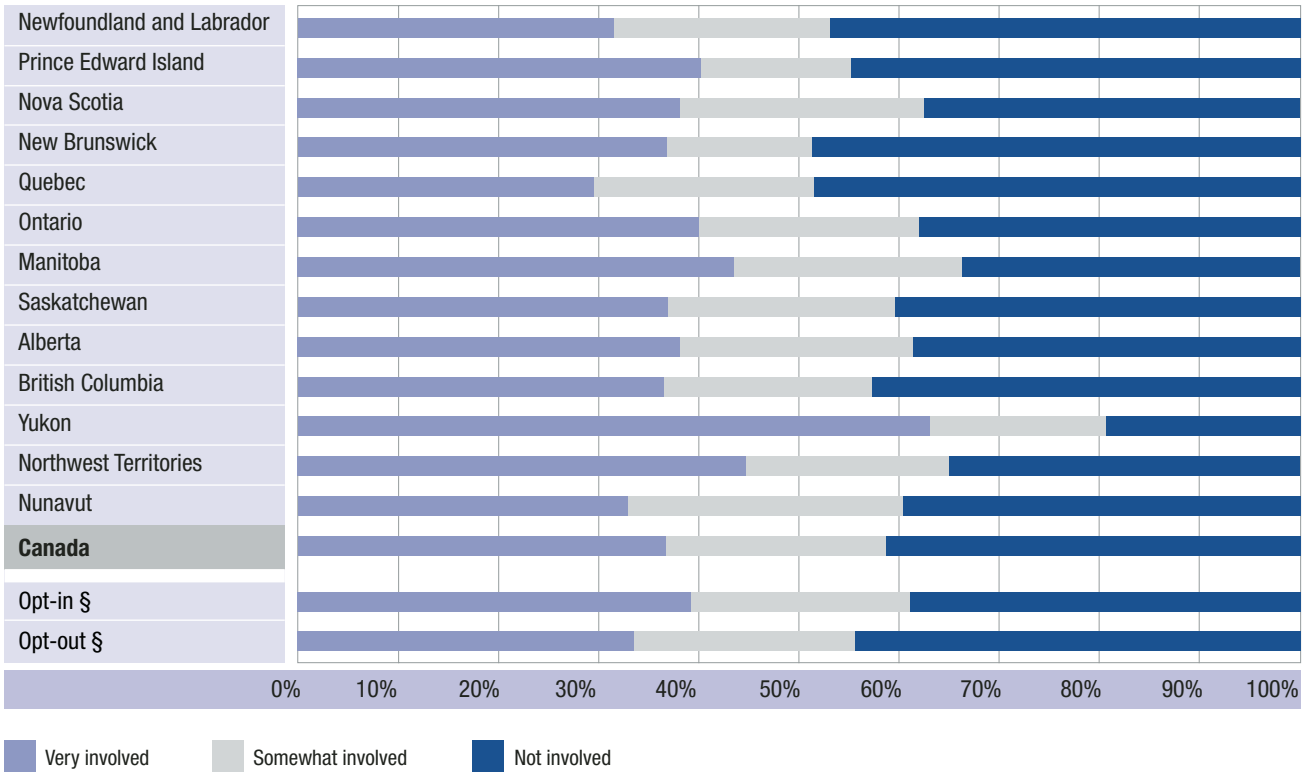
† Coefficient of variation between 16.6% and 33.3%.

Figure 8.1 **Proportion of women who reported receiving a blood test for HIV, by province/territory and opt-in or opt-out approach, Canada, 2006–2007**



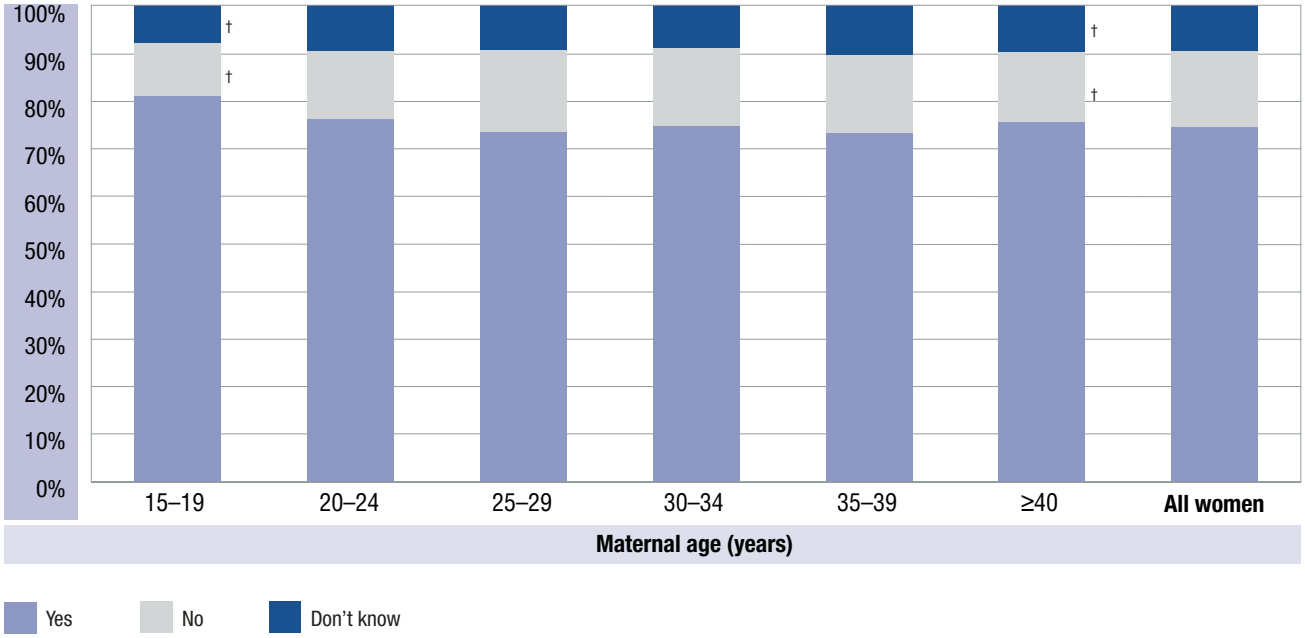
* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
§ Opt-in provinces and territories: Prince Edward Island, Nova Scotia, Ontario, Saskatchewan, British Columbia and Yukon.
Opt-out provinces and territories: Newfoundland and Labrador, New Brunswick, Quebec, Manitoba, Alberta, Northwest Territories and Nunavut.

Figure 8.2 **Distribution of women's level of involvement in decision making about HIV testing, by province/ territory and opt-in or opt-out approach, Canada, 2006–2007**



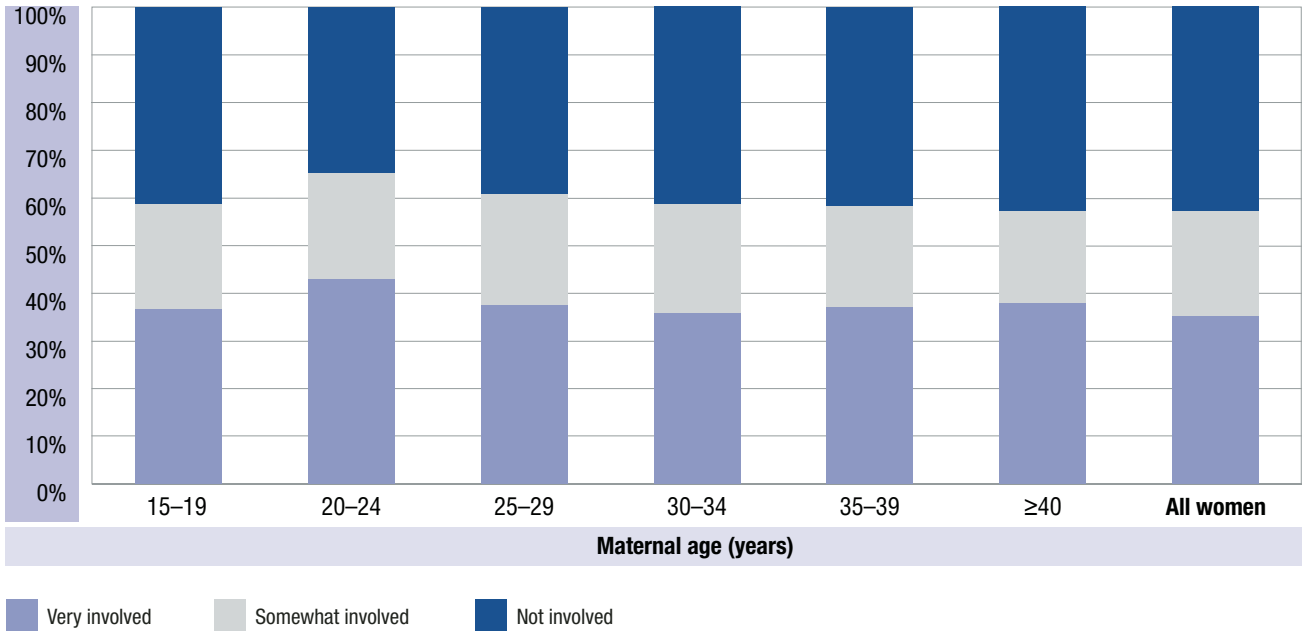
§ Opt-in provinces and territories: Prince Edward Island, Nova Scotia, Ontario, Saskatchewan, British Columbia and Yukon.
Opt-out provinces and territories: Newfoundland and Labrador, New Brunswick, Quebec, Manitoba, Alberta, Northwest Territories and Nunavut.

Figure 8.3 **Proportion of women who reported receiving a blood test for HIV, by maternal age, Canada, 2006–2007**



† Coefficient of variation between 16.6% and 33.3%.

Figure 8.4 **Distribution of women's level of involvement in decision making about HIV testing, by maternal age, Canada, 2006–2007**



Summary

Overall, approximately three-quarters (74.3%) of women reported having a blood test for HIV during their pregnancy: 77.4% of women in opt-in provinces and territories, and 70.3% of those in opt-out provinces and territories. A larger proportion of women in the opt-out provinces and territories (11.2%) did not know if they had an HIV test compared with those in the opt-in provinces/territories (8.4%). Women residing in opt-out provinces and territories reported higher proportions of not being involved in the decision to have an HIV test (44.4%) compared with those in the opt-in provinces or territories (39.1%). Women living in a household at or below the low income cut-off were more likely to report having an HIV test.

Limitations

Data should be interpreted with caution because self-reports of HIV testing during pregnancy have been shown in validity studies to be a poor proxy for actual testing.[9,10] However, the reports by women regarding their involvement in decision making are more likely to be accurate.

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Question numbers: PT_Q04–Q05

9 Maternal Body Mass Index and Weight Gain During Pregnancy

Sharon Bartholomew, Maureen Heaman

Introduction

Body mass index (BMI) is a measurement widely used to categorize an individual's weight according to reference ranges. BMI is calculated by dividing the weight in kilograms by the square of the height in metres [BMI = weight (kg)/height (m)^2].

The table below shows four categories of BMI as defined by Health Canada[1] and the National Institutes of Health[2] and the corresponding BMI distribution of a subset of Canadian women according to self-reports of weight and height in the 2005 Canadian Community Health Survey.

Distribution of BMI (kg/m^2) category, women aged 15–55 years, Canada, 2005 §

BMI Category (kg/m^2)	Distribution (%)
Underweight: <18.5	11.8 (95% CI: 11.3–12.3)
Normal: 18.5–24.9	54.9 (95% CI: 54.2–55.7)
Overweight: 25.0–29.9	21.1 (95% CI: 20.6–21.7)
Obese: ≥30	12.1 (95% CI: 11.6–12.5)

Source: Statistics Canada. Canadian Community Health Survey, 2005.
CI: confidence interval.
§ Women with known BMI information, excluding women who were pregnant at the time of the survey.

A systematic review examining the relationship between infant outcomes and maternal weight gain found that women with low weight gain during pregnancy were at higher risk of having preterm birth and small-for-gestational-age babies, whereas those with high weight gain were at higher risk of having cesarean delivery and large-for-gestational-age babies.[3] Pre-pregnancy weight for height is an important indicator for assessing maternal nutritional status prior to conception.[4] The systematic review also provided evidence of an independent association between low pre-pregnancy BMI and a higher risk of preterm birth, and between high pre-pregnancy BMI and a higher risk of large-for-gestational-age babies and macrosomia.[3]

Health Canada[5] and the Institute of Medicine[4] in the United States recommend that the amount of weight a woman gains during her pregnancy be guided by her pre-pregnancy BMI. Those with a higher BMI prior to pregnancy are advised to gain less weight than those with a lower BMI.[4,5]

The MES asked women their height and weight before pregnancy, their pregnancy weight gain and their weight at the time of interview (five–14 months postpartum). These values were used to calculate pre-pregnancy BMI and postpartum BMI.

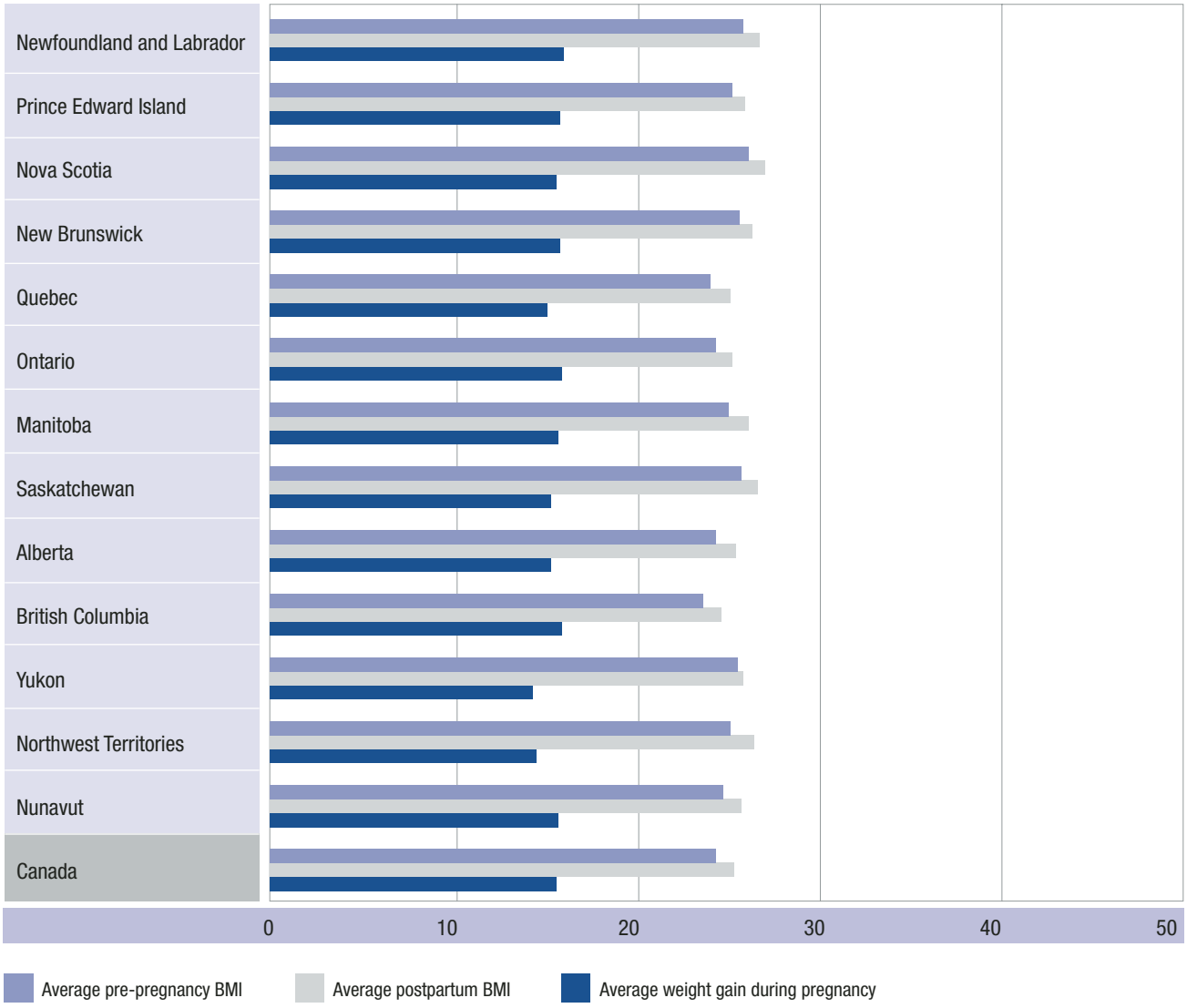
Results

- For Canada as a whole, the average pre-pregnancy BMI was 24.4 kg/m^2 (95% CI: 24.3–24.6). The average ranged from 23.7 kg/m^2 (95% CI: 23.4–24.1) in British Columbia and 24.1 kg/m^2 (95% CI: 23.9–24.4) in Quebec to 25.9 kg/m^2 (95% CI: 25.3–26.4) in Newfoundland and Labrador, and 26.2 kg/m^2 (95% CI: 25.7–26.8) in Nova Scotia (Figure 9.1).
- The average postpartum BMI was 25.4 kg/m^2 (95% CI: 25.2–25.5). These values ranged from 24.7 kg/m^2 (95% CI: 24.3–25.1) in British Columbia to 27.1 kg/m^2 (95% CI: 26.6–27.7) in Nova Scotia.
- The proportion of women with a pre-pregnancy BMI of less than 18.5 kg/m^2 (underweight) was 6.1% (95% CI: 5.5–6.7); 7.2% (95% CI: 6.2–8.2) of primiparous women had an underweight pre-pregnancy BMI compared with 5.2% (95% CI: 4.4–6.0) of multiparous women. The proportion of women with underweight BMIs at the time of the interview (five–14 months postpartum) was 3.8% (95% CI: 3.3–4.3). Among primiparous women this proportion was 4.4% (95% CI: 3.6–5.2) and among multiparous women this proportion was 3.3% (95% CI: 2.6–3.9) (Figure 9.2).
- The proportion of women with a pre-pregnancy BMI in the obese category (30 kg/m^2 or more) was 13.6% (95% CI: 12.7–14.4); 12.1% (95% CI: 10.9–13.4) of primiparous women had a pre-pregnancy BMI in the obese category compared with 14.7% (95% CI: 13.5–16.0) of multiparous women. The proportion of women with an obese BMI at the time of the interview (five–14 months postpartum) was 17.7% (95% CI: 16.7–18.7). Among primiparous women this proportion was 16.2% (95% CI: 14.8–17.6) and among multiparous women this proportion was 19.0% (95% CI: 17.6–20.4) (Figure 9.2).
- Prior to pregnancy, 12.5% (95% CI: 9.5–15.5) of women with less than a high school education had a BMI in the underweight category (less than 18.5 kg/m^2) compared with 5.2% (95% CI: 4.3–6.2) with a university education. At the time of the interview, these proportions were 5.8%[†] (95% CI: 3.7–8.0) for those with less than a high school education and 3.7% (95% CI: 2.9–4.6) for those with a university education.
- A pre-pregnancy BMI in the obese category (30 kg/m^2 or more) was reported by 17.3% (95% CI: 15.0–19.6) of those with a high school education, compared with 9.1% (95% CI: 7.9–10.3) of those with a university education. At the time of the interview the proportions of women with a BMI in the obese category ranged from 11.6% (95% CI: 10.2–13.0) of those with a university education to 23.4% (95% CI: 19.4–27.4) of those with less than a high school education.
- The average weight gain during pregnancy was 15.7 kg (95% CI: 15.5–15.9) or 34.6 pounds (95% CI: 34.1–35.0). Five percent (5.5%, 95% CI: 4.9–6.0) of women gained fewer than seven kilograms, 24.5% (95% CI: 23.4–25.6) gained between seven and 11.4 kg, 23.0% (95% CI: 21.9–24.1) gained between 11.5 and 15.9 kg, 12.0% (95% CI: 11.2–12.8) gained between 16.0 and 17.9 kg and 35.1% (95% CI: 33.8–36.4) gained 18.0 kg or more (Figure 9.3).

- Figure 9.3 shows the distribution of weight gained by pre-pregnancy BMI category. As women's pre-pregnancy BMIs increased, the amount of weight gained decreased. For women with a pre-pregnancy BMI less than 18.5 kg/m^2 (underweight), 37.2% (95% CI: 32.1–42.4) gained 18.0 kg or more, whereas 20.6% (95% CI: 17.9–23.3) of those with a pre-pregnancy BMI 30 kg/m^2 or more (obese) gained 18.0 kg or more (Figure 9.3).

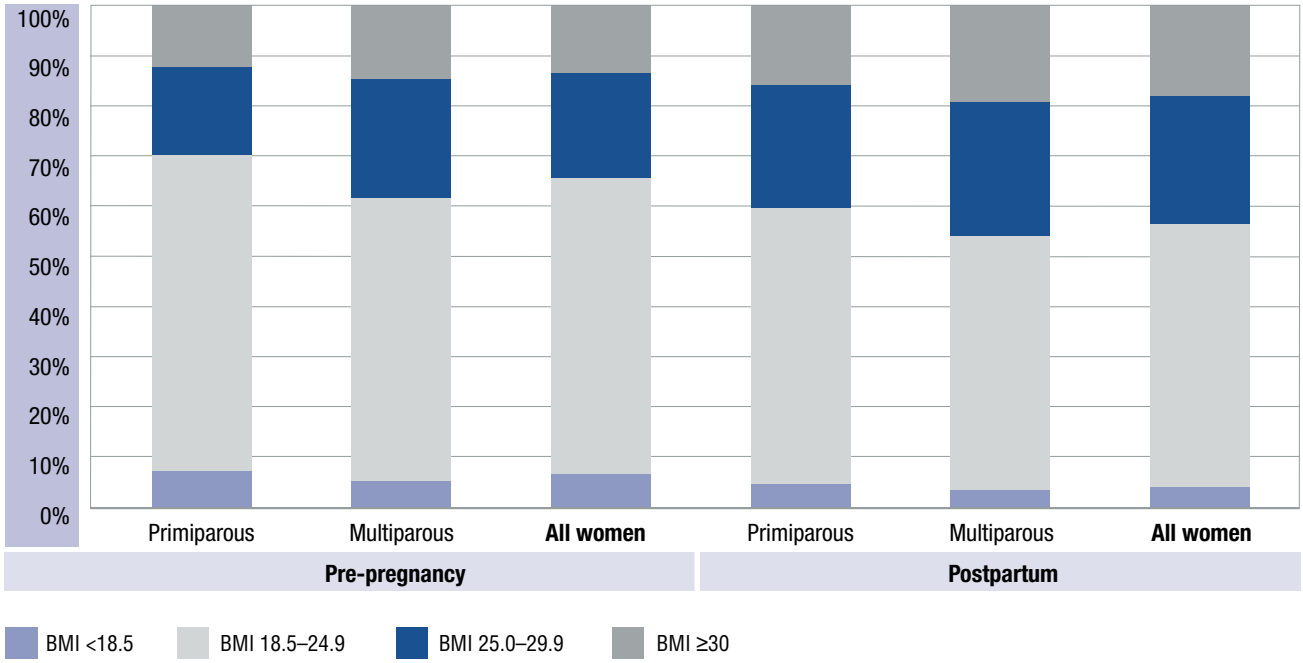
† Coefficient of variation between 16.6% and 33.3%.

Figure 9.1 **Average pre-pregnancy and postpartum BMI (kg/m^2), and average weight gain (kg) during pregnancy, by province/territory, Canada, 2006–2007 §**



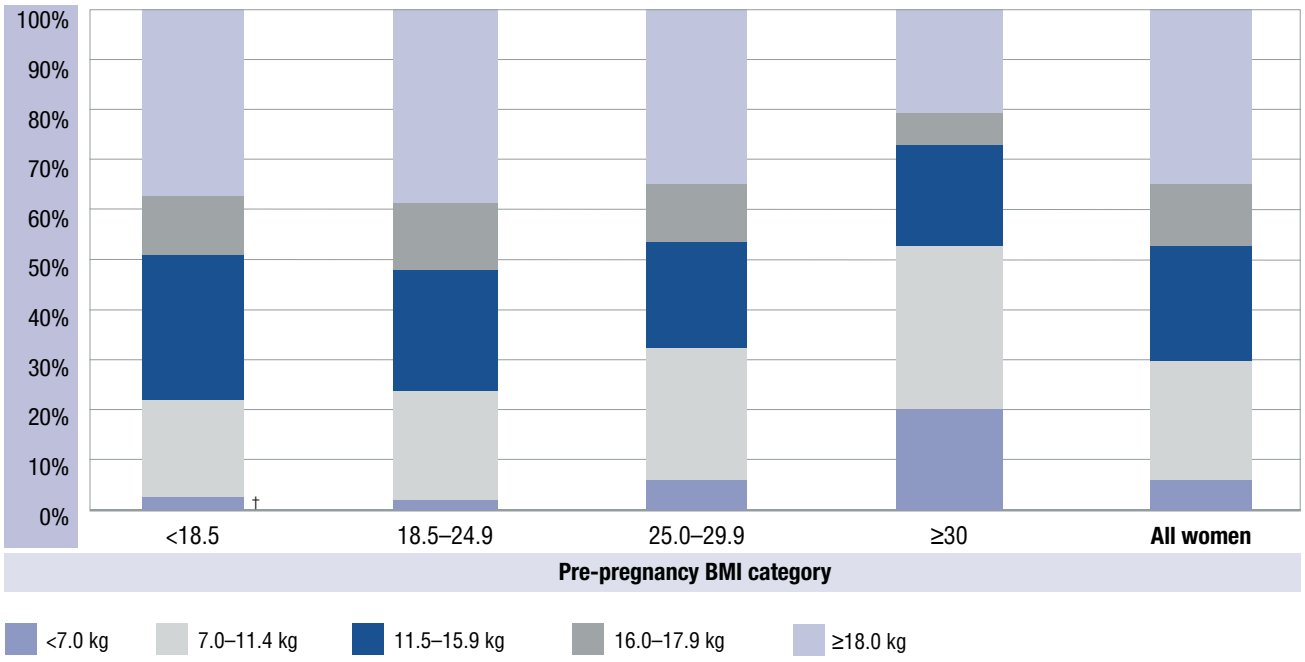
§ Postpartum refers to the time of the interview (five–14 months postpartum).

Figure 9.2 **Distribution of pre-pregnancy and postpartum BMI (kg/m²) categories, by parity, Canada, 2006–2007 §**



§ Postpartum refers to the time of the interview (five–14 months postpartum).

Figure 9.3 **Distribution of categories of weight gain (kg) during pregnancy, by pre-pregnancy BMI (kg/m²) categories, Canada, 2006–2007**



† Coefficient of variation between 16.6% and 33.3%.

Summary

Six percent (6.1%) of women were underweight before pregnancy, while 21.0% were overweight and 13.6% were obese. The average weight gain during pregnancy was 15.7 kilograms. Women who were underweight or normal weight prior to pregnancy gained the most weight on average, which is in keeping with current recommendations. In general, women's BMIs had not returned to their pre-pregnancy levels at the time of interview (five–14 months postpartum).

Limitations

Postpartum BMIs were calculated based on women's reported weight at the time of the interview, which took place from five–14 months postpartum. Thus, women with similar rates of postpartum weight loss could have different reported results depending on when they were interviewed. It has been observed that Canadians underestimate weight and overestimate height and that the extent of these differences increases as BMIs increase.[6] BMI was selected for the MES to measure health risks in relation to weight. BMI categories are established for the Canadian population as a whole; however, it is important to note that health risks at different BMIs can vary between ethnic groups.[1] Other methods of categorizing weight are available such as waist-to-hip or waist circumference; however, their relevance in relation to maternity issues is unclear. Unusually high weight gains of 45 kilograms or more were reported by 0.5% of women. Although these data may be erroneous, they were included in the analysis because their exclusion had no impact on the reported values.

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Question numbers: HW_Q01–Q04

10 Smoking

Maureen Heaman, Joan Lindsay, Janusz Kaczorowski

Introduction

Cigarette smoking is the single most important modifiable cause of adverse pregnancy outcomes.[1] Maternal cigarette smoking is causally associated with intrauterine growth restriction (IUGR), and is also related to an increased risk of preterm birth, spontaneous abortion, placental complications, stillbirth and sudden infant death syndrome.[1,2,3] Smoking is associated with an overall increased risk of infant mortality and morbidity, due in part to increases in IUGR and preterm birth. Longer-term adverse effects on children of mothers who smoked during pregnancy include respiratory illness, asthma, and neurodevelopmental and behavioural problems.[1,2,4]

The relationship between maternal smoking and adverse pregnancy outcomes is influenced by the amount and duration of smoking. Women who stop smoking before becoming pregnant or during their pregnancy are at significantly reduced risk of IUGR and preterm birth compared with women who smoke throughout pregnancy.[3]

Although smoking rates have declined in recent years, maternal smoking during pregnancy remains a public health problem. Pregnant women are more likely to quit smoking and smoke fewer cigarettes than women who are not pregnant.[1] In 2000–2001, 17.7% of women who reported giving birth in the previous five years reported smoking during their pregnancy compared with 13.4% in 2005.[5] A study conducted in Manitoba found that smoking during pregnancy was more common among women who had inadequate prenatal care, low support from others, and single marital status, as well as those of First Nations and Métis ethnicity.[6] It is important for health care providers to promote non-smoking among women in general, to target groups at particular risk, to help pregnant women who smoke to stop or reduce smoking as early as possible, and to prevent postpartum relapse among women who quit smoking during pregnancy.[6–10]

The MES asked women about their smoking behaviours prior to becoming pregnant or before realizing they were pregnant, after realizing they were pregnant, and at the time of the interview. Women were also asked about the number of cigarettes smoked per day and exposure to second-hand smoke.

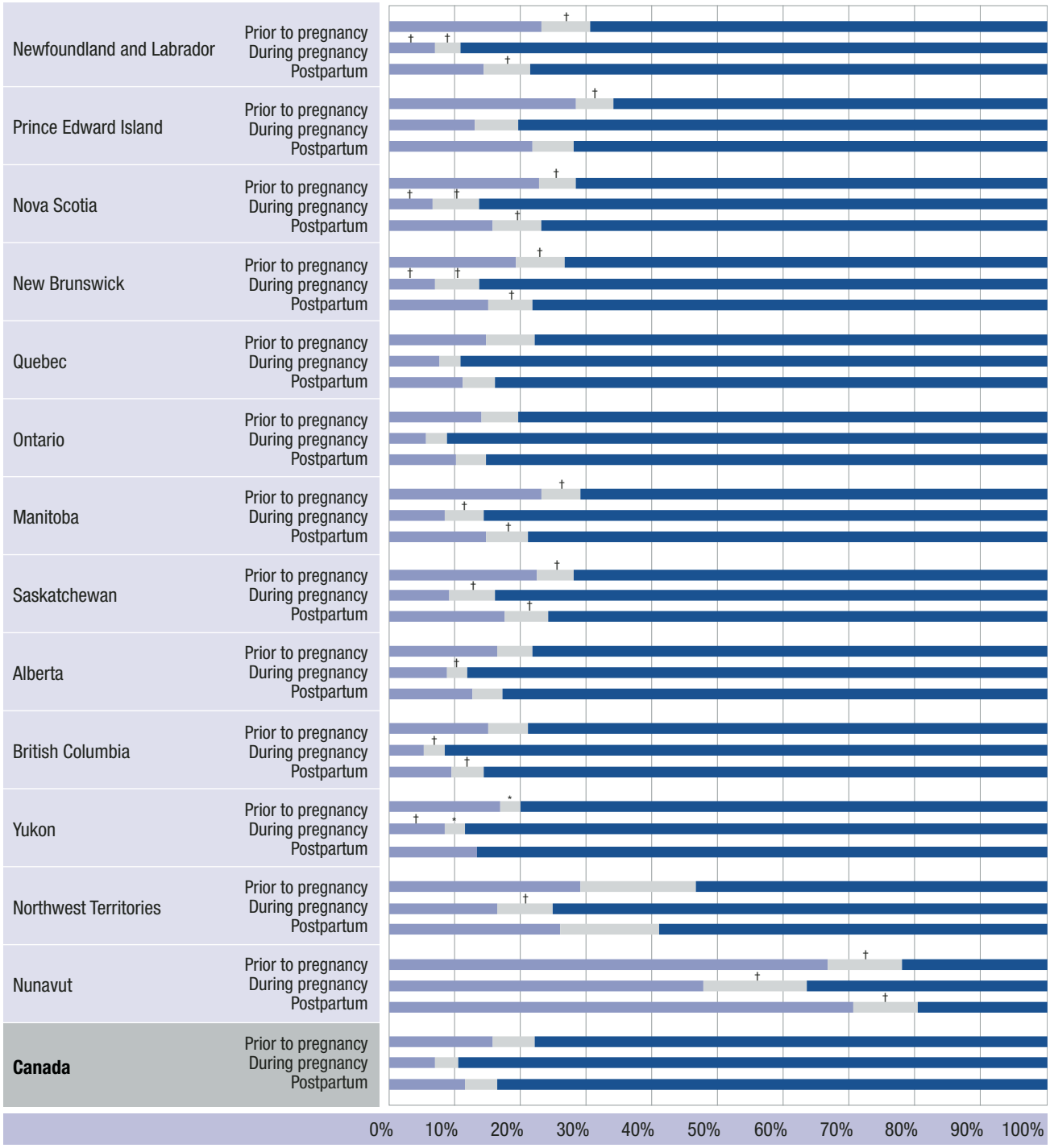
Results

- In the three months prior to pregnancy or before realizing they were pregnant, 15.8% (95% CI: 14.9–16.7) of women reported smoking daily, 6.2% (95% CI: 5.6–6.9) reported smoking occasionally, and 78.0% (95% CI: 77.0–78.9) reported they did not smoke at all. Overall pre-pregnancy smoking proportions (combining daily and occasional smoking) ranged from 19.6%

(95% CI: 17.9–21.3) in Ontario and 20.2% (95% CI: 15.5–24.8) in Yukon to 46.6% (95% CI: 41.0–52.3) in the Northwest Territories and 78.1% (95% CI: 72.3–83.8) in Nunavut (Figure 10.1).

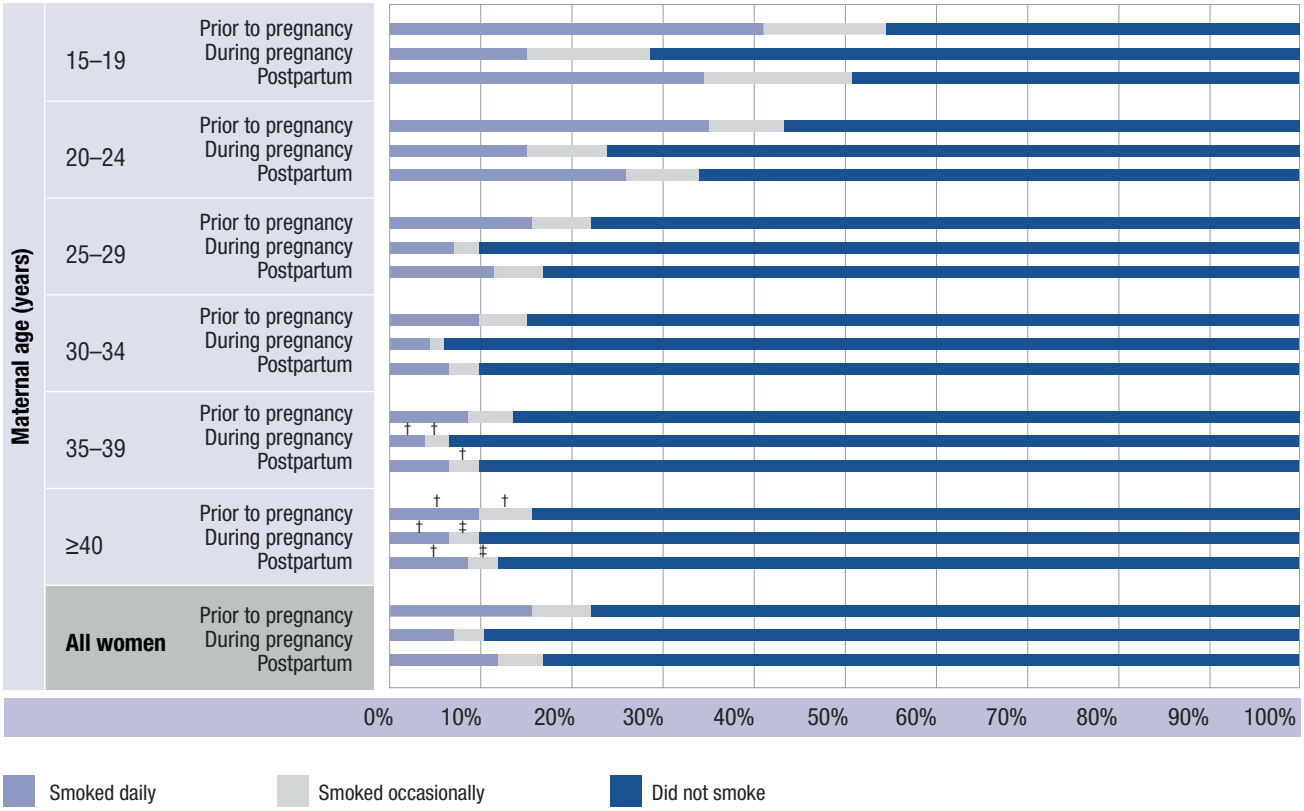
- Younger mothers (15–19 years) reported the highest proportion of pre-pregnancy smoking: 54.7% (95% CI: 48.6–60.9) smoked daily or occasionally (Figure 10.2). Pre-pregnancy smoking also varied by educational level: 46.9% (95% CI: 42.5–51.2) of women with less than a high school education reported smoking either daily or occasionally, compared with 7.8% (95% CI: 6.7–9.0) of women with a university degree.
- The proportion of women who smoked during pregnancy declined compared with the proportion who smoked prior to pregnancy. During the last three months of pregnancy, 6.9% (95% CI: 6.2–7.5) of women smoked daily, 3.6% (95% CI: 3.2–4.1) smoked occasionally, and 89.5% (95% CI: 88.8–90.2) did not smoke at all (Figure 10.1). Overall, the proportions of women who smoked during pregnancy (combining daily and occasional smoking) showed variations between provinces and territories, from 8.5% (95% CI: 6.4–10.6) in British Columbia and 8.8% (95% CI: 7.6–10.0) in Ontario to 24.9% (95% CI: 19.8–30.0) in the Northwest Territories and 63.8% (95% CI: 56.9–70.7) in Nunavut. The proportion of women who smoked during pregnancy was highest for those in the younger age groups (15–19 years and 20–24 years) (Figure 10.2).
- Multiparous women (11.7%, 95% CI: 10.6–12.7) were more likely to smoke (daily or occasionally) during pregnancy than primiparous women (9.1%, 95% CI: 8.1–10.2). In addition, women living in a household at or below the low income cut-off were more likely to smoke (daily or occasionally) during pregnancy (20.0%, 95% CI: 17.7–22.3) than women living in a household above the low income cut-off (7.7%, 95% CI: 6.9–8.4).
- The proportion of women reporting smoking postpartum remained lower than prior to pregnancy. At the time of the interview (five–14 months postpartum), 11.7% (95% CI: 10.9–12.4) of women reported smoking daily, 4.9% (95% CI: 4.4–5.4) occasionally, and 83.5% (95% CI: 82.6–84.3) did not smoke at all (Figure 10.1).
- Among women who reported smoking daily or occasionally prior to pregnancy and not smoking during the third trimester of pregnancy, 47.0% (95% CI: 43.4–50.6) had resumed smoking daily or occasionally by the time of the interview. This indicates a high proportion of postpartum relapse among those who quit smoking during pregnancy.
- The proportion of daily smokers who smoked 10 or more cigarettes per day declined during pregnancy and rose again postpartum. Among those women who reported smoking on a daily basis prior to pregnancy, 31.8% (95% CI: 28.9–34.7) smoked one to nine cigarettes per day and 68.2% (95% CI: 65.3–71.1) smoked 10 or more cigarettes per day. Among those who reported smoking on a daily basis in the last three months of pregnancy, 57.6% (95% CI: 53.1–62.1) smoked one to nine cigarettes per day and 42.4% (95% CI: 37.9–46.9) smoked 10 or more cigarettes per day. Among those who reported smoking on a daily basis at the time of the interview (five–14 months postpartum), 40.9% (95% CI: 37.4–44.5) smoked one to nine cigarettes per day and 59.1% (95% CI: 55.6–62.6) smoked 10 or more cigarettes per day.
- Almost a quarter of women (23.4%, 95% CI: 22.4–24.5) reported that during their pregnancy they lived with someone who smoked. Provincial and territorial proportions ranged from 19.7% (95% CI: 16.8–22.6) in British Columbia and 20.0% (95% CI: 17.9–22.1) in Quebec to 41.0% (95% CI: 35.2–46.9) in Yukon and 75.4% (95% CI: 69.2–81.6) in Nunavut.

Figure 10.1 **Proportion of women who reported smoking daily, occasionally and not at all, by time period and province/territory, Canada, 2006–2007 §**



* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
§ Prior to pregnancy refers to three months prior to pregnancy, during pregnancy refers to the last three months of pregnancy and postpartum refers to the time of the interview (five–14 months postpartum).

Figure 10.2 **Proportion of women who reported smoking daily, occasionally and not at all, by time period and maternal age, Canada, 2006–2007 §**



† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.
§ Prior to pregnancy refers to three months prior to pregnancy, during pregnancy refers to the last three months of pregnancy and postpartum refers to the time of the interview (five–14 months postpartum).

Summary

Overall, 10.5% of women smoked daily or occasionally during the last three months of pregnancy. However, smoking during pregnancy varied greatly by province and territory. Women aged 24 years and younger, women with less than a high school education and women living in a household at or below the low income cut-off reported higher proportions of smoking during pregnancy. Although many women were motivated to quit smoking during pregnancy, almost half (47.0%) of those who quit had resumed smoking at the time of the interview (five–14 months postpartum). In addition, during their pregnancy about one-quarter (23.4%) of all women lived with someone who smoked.

Limitations

Growing public awareness of the adverse effects of smoking, especially during pregnancy, may cause women to under-report their smoking status, so the actual prevalence of smoking may be higher than the proportions reported here. Smoking proportions were based on self-reporting and were not validated by use of biomarkers.

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Question numbers: SM_Q01–Q10

11 Alcohol Use

Patricia O'Campo, Mary Johnston

Introduction

Alcohol is a teratogen and prenatal exposure can lead to a range of conditions known as Fetal Alcohol Spectrum Disorder (FASD).[1,2] The cognitive, behavioural, neurodevelopmental, physiological or physical impairments that may occur with FASD have implications for the individual over their lifespan. The specific outcomes vary with the timing of the exposure, the dose or amount of alcohol consumed, the frequency and pattern of consumption, as well as the health, nutritional status and genetic makeup of the pregnant women and other social and environmental factors.[3,4]

The diagnosis of FASD is challenging because the effects of prenatal exposure to alcohol vary widely and clinical signs are difficult to recognize in newborns and infants. The condition is often detected as children advance in school or during the teenage years. Estimates suggest that fetal alcohol syndrome (FAS), the most severe of the diagnostic conditions within the spectrum, is present in three out of 1,000 live births, whereas FASD (including FAS, partial fetal alcohol syndrome, alcohol-related neurodevelopmental disorders and alcohol-related birth defects) is present in nine out of 1,000 live births.[4,5] Research suggests that drinking even a small amount of alcohol during pregnancy can have a negative impact on the developing fetal brain.[6–8] Current clinical guidelines recommend that when planning a pregnancy and during pregnancy no alcohol is best.[9]

Because of the high proportion of unplanned pregnancies, drinking during the early stages of pregnancy, before a woman realizes she is pregnant, can occur. Therefore, understanding alcohol consumption patterns during child-bearing years and pregnancy is key to assessing the level of risk in the population. In the 2005 Canadian Community Health Survey, 10.5% of women who had given birth in the preceding five years reported drinking alcohol during pregnancy.[10]

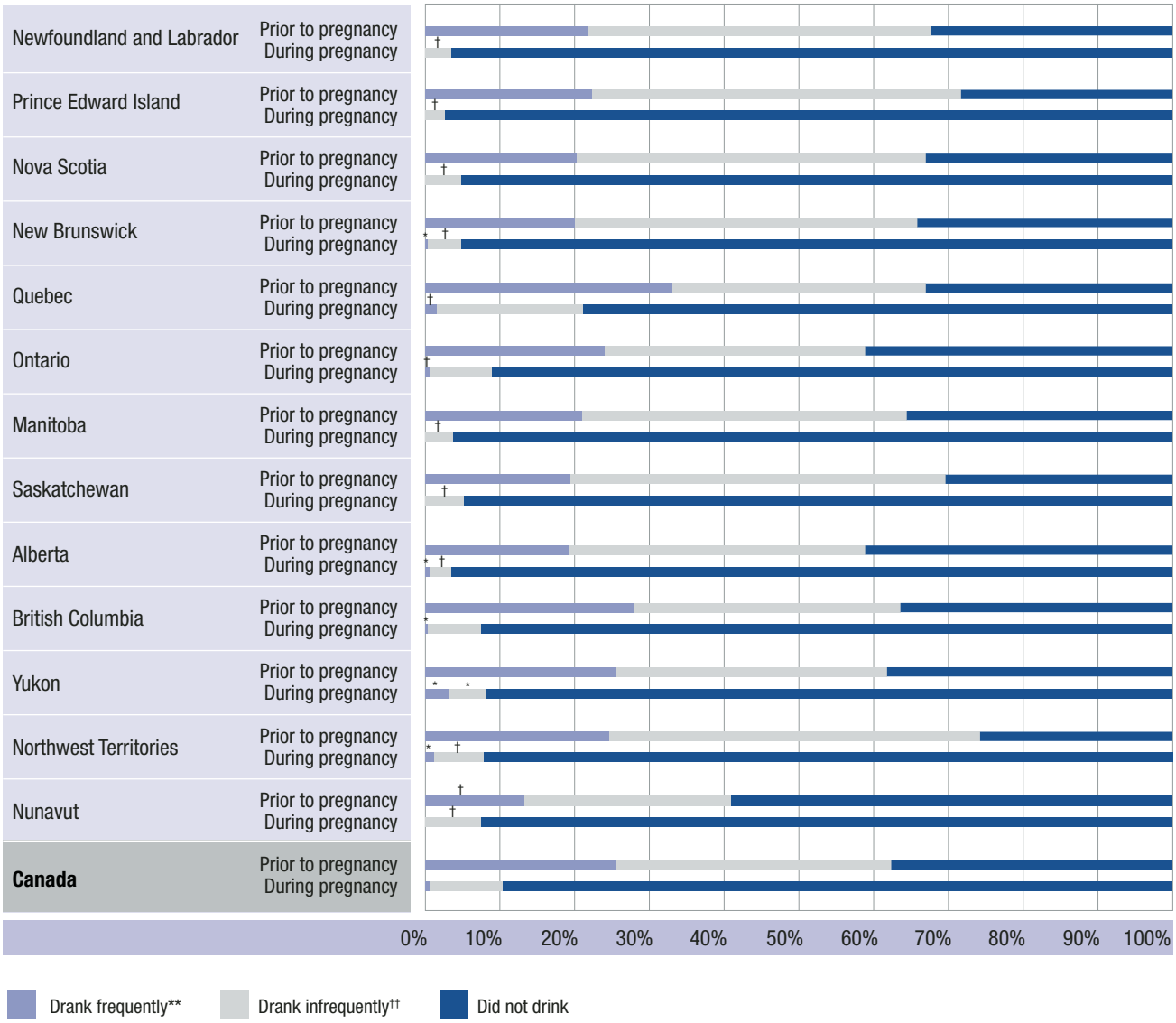
The MES asked women how frequently they consumed alcohol during the three months prior to becoming pregnant or before realizing they were pregnant. Women were also asked how much alcohol they consumed after realizing they were pregnant. The following definitions were used for the purposes of grouping the data: frequent, once per week or more, including daily; infrequent, two to three times per month or less; and not drinking.

Results

- During the three months prior to pregnancy or realizing they were pregnant, 62.4% (95% CI: 61.2–63.6) of women consumed alcohol. Frequency of drinking varied; 14.4% (95% CI: 13.5–15.3) of women drank less than one time per month, 12.0% (95% CI: 11.2–12.8) drank one time per month and 10.4% (95% CI: 9.6–11.2) drank two to three times per month. More frequent drinking was also reported; 14.5% (95% CI: 13.5–15.5) drank once a week, 8.8% (95% CI: 8.1–9.6) drank two to three times per week, 1.0% (95% CI: 0.7–1.2) drank four to six times per week and 1.3% (95% CI: 1.0–1.6) drank every day.
- Alcohol consumption patterns during the three months prior to becoming pregnant or knowing about the pregnancy varied by province and territory (Figure 11.1). The proportion of women who did not drink alcohol in the three months prior to pregnancy ranged from 59.1% (95% CI: 52.2–66.0) in Nunavut, 41.2% (95% CI: 39.0–43.3) in Ontario and 41.0% (95% CI: 37.4–44.6) in Alberta to 28.2% (95% CI: 24.6–31.9) in Prince Edward Island and 25.6% (95% CI: 20.5–30.6) in the Northwest Territories. The proportion of women reporting frequent drinking (once a week or more) prior to pregnancy ranged from 33.1% (95% CI: 30.7–35.5) in Quebec and 28.0% (95% CI: 24.7–31.2) in British Columbia to 19.5% (95% CI: 15.7–23.3) in Saskatchewan, 19.1% (95% CI: 16.2–22.0) in Alberta and 13.2%† (95% CI: 8.2–18.3) in Nunavut.
- Alcohol consumption decreased considerably once women realized they were pregnant; 10.5% (95% CI: 9.7–11.2) reported drinking (frequently and infrequently) during pregnancy (Figure 11.1). There were some variations among provinces and territories. In Quebec, 78.8% (95% CI: 76.6–80.9) reported not drinking compared with Prince Edward Island where this proportion was 97.3% (95% CI: 95.9–98.7) (Figure 11.1).
- Among women who reported frequent drinking (once or more a week) prior to pregnancy 61.3% (95% CI: 58.9–63.8) drank more than two drinks on the days that they drank. During pregnancy the number of women who were frequent drinkers and drank more than two drinks on the days that they drank was too small to report.
- The proportion of women living in a household at or below the low income cut-off who reported not drinking prior to pregnancy was 50.5% (95% CI: 47.6–53.4) compared with 32.5% (95% CI: 31.1–33.9) of women living in a household above the low income cut-off. Frequent drinking (once a week or more) was reported by 29.4% (95% CI: 28.0–30.7) of women living in a household above the low income cut-off compared with 14.2% (95% CI: 12.2–16.3) living in a household at or below the low income cut-off (Figure 11.2).
- During pregnancy, among women living in a household at or below the low income cut-off, 92.3% (95% CI: 90.7–93.8) reported not drinking compared with 88.2% (95% CI: 87.3–89.1) living in a household above the low income cut-off. Infrequent drinking (less than once a week) during pregnancy was reported by 10.9% (95% CI: 10.0–11.8) of women living in a household above the low income cut-off compared with 7.3% (95% CI: 5.8–8.8) of women living in a household at or below the low income cut-off (Figure 11.2).
- As maternal age increased, the proportion of women who reported not drinking in the three months prior to pregnancy decreased, with the exception of those women 40 years and older who reported the highest proportion. During pregnancy younger women (15–19 years) reported the highest proportion of not drinking with a decrease in proportions as age increased (Figure 11.3).

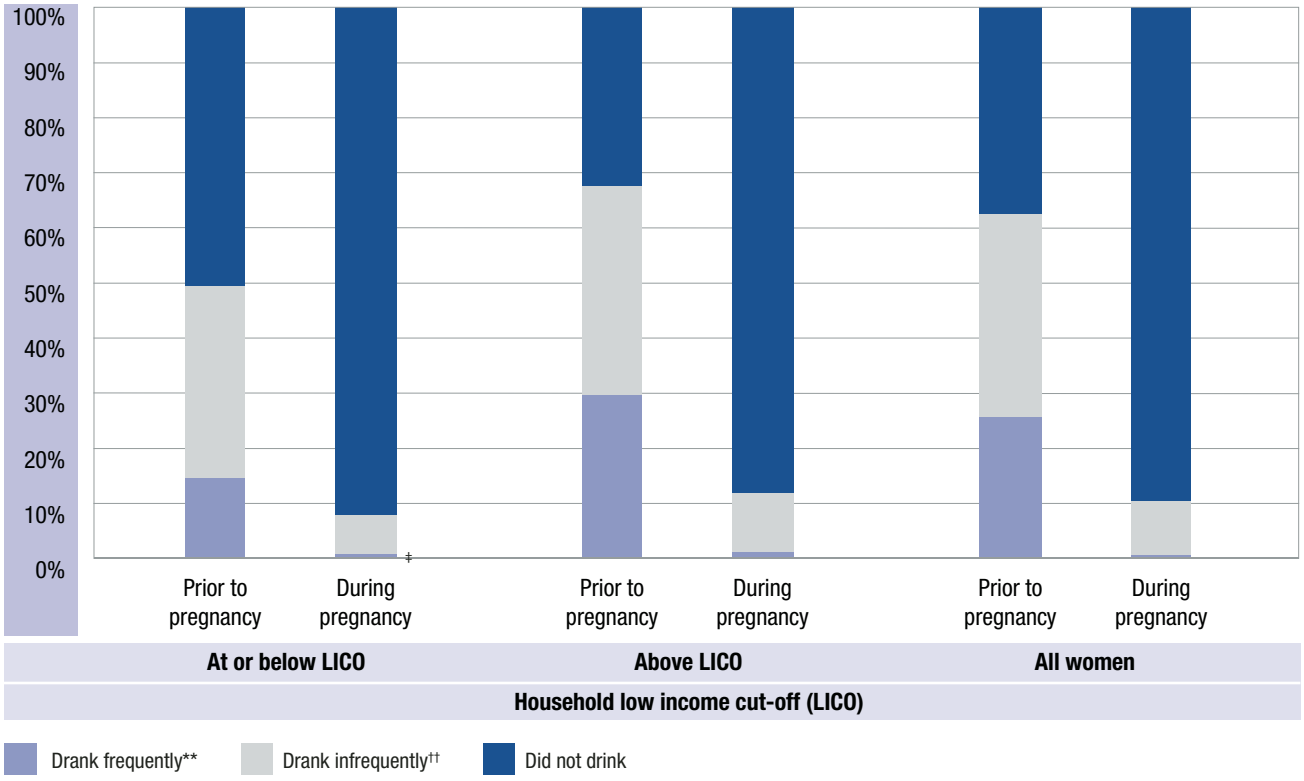
† Coefficient of variation between 16.6% and 33.3%.

Figure 11.1 **Distribution of alcohol consumption prior to pregnancy and during pregnancy, by province/territory, Canada, 2006–2007 §**



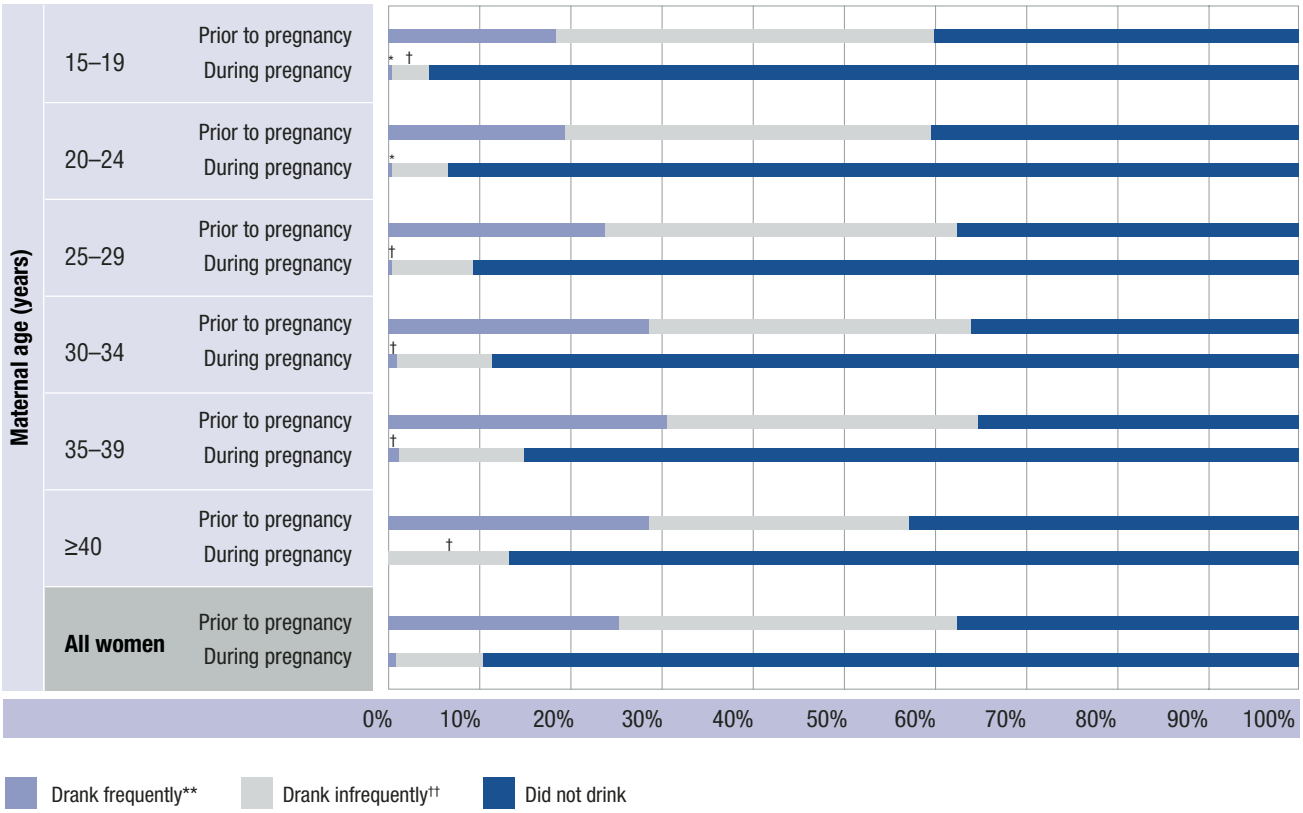
* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
§ Prior to pregnancy refers to three months prior to pregnancy.
** Once per week or more, including daily.
†† Two to three times per month or less.

Figure 11.2 **Distribution of alcohol consumption prior to pregnancy and during pregnancy, by low income cut-off (LICO), Canada, 2006–2007 §**



‡ Coefficient of variation >33.3%.
§ Prior to pregnancy refers to three months prior to pregnancy.
** Once per week or more, including daily.
†† Two to three times per month or less.

Figure 11.3 **Distribution of alcohol consumption prior to pregnancy and during pregnancy, by maternal age, Canada, 2006–2007 §**



* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
§ Prior to pregnancy refers to three months prior to pregnancy.
** Once per week or more, including daily.
†† Two to three times per month or less.

Summary

Alcohol consumption decreased substantially from the three months prior to pregnancy (62.4% of women) to during pregnancy (10.5% of women). During pregnancy, 92.3% of women living in a household at or below the low income cut-off reported not drinking compared with 88.2% of women living in a household above the low income cut-off.

Limitations

Self-reports of alcohol consumption may be underestimates due to the potential under-reporting of socially undesirable behaviours by mothers.

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Question numbers: AL_Q01–Q04

12 Street Drug Use

Patricia O'Campo, Mary Johnston

Introduction

While use of street or illicit drugs around the time of pregnancy is a concern, obtaining accurate data is difficult because of the social undesirability and illegal nature of this activity. There is evidence that under-reporting from self-reports on surveys can be over 50% compared with biochemically confirmed consumption data.[1–3] Surveys conducted in the United States estimate that 6.4% of women of childbearing age use illicit drugs, and 2.8% of pregnant women use drugs.[4] A British survey estimated that 1.9% to 8.3% of women of childbearing age use illicit drugs including cocaine, crack, ecstasy, hallucinogens and opiates.[5]

Illicit drug use during pregnancy is associated with low birth weight, preterm birth and developmental and behavioural issues during childhood.[6–9] However, the evidence concerning the direct mechanisms by which illicit drugs contribute to adverse pregnancy outcomes is equivocal because their use is highly correlated with other potentially harmful health behaviours, such as smoking, alcohol use or lack of prenatal care.[8,10] Thus, it remains unclear whether adverse pregnancy and health outcomes are a direct result of exposure to street drugs, or exposure to a combination of street drugs and other adverse exposures, or whether street drug use is an indirect indicator of other harmful exposures.[11] Moreover, women who use street drugs are often of lower socio-economic standing and/or have poor nutrition, further complicating the ability to study the specific effects of illicit drug use on mother and infant health.

As with other potentially harmful health behaviours, women often reduce or eliminate their use of street drugs when they discover that they are pregnant. Nevertheless, any use of illicit drugs during pregnancy should be avoided because it places the fetus and woman at risk for adverse outcomes.

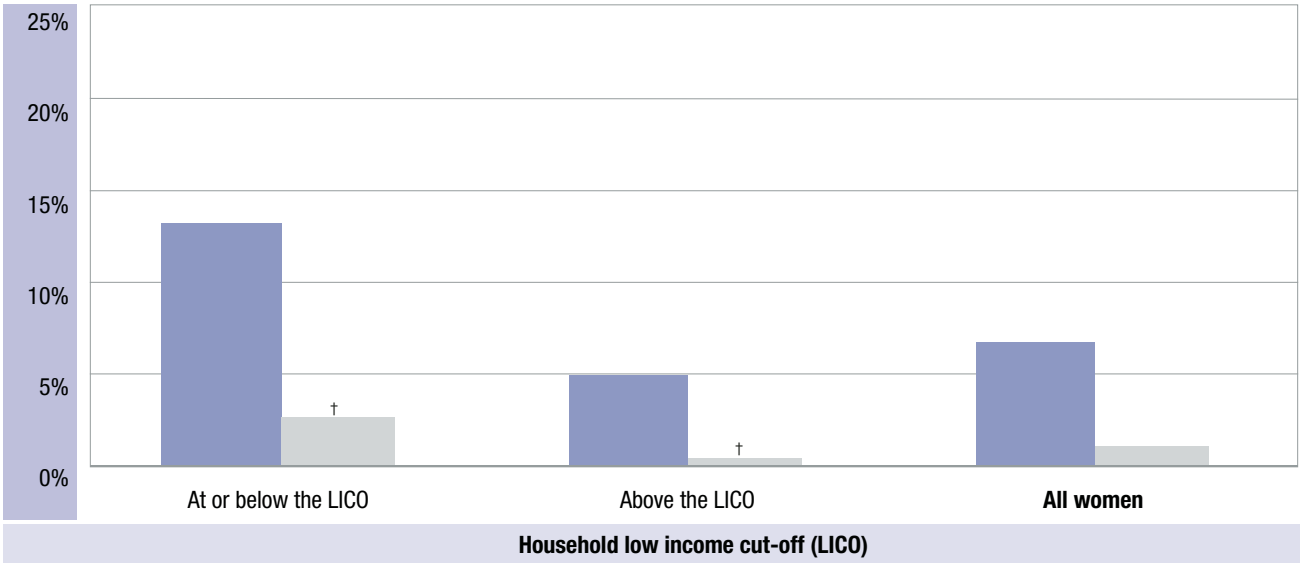
The MES asked women whether they used street drugs in the three months prior to becoming pregnant or before realizing they were pregnant. Women were also asked whether they used street drugs after realizing they were pregnant.

Results

- In the three months prior to becoming pregnant or realizing they were pregnant, 6.7% (95% CI: 6.1–7.4) of women reported using street drugs. Once pregnancy was recognized, this proportion dropped substantially to 1.0% (95% CI: 0.7–1.2).
- Use of street drugs varied by province and territory. Although it is not possible to report data for all of the provinces and territories due to small numbers, there are some noteworthy highlights. The proportions of women reporting drug use prior to pregnancy ranged from 5.5%† (95% CI: 3.6–7.4) in Prince Edward Island and 5.7% (95% CI: 4.7–6.8) in Ontario to 10.5%† (95% CI: 7.0–14.0) in the Northwest Territories and 26.6% (95% CI: 20.3–33.0) in Nunavut. Almost 9% (8.7%†, 95% CI: 4.6–12.7) of women in Nunavut reported using drugs while pregnant; all other jurisdictions with numbers large enough to report had proportions less than 2%.
- Women living in a household at or below the low income cut-off were more likely to report the use of street drugs prior to and during pregnancy than women living in a household above the low income cut-off. Thirteen percent (13.4%, 95% CI: 11.5–15.4) of women living in a household at or below the low income cut-off reported using drugs before becoming pregnant compared with 4.9% (95% CI: 4.2–5.5) of those above the low income cut-off. During pregnancy these proportions were 2.6%† (95% CI: 1.7–3.5) for women living in a household at or below the low income cut-off and 0.5%† (95% CI: 0.3–0.7) for those above the low income cut-off (Figure 12.1).
- Use of street drugs was related to maternal age, with women aged 15–24 years reporting the highest proportions. One-quarter (25.0%, 95% CI: 19.9–30.1) of women aged 15–19 years and 16.2% (95% CI: 13.8–18.7) of women aged 20–24 years reported drug use in the three months prior to pregnancy. During pregnancy, drug use was reported by 3.4%† (95% CI: 1.2–5.5) of women aged 15–19 years and 3.4%† (95% CI: 2.2–4.6) of women aged 20–24 years. The lowest proportions were among women aged 30–34 years: 3.1% (95% CI: 2.3–3.9) in the three months prior to pregnancy and 0.3%† (95% CI: 0.1–0.5) during pregnancy (Figure 12.2).

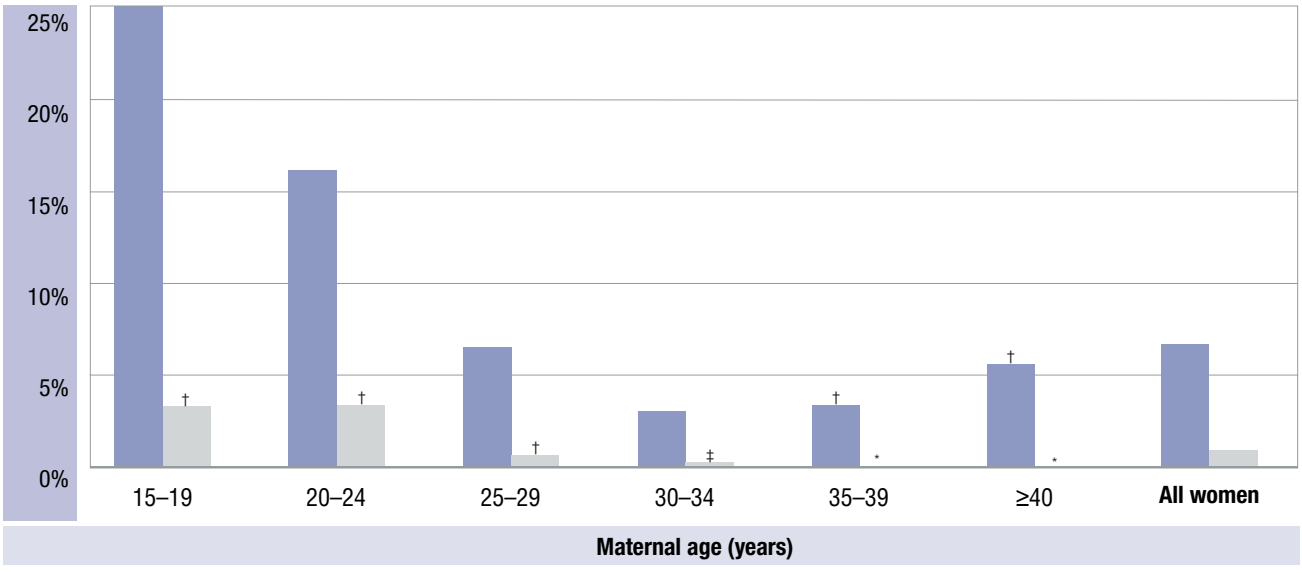
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.

Figure 12.1 **Proportion of women who reported using street drugs prior to pregnancy and during pregnancy, by low income cut-off (LICO), Canada, 2006–2007 §**



† Coefficient of variation between 16.6% and 33.3%.
§ Prior to pregnancy refers to three months prior to pregnancy.

Figure 12.2 **Proportion of women who reported using street drugs prior to pregnancy and during pregnancy, by maternal age, Canada, 2006–2007 §**



* Estimate not shown because unweighted numerator was less than 5.
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.
§ Prior to pregnancy refers to three months prior to pregnancy.

Summary

About 7% (6.7%) of women reported using street drugs in the three months prior to pregnancy and 1.0% reported drug use during pregnancy. Women living in a household at or below the low income cut-off and younger mothers were more likely to use street drugs both prior to and during pregnancy.

Limitations

The question about street drug use did not ask women about individual drugs but grouped all street drugs into one question, so it is not possible to distinguish what type of drugs women were reporting. Street drug use has been found to be vastly under-reported when only relying on self-reports from surveys.[1–3] Thus, these data are likely to be an underestimate of the true consumption of illicit drugs during pregnancy.

In addition to asking women if they used street drugs before or during pregnancy, the MES also asked women who reported using drugs how frequently they used them. However, the responses to these frequency questions are not presented here as the numbers are too small to report with precision.

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Question numbers: DR_Q01–Q05

13 Physical Abuse

Maureen Heaman, Patricia O'Campo

Introduction

Violence against women is a serious problem in Canada.[1] The results of the 2004 General Social Survey revealed that 7% of women who were married or living in a common-law relationship had experienced some type of violence by their intimate partners during the past five years. The proportions were as high as 24% among Aboriginal women.[2] Studies from Manitoba and Saskatchewan estimate that 6% to 9% of women experience physical abuse around the time of pregnancy.[3–6]

Factors associated with physical violence during pregnancy include young maternal age, less than 12 years of education, single marital status and low income.[6,7] Physical violence has also been linked to unintended pregnancies; receiving inadequate prenatal care; smoking, alcohol or illicit drug use during pregnancy; high levels of stress; and low levels of social support.[4,7–9]

Several studies have shown an association between physical abuse during pregnancy and adverse pregnancy outcomes such as fetal trauma, low birth weight, preterm birth, and maternal mortality.[7,10] While physical abuse has received the greatest attention in terms of prevalence studies and examination in relation to adverse outcomes, evidence suggests that all types of abuse—physical, emotional, sexual and domination abuse—negatively affect maternal and infant health.[11]

The MES asked women about the types of physical violence and sexual abuse they experienced in the past two years, the relationship to the person who was violent toward them, how many times these incidents happened, whether they happened during pregnancy, if the person knew she was pregnant, and whether violence increased during pregnancy and since the birth. Women who reported abuse were also asked if they received information about what to do if they were experiencing abuse.

Note: In the case of reported abuse, if a woman asked for help during the interview she was provided with a toll-free telephone number for victims of family violence.

Results

- About one in 10 women (10.9%, 95% CI: 10.2–11.7) reported experiencing one or more abusive acts in the past two years, with proportions varying from 9.2% (95% CI: 6.8–11.5) in Prince Edward Island and 9.4% (95% CI: 8.1–10.6) in Ontario to 34.5% (95% CI: 27.6–41.4) in Nunavut and 35.5% (95% CI: 30.1–40.8) in the Northwest Territories (Figure 13.1).
- Among women who reported abuse in the past two years, the types of abusive acts reported are shown in Figure 13.2. The most frequently reported abusive act was being pushed, grabbed or shoved in a way that could have hurt them; this was reported by 63.7% (95% CI: 60.2–67.2) of women who experienced abuse.
- Abuse was more common among younger women, with 41.0% (95% CI: 34.9–47.1) of women aged 15–19 years and 21.8% (95% CI: 19.0–24.6) of women aged 20 to 24 years reporting one or more abusive acts in the past two years; these proportions are much higher than those reported by women in older age groups (Figure 13.3).
- Proportions of abuse also varied by educational level; 24.0% (95% CI: 20.2–27.8) of women with less than a high school education reported abuse compared with 6.2% (95% CI: 5.2–7.3) of women with a university degree (Figure 13.4). In addition, women living in a household at or below the low income cut-off were more likely to report abuse in the past two years (21.0%, 95% CI: 18.7–23.3) than women living in a household above the low income cut-off (8.3%, 95% CI: 7.5–9.1).
- Of the women who reported experiencing abuse in the last two years, 43.4% (95% CI: 39.6–47.1) reported that the abuse happened once, 19.9% (95% CI: 16.8–23.0) twice, 7.7% (95% CI: 5.6–9.8) three times, 16.7% (95% CI: 13.8–19.6) four to 10 times, and 12.3% (95% CI: 9.9–14.8) 11 or more times.
- When asked about their relationship with the person who was violent toward them, 52.0% (95% CI: 48.1–56.0) of women identified their partner, husband or boyfriend, 16.5% (95% CI: 13.6–19.3) a family member, 13.0% (95% CI: 10.5–15.6) a friend or acquaintance, 8.6% (95% CI: 6.5–10.7) a stranger, and 13.0% (95% CI: 10.5–15.6) another person.
- When asked if the abuse happened during pregnancy, 30.7% (95% CI: 27.2–34.3) of women who experienced abuse reported that this had been the case. For 82.2% (95% CI: 76.7–87.7) of these women, the person perpetrating the abuse knew she was pregnant.
- In comparison to before pregnancy, the level of violence during pregnancy decreased for 47.0% (95% CI: 37.8–56.2) of women who experienced abuse, stayed the same for 47.6% (95% CI: 38.1–57.0) and increased for 5.4%† (95% CI: 1.6–9.3).
- After the birth of the baby, violence increased for 16.3%† (95% CI: 8.3–24.2) of abused women, decreased for 51.6% (95% CI: 41.0–62.1), and stayed the same for 32.2% (95% CI: 22.4–41.9).
- Of those women who experienced abuse, 61.0% (95% CI: 57.4–64.6) reported discussing or receiving information about what to do if they were experiencing abuse.

† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.

Figure 13.1 **Proportion of women experiencing one or more abusive acts in the past two years, by province/territory, Canada, 2006–2007**

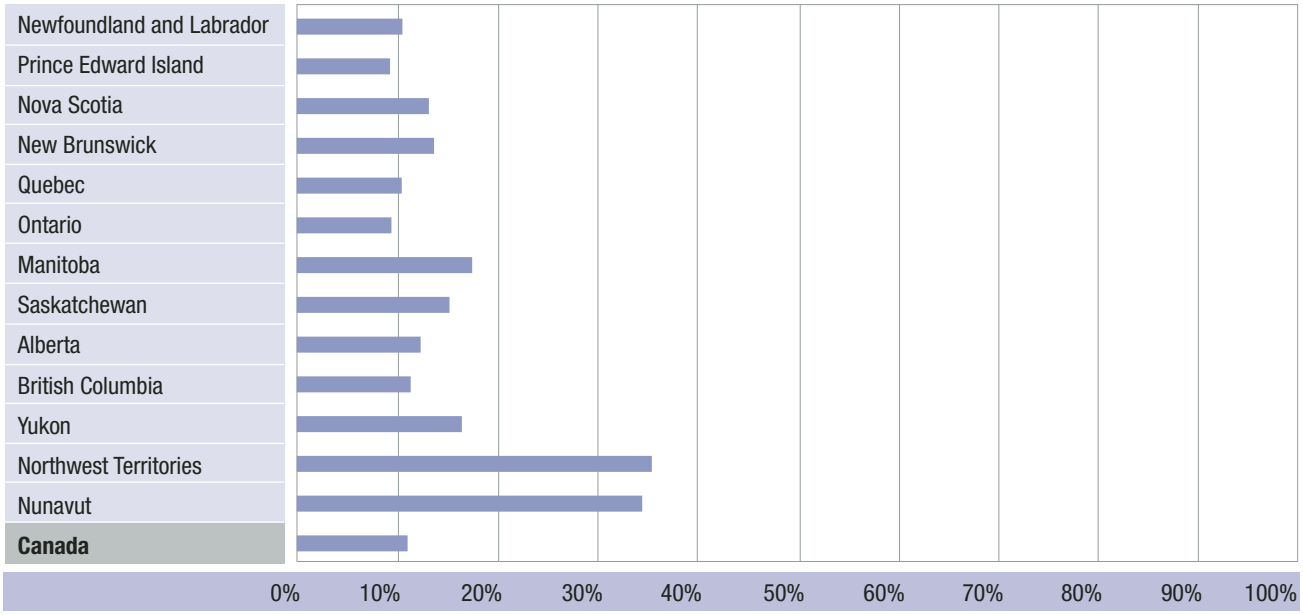


Figure 13.2 **Proportion of women who experienced different types of abuse in the past two years, among women who reported experiencing abuse, Canada, 2006–2007**

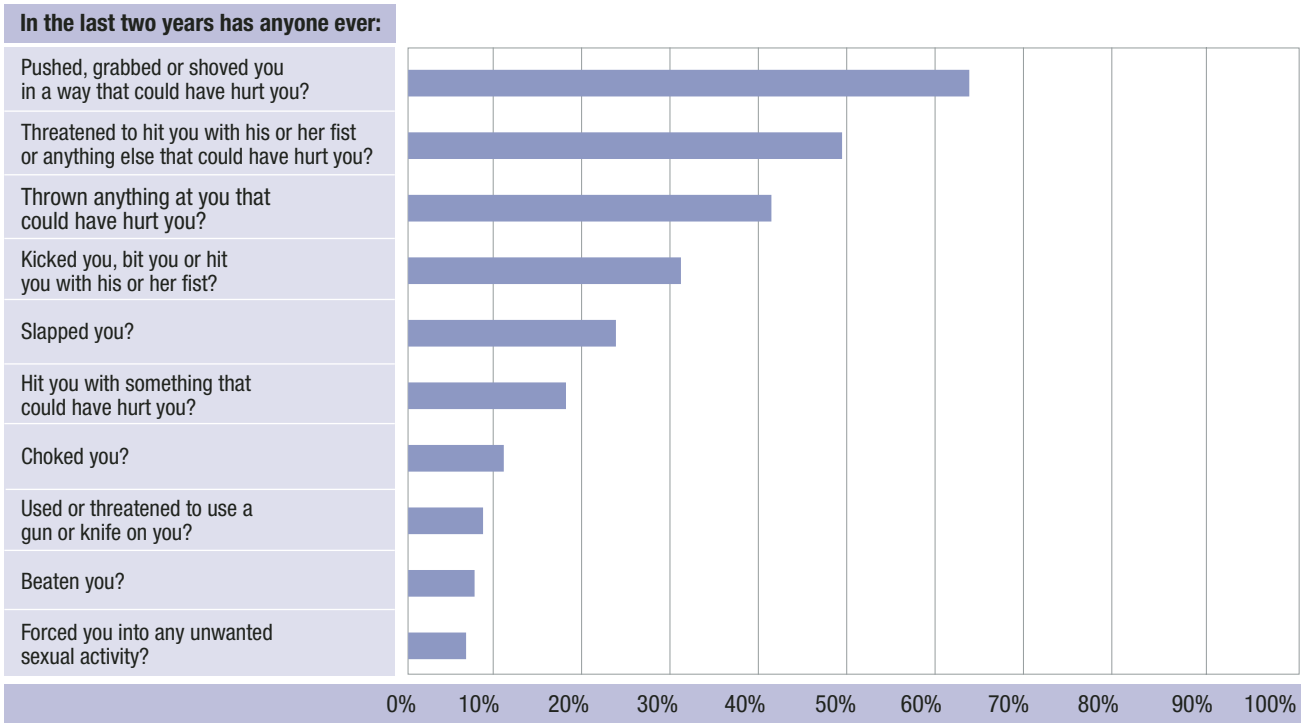
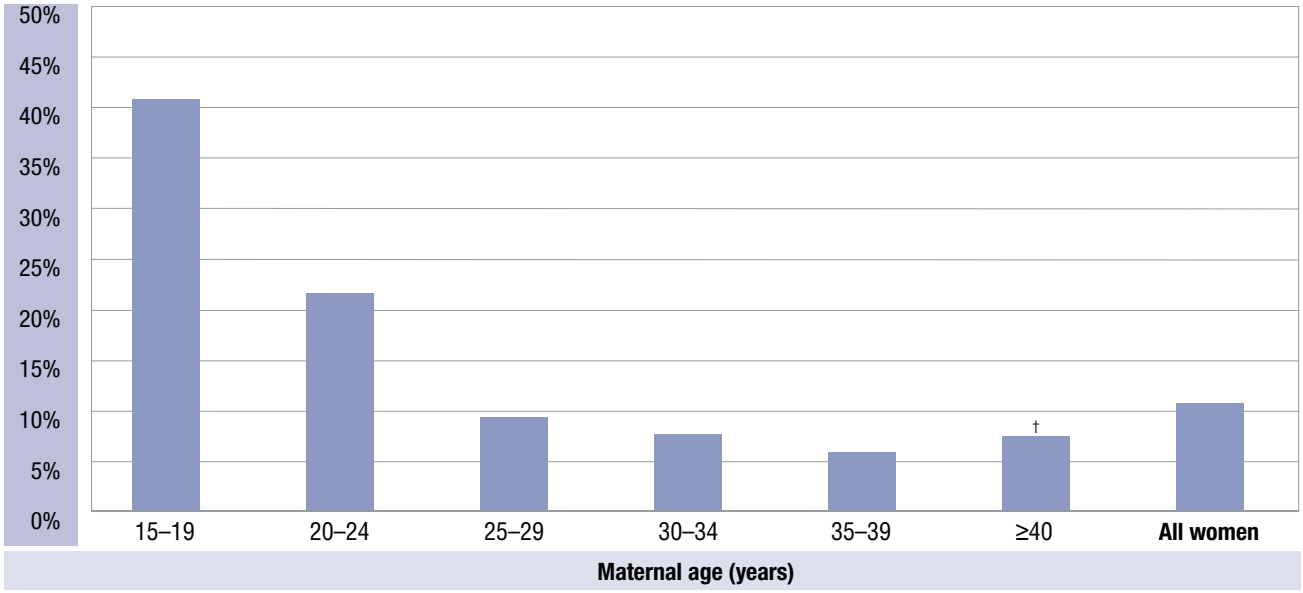
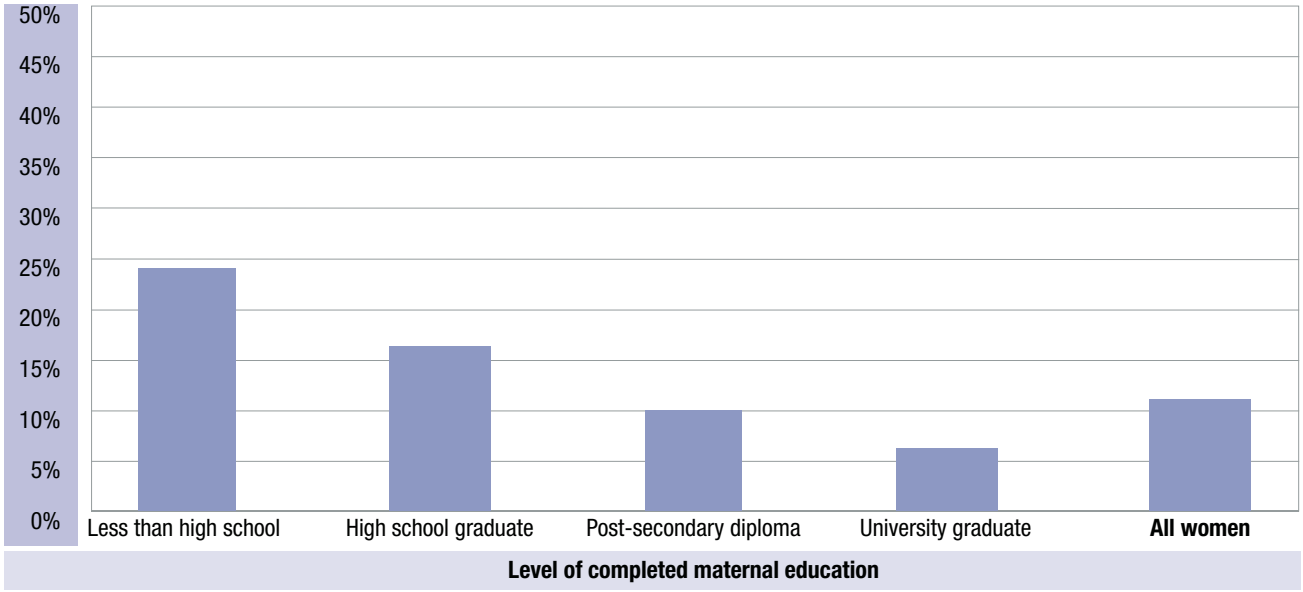


Figure 13.3 **Proportion of women experiencing one or more abusive acts in the past two years, by maternal age, Canada, 2006–2007**



† Coefficient of variation between 16.6% and 33.3%.

Figure 13.4 **Proportion of women experiencing one or more abusive acts in the past two years, by maternal education, Canada, 2006–2007**



Summary

The proportion of women who reported physical or sexual abuse in the past two years was 10.9%. Women aged 24 years or younger, women with less than a high school education and women living in a household at or below the low income cut-off were more likely to experience abuse. There were also provincial and territorial variations in reported abuse. Patterns of abuse appear to change in response to pregnancy. Compared with before pregnancy, the level of violence during pregnancy decreased for 47.0% and increased for 5.4% of women who reported abuse. The level of violence after the birth of the baby decreased for 51.6% and increased for 16.3% of women who reported abuse.

Limitations

Women may be reluctant to disclose abuse, so these data are likely underestimated. The questions asked in this survey focused on physical and sexual abuse; information was not collected on emotional or financial abuse or domination. Only women who reported experiencing abuse were asked if they received information about what to do if they were experiencing abuse so it is unknown how many women overall would have received this type of information.

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Question numbers: AV_Q01–Q19

14 Stress and Social Support

Maureen Heaman, Dawn Kingston

Introduction

A variety of psychosocial factors including stress and anxiety are related to adverse pregnancy outcomes. These factors may affect the fetus directly through the release of catecholamines, resulting in vasoconstriction with oxygen and calorie reduction to the fetus, or indirectly through the adoption of unhealthy lifestyle behaviours.[1] A growing body of evidence supports an association between maternal prenatal stress and infection or inflammation during pregnancy, poor birth outcomes such as low birth weight and preterm birth, and lasting effects on neurocognitive development of the infant.[2–4] Findings from the Pregnancy Risk Assessment Monitoring System (PRAMS) in the United States indicate that 64% of women experienced at least one stressful life event during pregnancy, and that women of low socio-economic status were much more likely to experience such events.[5]

Social support can serve as a buffer to the negative effects of stress. In pregnancy, social support has been found to have a positive effect on psychological well-being and has been linked to better pregnancy outcomes.[6] Social support from a partner or family member may improve fetal growth, even for women with little life stress.[7] However, reviews that have examined the relationship between social support during pregnancy and the prevention of preterm birth and low birth weight have not shown conclusive results.[8,9]

The MES asked women about stressful life events experienced in the 12 months before the baby was born such as "moved to a new address," "a close family member was very sick and had to go to the hospital" and "argued with your husband or partner more than usual." Women were also asked about their overall level of stress during pregnancy and the support available to them during pregnancy. The 13 questions about stressful life events used here were adapted by PRAMS from the Life Events Inventory developed by Newton and Hunt.[10]

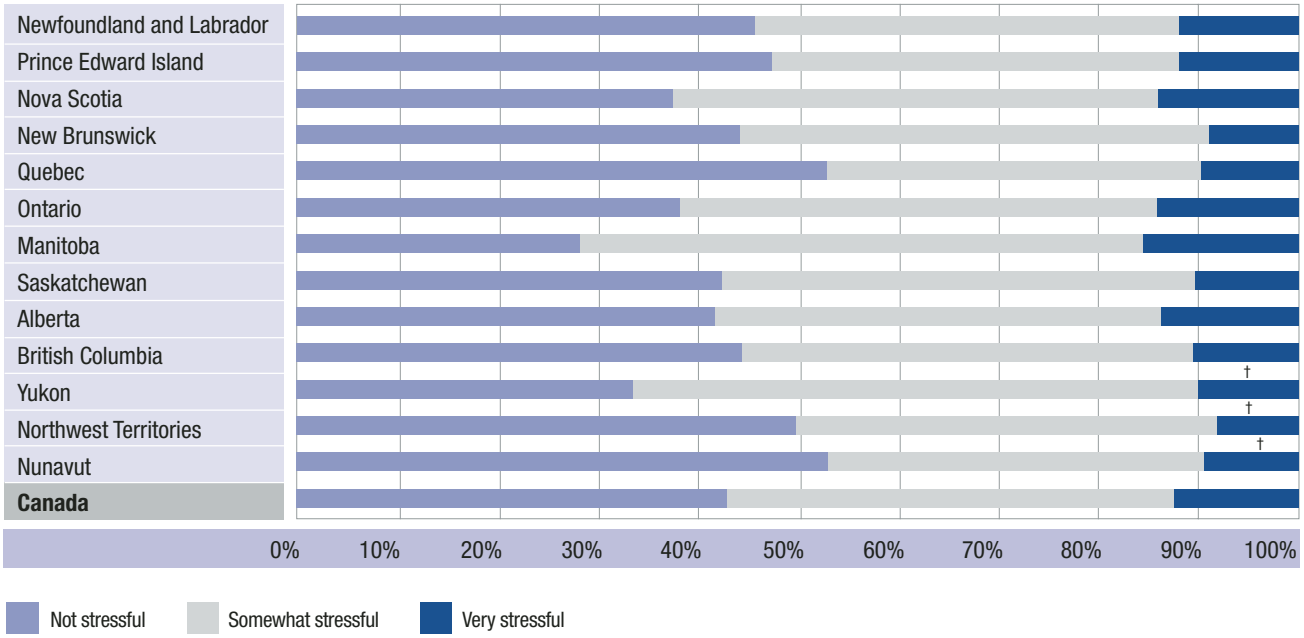
Results

- When asked about their perceived levels of stress during the 12 months before their baby was born, 43.0% (95% CI: 41.7–44.2) of women reported that most days were not stressful, 44.6% (95% CI: 43.3–45.8) reported most days were somewhat stressful and 12.5% (95% CI: 11.6–13.3) reported most days were very stressful. The proportion of women reporting that most days were very stressful varied across provinces and territories, from 8.2%† (95% CI: 5.0–11.4) in the Northwest Territories and 9.0% (95% CI: 6.2–11.8) in New Brunswick to 14.2% (95% CI: 12.7–15.7) in Ontario and 15.6% (95% CI: 12.0–19.2) in Manitoba (Figure 14.1).

- Multiparous women were more likely to report that most days in the year prior to the birth of their baby were very stressful (14.2%, 95% CI: 13.0–15.4), compared with primiparous women (10.2%, 95% CI: 9.0–11.4). In addition, women living in a household at or below the low income cut-off were more likely to report that most days were very stressful (15.7%, 95% CI: 13.6–17.7) compared with women living in a household above the low income cut-off (11.8%, 95% CI: 10.8–12.7).
- While 39.1% (95% CI: 37.9–40.3) of women reported no stressful life events in the 12 months before their baby was born, 27.8% (95% CI: 26.7–29.0) reported one event, 16.0% (95% CI: 15.1–16.9) reported two events and 17.1% (95% CI: 16.2–18.0) reported three or more events. Younger mothers (15–19 years) reported the highest proportion of multiple stressful life events; 43.9% (95% CI: 37.9–49.9) experienced three or more events and 20.4% (95% CI: 15.5–25.2) experienced two events (Figure 14.2).
- Women with less than a high school education were more likely to experience three or more stressful events (33.6%, 95% CI: 29.5–37.6) compared with those with higher levels of education. In addition, women living in a household at or below the low income cut-off were more likely to report three or more stressful life events (34.5%, 95% CI: 31.7–37.3) compared with women living in a household above the low income cut-off (12.4%, 95% CI: 11.4–13.3).
- The most common stressful life events occurring in the 12 months before the baby was born included: "moved to a new address" (28.3%, 95% CI: 27.1–29.4), "a close family member was very sick and had to go to the hospital" (21.9%, 95% CI: 20.8–22.9) and "argued with your husband or partner more than usual" (16.3%, 95% CI: 15.3–17.2).
- Support during pregnancy was available to 57.3% (95% CI: 56.1–58.6) of women all of the time, 29.6% (95% CI: 28.4–30.8) most of the time, 7.9% (95% CI: 7.2–8.6) some of the time and 5.1% (95% CI: 4.5–5.7) a little or none of the time. The proportion of women receiving support a little or none of the time ranged from 15.0%† (95% CI: 9.7–20.3) in Nunavut and 9.1% (95% CI: 7.4–10.7) in Quebec to 2.3%† (95% CI: 0.8–3.8) in Saskatchewan and 2.2%† (95% CI: 0.7–3.7) in Newfoundland and Labrador (Figure 14.3).

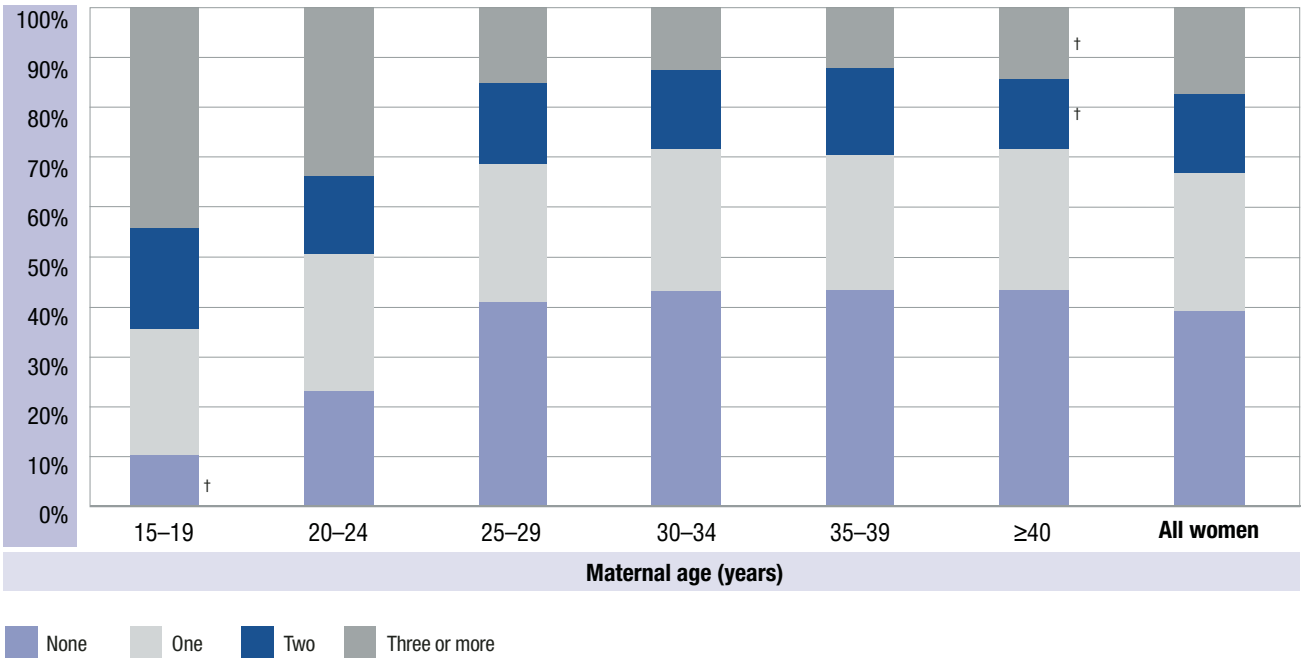
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.

Figure 14.1 **Distribution of women's reported levels of stress in the 12 months before birth, by province/territory, Canada, 2006–2007**



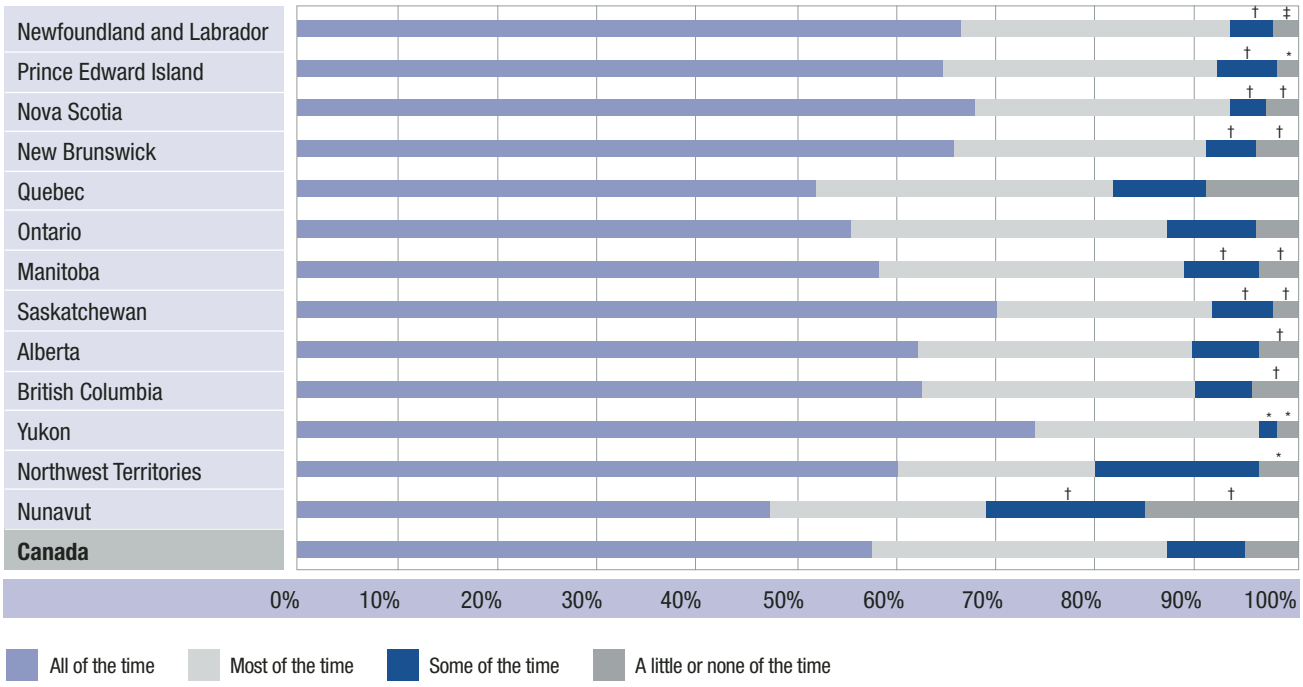
† Coefficient of variation between 16.6% and 33.3%.

Figure 14.2 **Distribution of the number of stressful life events in the 12 months before birth, by maternal age, Canada, 2006–2007**



† Coefficient of variation between 16.6% and 33.3%.

Figure 14.3 **Distribution of women's reports of the availability of support during pregnancy, by province/ territory, Canada, 2006–2007**



* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.

Summary

Almost one-fifth (17.1%) of women reported experiencing three or more stressful life events in the 12 months prior to the birth of their baby. Stressful life events were more prevalent among younger mothers (15–19 years), women with less than a high school education and women living in a household at or below the low income cut-off. Almost 13% (12.5%) of women reported that most days were very stressful in the 12 months before the baby was born. Higher levels of stress were reported by multiparous women and women living in a household at or below the low income cut-off. The majority (86.9%) of women had support available to them all or most of the time during their pregnancy.

Limitations

Although numbers of life events are often used as an indicator of the level of stress, a specific event may be perceived as more or less stressful depending on the individual. The MES asked women retrospectively about stress that they experienced in the 12 months before their infant was born, therefore creating the potential for recall bias. Women's responses may have been influenced by their birth experiences or current circumstances (including their health or their infant's health), rather than solely reflecting the period before their baby was born.

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Question numbers: SE_Q01–Q14, SI_Q11

Chapter 2: Labour and Birth

15 Place of Birth

Beverley O'Brien, David Young

Introduction

In Canada, women usually give birth in a hospital or clinic, or if outside of these, a private home or birthing centre. Birthing centres are community-based centres where women can go to receive primary midwifery care during pregnancy, labour, birth and the postpartum period (Regroupement les Sages-femmes du Quebec 2008, written personal communication, 3rd January). They are distinct from the home and hospital although some providers may refer to maternity units within hospitals as birthing centres. The setting for birth is typically planned in advance, but some births take place in unplanned settings such as en route to a hospital.

In Canada, the perceived safety of planned out-of-hospital births remains controversial despite results from several studies indicating that a planned home birth compares favourably with a planned hospital birth.[1,2] Canada's experience of place of birth is different from that of Holland where a third of babies are born in the home,[3] but similar to that of other high-income countries, such as the United Kingdom[4] and the United States,[5] where most babies are born in hospitals or birthing centres.

In a midwifery policy statement, the Society of Obstetricians and Gynaecologists of Canada acknowledged the importance of maternal and familial choice with respect to birth setting but asserted that women should "understand any identified limitation of care at their planned birth setting."[6] Inherent in the Canadian midwifery model and some midwifery legislation is the principle that women with low-risk pregnancies may choose their birth setting.

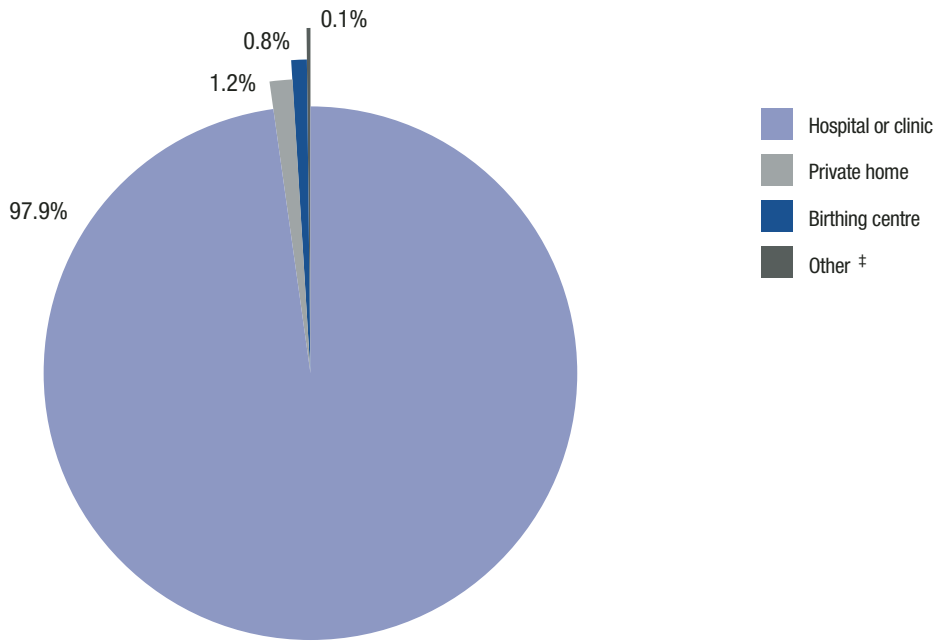
The MES asked women whether their baby was born in a hospital or clinic, birthing centre, private home or in another location.

Results

- The majority (97.9%, 95% CI: 97.5–98.3) of births occurred in hospitals or clinics. Just over 1% (1.2%, 95% CI: 0.9–1.5) of births took place in a private home and just under 1% (0.8%, 95% CI: 0.6–1.0) took place in a birthing centre (Figure 15.1).
- In the five jurisdictions where at least five out-of-hospital births (in homes, birthing centres or other locations) were reported, the proportion of such births ranged from 2.9% (95% CI: 2.1–3.7) in Ontario to 0.9%† (95% CI: 0.2–1.7) in Alberta.
- Women over 35 years of age gave birth in out-of-hospital settings more often than women under 25 years (3.6%†, 95% CI: 2.4–4.8, and 0.6%†, 95% CI: 0.1–1.2, respectively).
- Out-of-hospital births were more common among multiparous women (2.7%, 95% CI: 2.1–3.2) than among primiparous women (1.3%†, 95% CI: 0.9–1.8).

† Coefficient of variation between 16.6% and 33.3%.
† Coefficient of variation >33.3%.

Figure 15.1 **Distribution of place of birth, Canada, 2006–2007**



‡ Coefficient of variation >33.3%.

Summary

Nearly all (97.9%) births occurred in hospitals or clinics; only 1.2% and 0.8% took place in a private home or in a birthing centre, respectively. Older women and multiparous women had higher proportions of out-of-hospital births.

Limitations

Clinics and birthing centres were not clearly defined. Smaller hospitals, nursing stations or private practices could have been regarded by women as clinics and women may have referred to maternity units within hospitals as birthing centres. The MES did not ask about planned place of birth; therefore, whether or not women gave birth in their planned place of birth could not be determined.

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Question number: LB_Q01

16 Travel to Place of Birth

Beverley O'Brien, David Young

Introduction

Canada is the second largest country in the world, with a geographically dispersed population and many people living in rural and remote areas. This leads to challenges in planning and providing sustainable maternity care across the country. In addition, increasing numbers of rural health care facilities are being closed, and a national crisis concerning the recruitment and retention of qualified health care providers, which is especially profound in rural areas, exists for maternity care.[1]

The availability of local maternity care services, the medical and obstetrical situation of the mother, and maternal preference may influence some women to travel to another community to give birth. For instance, women in remote communities are more likely to give birth in their community when cesarean delivery capability is locally available.[2] Removing women from their community may result in increased financial and psychological stress for them and their families, particularly for those who travel long distances.

Since the 1970s, northern and remote Canadian communities have evacuated pregnant women near term to give birth in Level II or III hospitals in more southern parts of Canada.[3] "Level" refers to the range of services offered by a particular hospital, with Level III having the capability of providing the greatest complexity of specialized services, and Level I the least. This practice of transporting expectant mothers to give birth in hospitals in larger communities is being challenged, with recommendations to include midwifery care and midwifery training as integral parts of maternity care planning in remote communities.[4]

The MES asked women whether they travelled to another city, town or community to give birth, how far they travelled, how much time they spent in this other community before giving birth and how they felt about their experience.

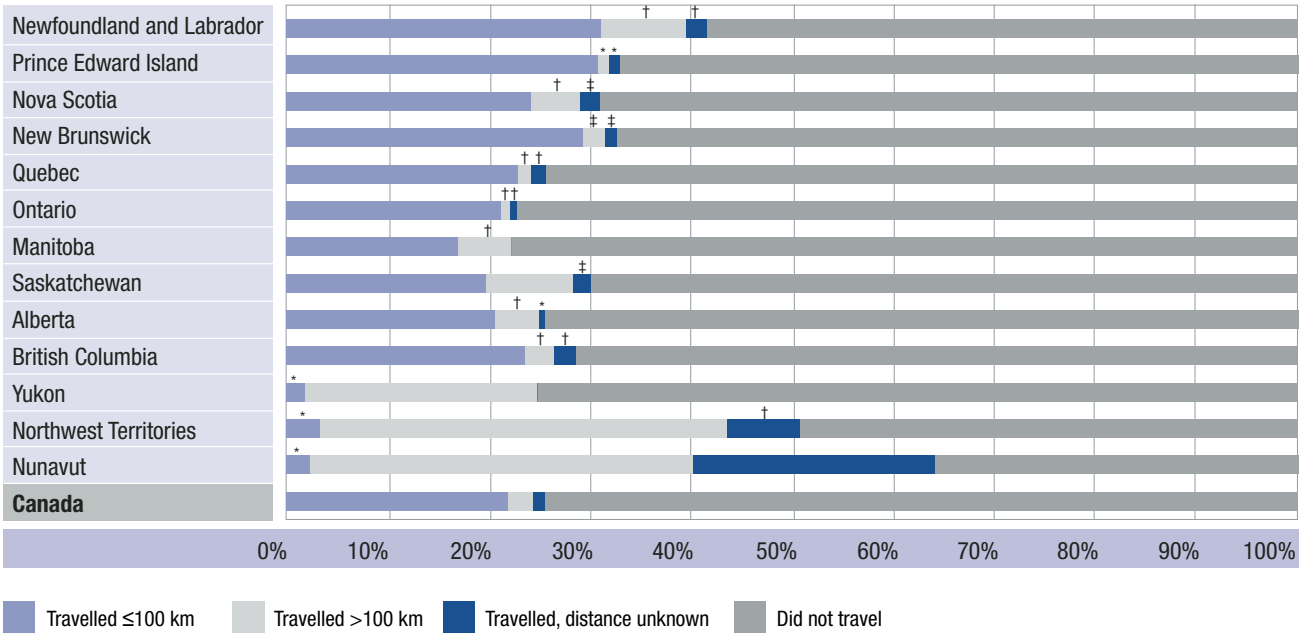
Note: The MES excluded women living on First Nations reserves, many of which are located in geographically remote areas with limited access to maternity care. This exclusion particularly affects jurisdictions such as Saskatchewan and Manitoba where a high proportion of First Nations women live on reserve, resulting in an underestimation in the proportion of women who travel to give birth.

Results

- One-quarter (25.6%, 95% CI: 24.4–26.7) of women reported travelling to another city, town or community to give birth. The proportion ranged from 64.5% (95% CI: 57.6–71.3) in Nunavut and 50.8% (95% CI: 44.9–56.6) in the Northwest Territories to 22.8% (95% CI: 21.0–24.7) in Ontario and 22.2% (95% CI: 18.5–25.9) in Manitoba (Figure 16.1).
- While in Canada overall only 2.5% (95% CI: 2.1–2.8) of women had to travel more than 100 kilometres (km) to give birth, in the territories the proportion was much higher and ranged from 40.3% (95% CI: 34.6–46.0) in the Northwest Territories to 23.0% (95% CI: 17.9–28.1) in Yukon. In Nunavut, 37.9% (95% CI: 30.7–45.0) of women reported travelling more than 100 km to give birth. An additional 23.9% (95% CI: 17.7–30.1) of women in Nunavut travelled to give birth, but did not know the distance that they had travelled. Because of the geographic remoteness of Nunavut, it is likely that the unknown distance was often more than 100 km. Therefore, the proportion of women in Nunavut who travelled more than 100 km to give birth may be higher than 37.9% (Figure 16.1).
- Women living in a household at or below the low income cut-off were less likely to travel than those living above this level (18.5%, 95% CI: 16.3–20.7, and 28.3%, 95% CI: 27.0–29.7, respectively).
- The proportion of women who travelled to another city, town or community to give birth was similar among those who delivered by cesarean and vaginally (26.3%, 95% CI: 24.1–28.6, and 25.3%, 95% CI: 24.0–26.6, respectively).
- Of primiparous women, 23.4% (95% CI: 21.8–25.0) travelled to another city, town or community to give birth, whereas 27.4% (95% CI: 25.8–28.9) of multiparous women did so.
- The majority of women who travelled to give birth did not spend any nights away from their community prior to the birth (77.2%, 95% CI: 75.2–79.2). Approximately 5% (4.7%, 95% CI: 3.9–5.6) of women who travelled to give birth spent six or more nights in another city, town or community prior to giving birth.
- Among the women who travelled to another city, town or community to give birth, a third (33.3%, 95% CI: 31.0–35.5) reported that the experience was "very positive" and 3.1% (95% CI: 2.2–3.9) reported that it was "very negative" (Figure 16.2). "Very negative" ratings of the experience of travelling to give birth were reported by 14.0%† (95% CI: 8.8–19.1) of women who travelled more than 100 km and 1.7%† (95% CI: 1.0–2.3) of women who travelled 100 km or less to give birth.

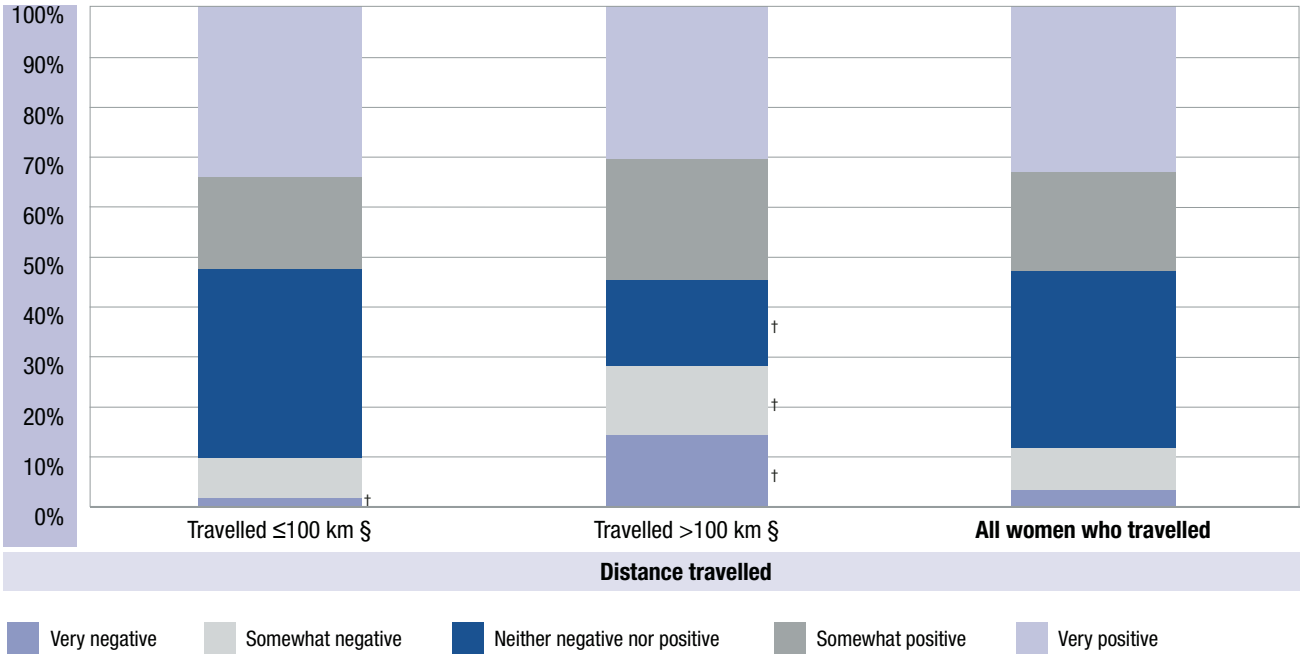
† Coefficient of variation between 16.6% and 33.3%.

Figure 16.1 Proportion of women who travelled to another city, town or community to give birth, by province/territory, Canada, 2006–2007



* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.

Figure 16.2 Distribution of women's feelings about travelling to another city, town or community to give birth, by distance travelled, Canada, 2006–2007



† Coefficient of variation between 16.6% and 33.3%.
§ Women who travelled but did not know how far they travelled were excluded.

Summary

One-quarter (25.6%) of women reported travelling to another city, town or community to give birth. Overall, 2.5% of women travelled more than 100 km; however, a much higher proportion of women in the territories had to travel more than 100 km to give birth.

Limitations

Women were not asked why they travelled to another city or the timing of their travel (e.g., weekends, holidays or gestational age when they travelled). First Nations reserves are often remote or rural communities where access to hospitals is limited. As women on reserves were not included in the MES, the proportion of women travelling for birth is underestimated, particularly in jurisdictions with a high proportion of First Nations people living on reserve, such as Saskatchewan and Manitoba. Women living in remote communities may need to travel to other communities by air, making it difficult for them to estimate the actual distance travelled. It is likely that some of the Nunavut women who did not know the distance that they travelled to give birth actually travelled farther than 100 km.

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Question numbers: LB_Q04–Q07, LBD05IMP, LBD05MET

17 Birth Attendant

Beverley O'Brien, David Young

Introduction

Canada and other countries are experiencing a shortage and geographic maldistribution of maternity care providers.[1,2] Fewer obstetricians/gynecologists and family physicians are engaging in maternity care (particularly intrapartum), and the growth in midwifery is not adequate to compensate for these reduced numbers.[1] The first midwives were regulated in Ontario in 1992, and midwifery care is currently legislated in eight jurisdictions (Ontario, Alberta, British Columbia, Quebec, Manitoba, Saskatchewan, Nova Scotia and the Northwest Territories)[3] and publicly funded in five (Ontario, British Columbia, Quebec, Manitoba and the Northwest Territories).[4,5] In Nunavut, registered midwives from any province may practise and be remunerated in a birth centre in Rankin Inlet.[4]

The Society of Obstetricians and Gynaecologists of Canada supports the integration of regulated, publicly funded midwifery care in all provinces and territories[6] and is currently leading an initiative to develop inter-professional models for delivery of maternity care services across Canada.[7] Despite these developments, the proportion of hospital births that are attended by midwives in Canada remains very low[8] and contrasts with patterns observed in other high-income countries such as the United Kingdom[9] and Holland,[10] where midwives attend 62% and 37% of all births, respectively.

Although there are some similarities between health care providers in the type of care provided at birth, among women with low obstetrical risk, those attended by midwives have lower rates of obstetric intervention during labour and birth, including induction and augmentation, electronic fetal monitoring, spinal anesthesia, episiotomy and cesarean delivery, compared with women attended by physicians.[11]

In addition to having a skilled birth attendant, continuity of care provider—defined as care given by the same provider or small group of providers throughout the pregnancy, birth and postnatal period—is considered to be beneficial. A systematic review that compared continuity of care provider (midwives only) with non-continuity of care provider (physicians and midwives), found that women who had continuity of care experienced better outcomes such as lower levels of intrapartum drugs for pain relief and higher levels of satisfaction. However, it was not clear whether these effects were due to continuity of care or the type of provider.[12]

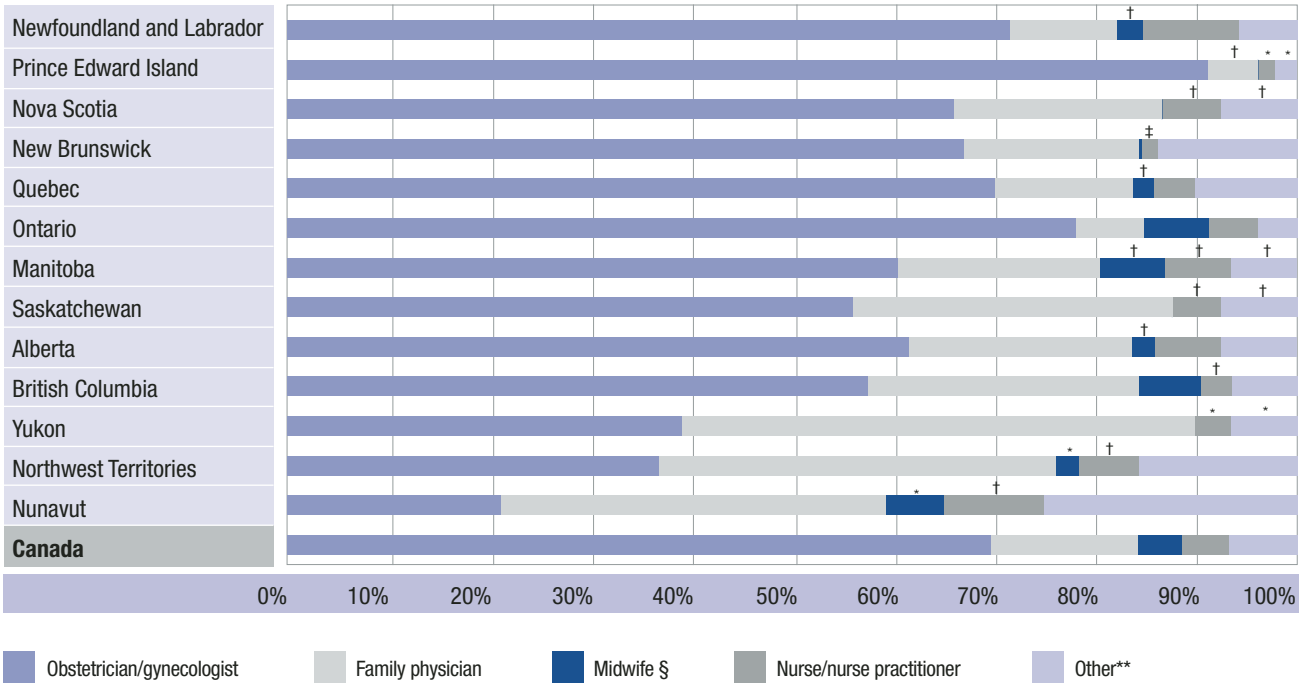
The MES asked women what type of health care provider had delivered their baby and whether they had the same provider during pregnancy and at the birth. Women were also asked about the importance they placed on having the same provider during pregnancy and at birth.

Results

- Overall, 69.6% (95% CI: 68.5–70.8) of women reported that their primary birth attendant was an obstetrician/gynecologist. An additional 14.6% (95% CI: 13.8–15.5) described their attendant as a family physician, 4.7% (95% CI: 4.2–5.3) as a nurse or nurse practitioner and 4.3% (95% CI: 3.7–4.8) as a midwife (Figure 17.1).
- The proportion of women whose primary birth attendant was an obstetrician/gynecologist ranged from 91.1% (95% CI: 88.7–93.6) in Prince Edward Island and 78.0% (95% CI: 76.2–79.8) in Ontario to 36.8% (95% CI: 31.2–42.4) in the Northwest Territories and 21.1% (95% CI: 14.6–27.5) in Nunavut. More than half of the women in each of the provinces were attended at birth by an obstetrician/gynecologist (Figure 17.1).
- The proportion of women whose primary birth attendant was a family physician ranged from 50.8% (95% CI: 45.0–56.6) in Yukon and 39.3% (95% CI: 33.5–45.0) in the Northwest Territories to 6.8% (95% CI: 5.7–8.0) in Ontario and 5.0%† (95% CI: 3.1–6.9) in Prince Edward Island (Figure 17.1).
- The proportion of women whose primary birth attendant was a nurse or nurse practitioner ranged from approximately 10% in Nunavut and Newfoundland and Labrador (9.9%†, 95% CI: 5.3–14.6 and 9.5%, 95% CI: 6.6–12.4, respectively) to 3.1%† (95% CI: 1.7–4.4) in British Columbia and 1.6%† (95% CI: 0.4–2.9) in New Brunswick (Figure 17.1).
- The proportion of women whose primary birth attendant was a midwife was approximately 6% in Manitoba, Ontario and British Columbia (6.5%†, 95% CI: 4.0–8.9; 6.4%, 95% CI: 5.3–7.5; and 6.1% 95% CI: 4.3–7.8, respectively) (Figure 17.1).
- Half of the women (49.4%, 95% CI: 48.1–50.7) reported that they had the same provider during their pregnancy and at their labour and birth, with the proportion ranging from 76.5% (95% CI: 71.6–81.5) in Yukon to 23.8% (95% CI: 19.6–27.9) in Newfoundland and Labrador (Figure 17.2).
- Of the women with the same provider, the majority (88.4%, 95% CI: 87.3–89.5) believed that it was important to have the same provider. Among women who did not have the same provider, 42.3% (95% CI: 40.5–44.1) believed that it would have been important to have had the same provider.
- Multiparous women more commonly had the same provider for pregnancy and birth (51.5%, 95% CI: 49.8–53.1) compared with primiparous women (46.9%, 95% CI: 45.0–48.8).

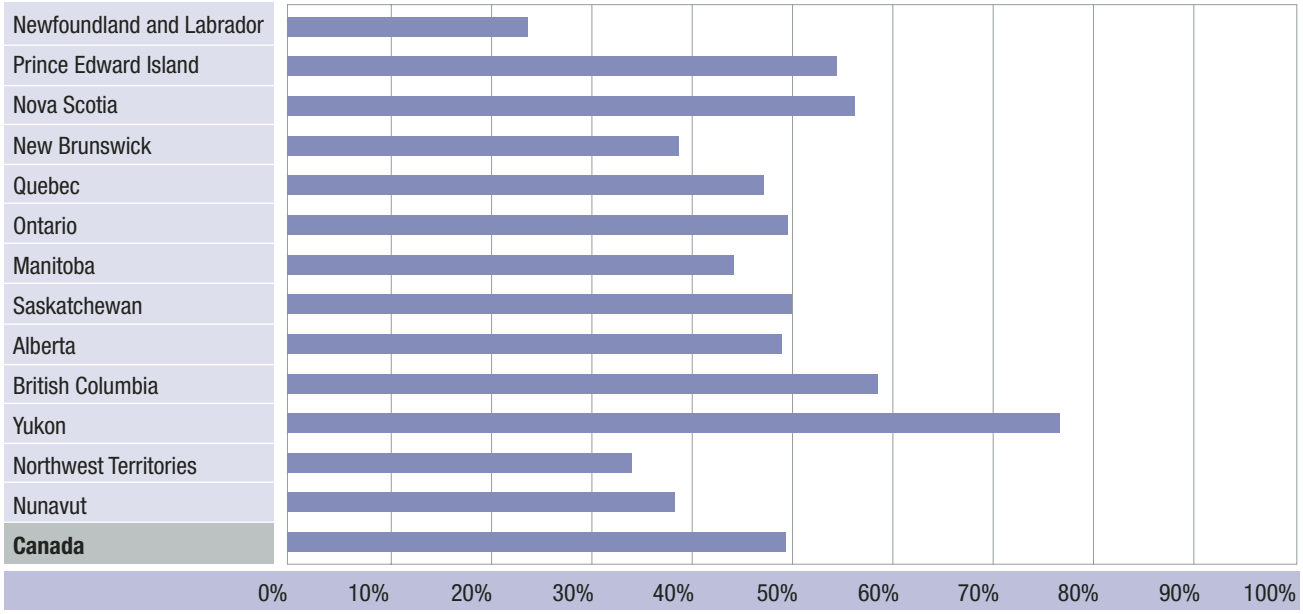
† Coefficient of variation between 16.6% and 33.3%.
† Coefficient of variation >33.3%.

Figure 17.1 **Distribution of type of primary birth attendant, by province/territory, Canada, 2006–2007**



* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.
§ Midwifery care is currently legislated in eight jurisdictions (Ontario, Alberta, British Columbia, Quebec, Manitoba, Saskatchewan, Nova Scotia and the Northwest Territories)[3] and publicly funded in five (Ontario, British Columbia, Quebec, Manitoba and the Northwest Territories).[4,5] In Nunavut, registered midwives from any province may practise and be remunerated in a birth centre in Rankin Inlet.[4]
** Includes those care providers whose type was unspecified by mothers, including physicians of unspecified specialization.

Figure 17.2 **Proportion of women who had the same health care provider for pregnancy and birth, by province/territory, Canada, 2006–2007**



Summary

Overall, more than two-thirds (69.6%) of women were attended at birth by an obstetrician/gynecologist. An additional 14.6% had a family physician, 4.7% a nurse or nurse practitioner and 4.3% a midwife as their primary birth attendant. The frequency with which each type of primary birth attendant was used varied by province and territory. One-half (49.4%) of women had the same provider during pregnancy and at birth and the majority (88.4%) of these women believed that it was important to have the same provider. Among women who did not have the same provider during pregnancy and at birth, 42.3% believed that it would have been important to have the same provider.

Limitations

Women defined the specialty of their doctor/type of health care provider using a variety of titles and in some cases the type of medical specialty was not reported. The term midwife is a protected title in jurisdictions where midwifery practice is legislated, but many women who are attended by unregulated practitioners for home birth may also refer to them as midwives.

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Question numbers: LB_Q08–Q11B

18 Type of Birth

Janusz Kaczorowski, Lily Lee

Introduction

The types of birth are: spontaneous vaginal birth, forceps- and vacuum-assisted vaginal birth, and cesarean birth. Cesarean births can be categorized as unplanned cesarean or emergency birth, and planned or elective cesarean birth, which includes cesarean birth by maternal request.

In *spontaneous vaginal births*, the baby is born without surgical or other assistance (i.e., forceps, vacuum). In 2004–2005, it was estimated that 63.4% of hospital deliveries in Canada were spontaneous vaginal deliveries.[1] In *assisted vaginal births*, either forceps or vacuum can be used to assist the delivery of a baby when spontaneous vaginal delivery has not progressed adequately. Both techniques have similar indications.[1–3] Although the use of a vacuum extractor reduces maternal trauma when compared with forceps-assisted delivery and lowers the rate of facial injury, the reduction in cephalohematoma and retinal hemorrhages associated with forceps may be seen as a compensatory benefit.[1,4,5]

The assisted delivery rate in Canada decreased from 16.3% of hospital vaginal deliveries in 1995–1996 to 14.8% in 2004–2005.[1] Vacuum-assisted deliveries increased from 9.4% of hospital vaginal deliveries in 1995–1996 to 10.3% in 2004–2005, with a corresponding decrease in forceps-assisted deliveries from 7.4% of hospital vaginal deliveries to 4.6% over the same time period.[1] There are considerable variations in these rates across Canada.[1]

Cesarean birth is a surgical procedure usually performed when a vaginal delivery would put the baby's or mother's life or health at risk; however, in recent years it has been performed upon maternal request or upon advice from health professionals without medical indication.[6] The rate of cesarean delivery in Canada is continuing to rise, despite increasing concerns about both the reasons and the consequences of this trend. According to the *Canadian Perinatal Health Report, 2008 Edition*, rates rose from 17.6% in 1995–1996 to 25.6% in 2004–2005, with substantial variations across the provinces and territories.[1]

Elective cesarean births are performed either on health care provider advice or by maternal request for reasons that might or might not be related to maternal or infant health. Although most planned or emergency surgical deliveries are considered medically necessary, the issue of elective cesarean delivery by maternal request is the subject of much debate. Purported maternal benefits are reduced urinary and fecal incontinence, reduced sexual dysfunction, and avoidance of labour complications and anxiety associated with fear of labour.[7,8] However, these claims have not been substantiated in follow-up studies.[9] Furthermore, a recent Canadian study reported three times higher severe maternal morbidity in healthy women who underwent planned cesarean birth compared with women with a planned vaginal delivery, although the absolute risk difference was small.[10]

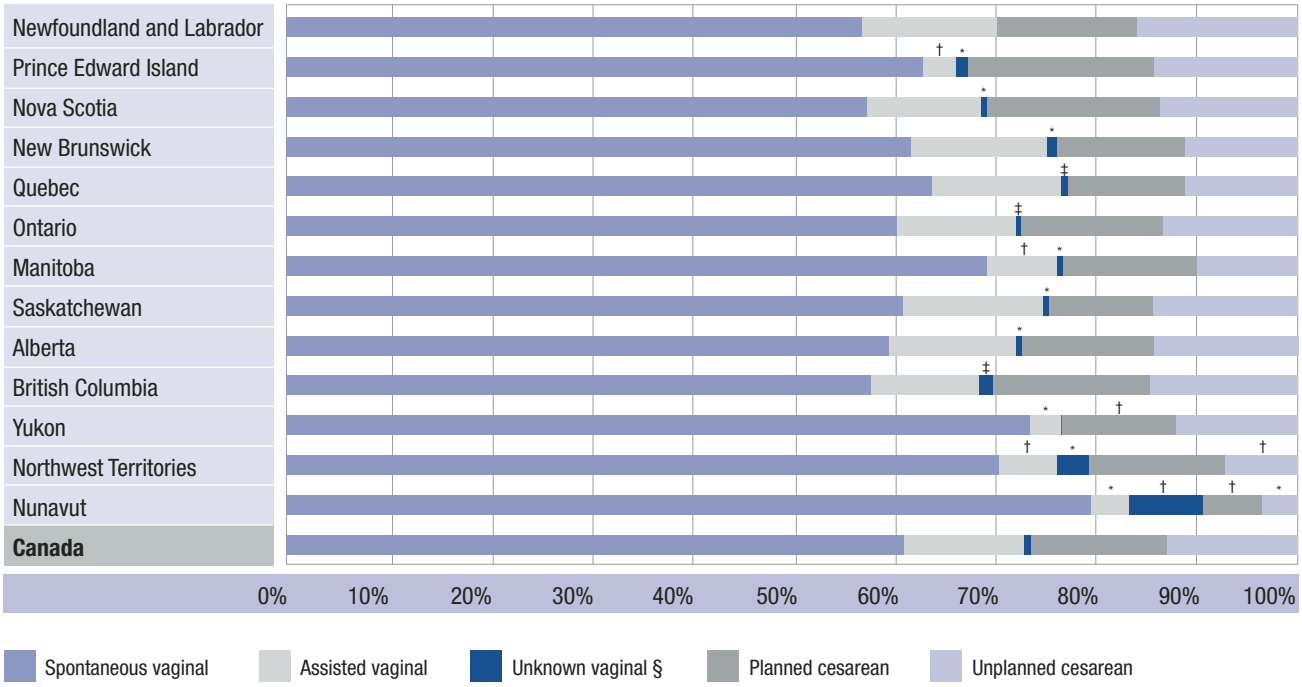
The MES asked women whether they had a vaginal or cesarean birth, and for women with a vaginal birth, whether either forceps or vacuum extraction was used. Women were also asked if, at any time before the birth, they had either requested a cesarean birth or one had been recommended by their health care provider. Respondents were also asked whether the cesarean birth was planned or unplanned. Women who reported a planned cesarean birth were asked whether it was for medical or non-medical reasons.

Results

- Overall, 73.7% (95% CI: 72.5–74.8) of women had a vaginal birth, including 61.1% (95% CI: 59.9–62.4) with a spontaneous vaginal birth and 11.9% (95% CI: 11.1–12.8) with an assisted vaginal birth (Figure 18.1). The proportion of women reporting a vacuum-assisted vaginal birth was 7.1% (95% CI: 6.5–7.8). Four percent (3.6%, 95% CI: 3.1–4.1) of women had a forceps-assisted vaginal birth and 1.2% (95% CI: 0.9–1.4) were assisted by both forceps and vacuum during vaginal birth.
- Twenty-six percent (26.3%, 95% CI: 25.2–27.5) of women had a cesarean birth. This varied from 32.6% (95% CI: 28.8–36.3) in Prince Edward Island and 30.8% (95% CI: 26.7–34.9) in Nova Scotia to 20.5% (95% CI: 15.8–25.3) in the Northwest Territories and 9.3%† (95% CI: 4.9–13.6) in Nunavut (Figure 18.1).
- Cesarean birth increased with maternal age, from approximately 20% for women under 25 years of age (20.4%, 95% CI: 15.6–25.2, and 19.7%, 95% CI: 16.8–22.5 for women 15–19 years and 20–24 years, respectively) to 42.6% (95% CI: 34.9–50.3) for women aged 40 years and older (Figure 18.2). The proportion of women with a cesarean birth was higher in primiparous women, women with higher levels of education (Figure 18.3) and among women living in a household above the low income cut-off.
- Thirteen percent (13.5%, 95% CI: 12.6–14.3) of women had a planned cesarean birth. This ranged from 18.5% (95% CI: 15.3–21.7) in Prince Edward Island and 17.2% (95% CI: 13.7–20.6) in Nova Scotia to 10.2% (95% CI: 7.4–13.0) in Saskatchewan and 5.9%† (95% CI: 2.3–9.4) in Nunavut (Figure 18.1). The proportion of women with a planned cesarean birth increased with maternal age (Figure 18.2) and was higher for multiparous women and women living in a household at or below the low income cut-off.
- Among women with a planned cesarean birth, 86.7% (95% CI: 84.4–89.1) were planned for medical reasons. This proportion increased with maternal age and level of education and was higher for primiparous women.
- At some time during pregnancy, before labour or birth, 8.1% (95% CI: 7.4–8.7) of women requested a cesarean birth from their health care provider. This percentage includes 5.3% (95% CI: 4.7–5.8) who were multiparous women with a previous cesarean birth.
- Sixteen percent (15.8%, 95% CI: 14.8–16.7) of women reported that their health care provider recommended a cesarean birth at some time during the pregnancy, before the onset of labour.

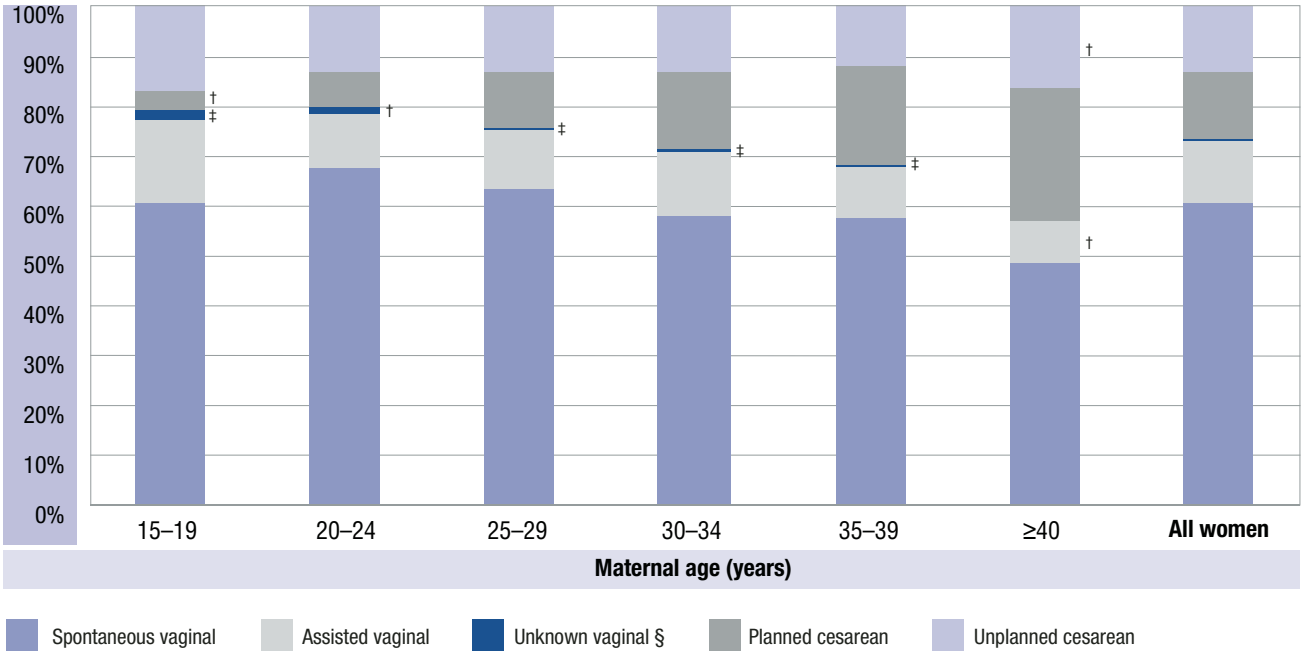
† Coefficient of variation between 16.6% and 33.3%.

Figure 18.1 **Distribution of type of birth, by province/territory, Canada, 2006–2007**



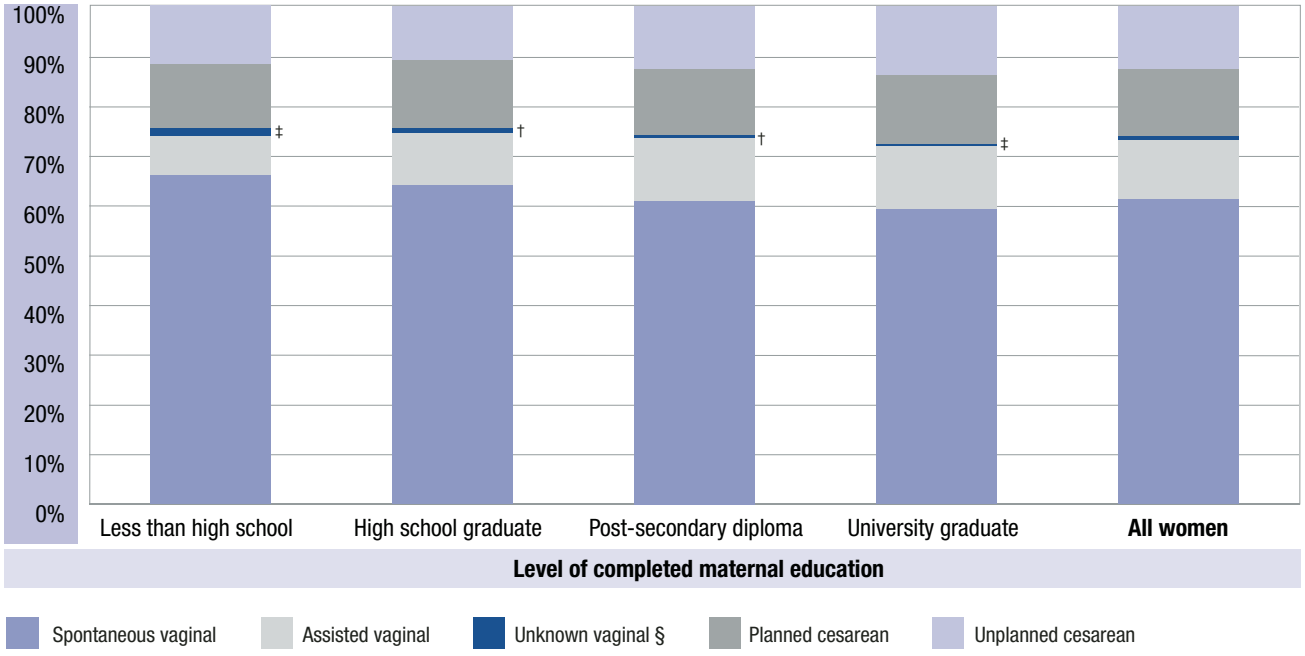
* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.
§ Refers to women who had a vaginal birth and for whom information was missing on forceps and/or vacuum use.

Figure 18.2 **Distribution of type of birth, by maternal age, Canada, 2006–2007**



† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.
§ Refers to women who had a vaginal birth and for whom information was missing on forceps and/or vacuum use.

Figure 18.3 **Distribution of type of birth, by maternal education, Canada, 2006–2007**



† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.
§ Refers to women who had a vaginal birth and for whom information was missing on forceps and/or vacuum use.

Summary

About three-quarters (73.7%) of women gave birth vaginally. Cesarean births (26.3%) were more frequent in older women, primiparous women, women with higher levels of education and women living in a household above the low income cut-off. Few women (8.1%) requested a cesarean birth from their health care provider at any point during their pregnancy. This includes 5.3% who were multiparous women with a previous cesarean birth.

Limitations

The MES did not ask why a health care provider recommended cesarean birth or why a maternal request for cesarean birth was made.

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Question numbers: LB_Q18, CS_Q01–Q03, VB_Q01A–Q01B, PC_Q09–Q10

19 Position for Birth

Lily Lee, Beverley Chalmers

Introduction

Many believe the supine (on your back) position for birth to be more convenient for the birth attendant and more comfortable for women.[1] In a systematic review, the use of an upright or side-lying position for birth, compared with supine or lithotomy (supine with legs in stirrups) positions, was associated with shortened second stage of labour, a small reduction in assisted vaginal births, fewer episiotomies, lower reported maternal pain in second stage and fewer abnormal fetal heart rate patterns, but increased estimated blood loss and increased perineal tears.[2]

Health Canada advocates that women be provided with appropriate information about various birth positions in order to make an informed choice and give birth in the position they find most comfortable.[3] The World Health Organization recommends against the routine use of a supine position for birth and includes a non-supine position as one of five key indicators of effective management of normal labour.[4]

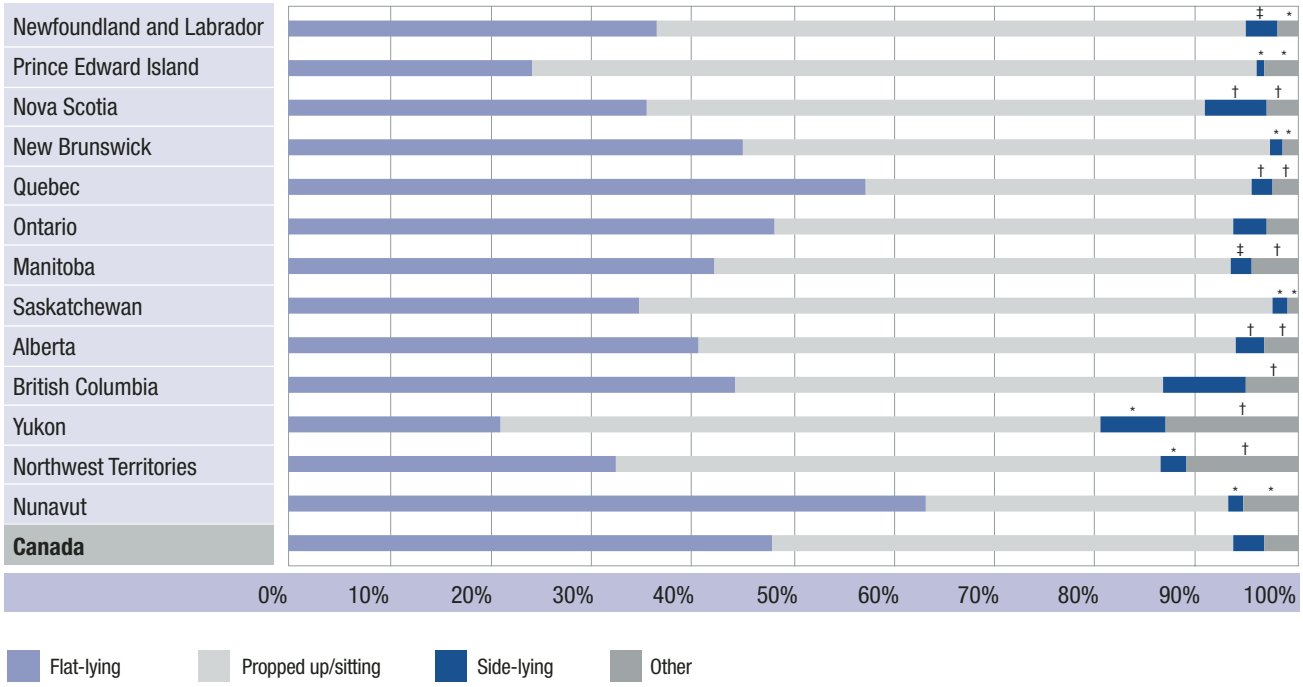
The MES asked women with a vaginal birth what position they were in at the time of birth. In addition, women with a vaginal birth who were not lying on their side at the time of birth were asked whether their legs were placed in stirrups.

Results

- The most frequent position reported by women with a vaginal birth was lying flat on their back (47.9%, 95% CI: 46.4–49.4), followed by being propped up or sitting (45.8%, 95% CI: 44.3–47.3). Three percent (3.3%, 95% CI: 2.8–3.9) of women gave birth in a side-lying position and 3.0% (95% CI: 2.5–3.5) in other positions (Figure 19.1).
- The use of a flat-lying position for birth varied substantially among provinces and territories, from 63.3% (95% CI: 56.0–70.6) in Nunavut and 57.2% (95% CI: 54.2–60.2) in Quebec, to 24.2% (95% CI: 19.9–28.4) in Prince Edward Island and 21.1% (95% CI: 15.7–26.5) in Yukon (Figure 19.1).
- More than half of women with a vaginal birth who were not lying on their side (57.0%, 95% CI: 55.5–58.5) reported that their legs were in stirrups when the baby was born. The use of stirrups during vaginal birth ranged from 73.4% (95% CI: 70.6–76.3) in Quebec and 70.4% (95% CI: 65.8–75.0) in Prince Edward Island to 39.2% (95% CI: 32.4–46.0) in Yukon and 37.7% (95% CI: 31.9–43.5) in Nova Scotia (Figure 19.2). Stirrup use was more common among women under 30 years of age than among older women.

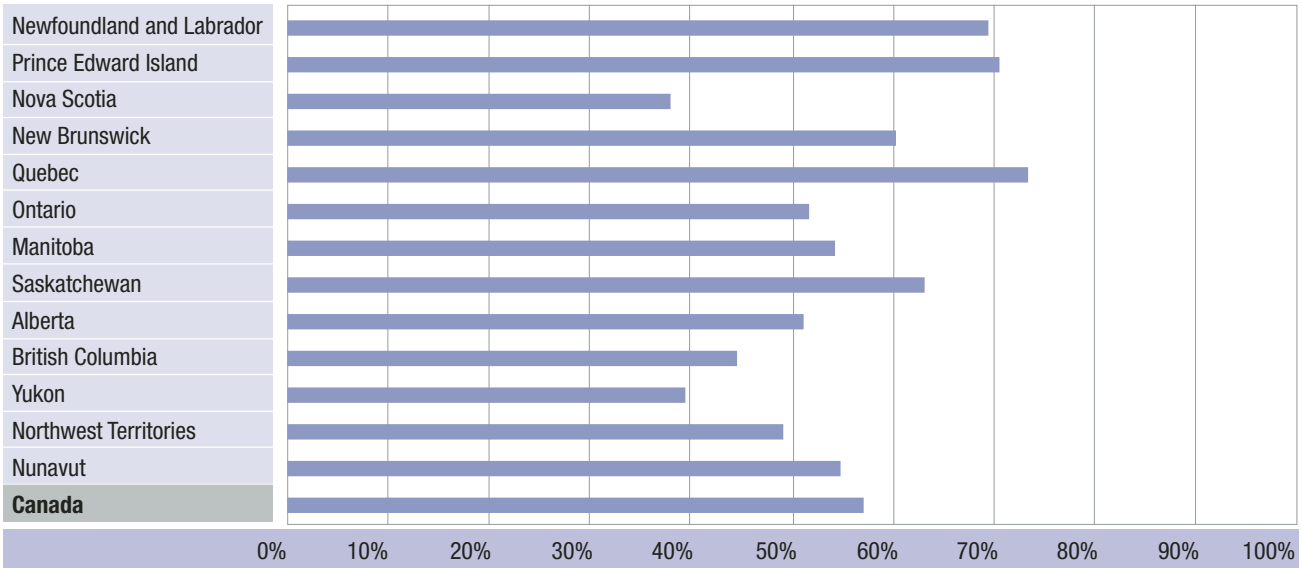
- Forty-nine percent (49.3%, 95% CI: 47.0–51.6) of primiparous mothers and 46.6% (95% CI: 44.5–48.6) of multiparous mothers gave birth in a flat-lying position. Primiparous mothers had their legs placed in stirrups more often than multiparous mothers (59.5%, 95% CI: 57.3–61.8 vs. 55.2%, 95% CI: 53.2–57.3).
- Women living in a household above the low income cut-off had lower use of the flat-lying position for vaginal birth compared with women living in a household at or below the low income cut-off (45.4%, 95% CI: 43.6–47.2 and 52.6, 95% CI: 49.2–56.1, respectively).

Figure 19.1 **Distribution of women's birth position among women with a vaginal birth, by province/territory, Canada, 2006–2007**



* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.

Figure 19.2 **Proportion of women who used stirrups among women who had a vaginal birth and were not lying on their side at the time of birth, by province/territory, Canada, 2006–2007**



Summary

Almost half (47.9%) of the women who delivered vaginally reported using a flat-lying position at the time of birth. There was wide variation in the use of this position among provinces and territories. More than half (57.0%) of women with a vaginal birth who were not lying on their side at the time of birth reported having their legs in stirrups.

Limitations

The MES did not ask whether the position for birth was a result of the woman's choice, health care provider preference or whether it was medically necessary. Women lying supine were not asked about "lateral tilt" positions, and birthing bed footrests may have been interpreted as stirrups.

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Question numbers: VB_Q04–Q05

20 Starting or Speeding Up Labour

Lily Lee, David Young

Introduction

The clinical definition of induction of labour is "the artificial initiation of labour before its spontaneous onset."[1] Labour induction is often necessary when continuing with the pregnancy poses a risk to the health of the mother and/or fetus. In 2004–2005, the rate of labour induction, defined as the use of medical or surgical means to initiate labour, was 21.8% in Canada.[2] Retrospective studies and database reports have identified an association between labour induction and higher rates of abnormal fetal heart rate patterns, uterine hyperstimulation, uterine rupture, assisted vaginal delivery and cesarean delivery.[3] However, randomized clinical trials, with an intention-to-treat analysis, on the two most common reasons for labour induction (post-term pregnancy and pre-labour rupture of membranes) have not supported these findings, with either no increase in or fewer cesarean deliveries.[4,5]

In labours that have begun spontaneously, amniotomy and/or oxytocin infusion are useful for enhancing inadequate uterine contractions or slowly progressing labour.[6] These interventions are referred to by clinicians as labour augmentation. The Society of Obstetricians and Gynaecologists of Canada recommends that oxytocin be implemented prior to any consideration of surgical intervention.[7] However, routine early augmentation with amniotomy and oxytocin, when used in nulliparous women in normal labour, has not been associated with a clinically significant reduction in cesarean births or improved obstetric and neonatal outcomes.[8]

The MES asked women with a vaginal birth or who attempted a vaginal birth whether their health care provider tried to start or speed up labour by the use of medications or other techniques.

Note: The MES questions about starting or speeding up labour may not correspond to the clinical definitions of labour induction and augmentation. Therefore, women may have reported actions other than those covered by the clinical definitions.

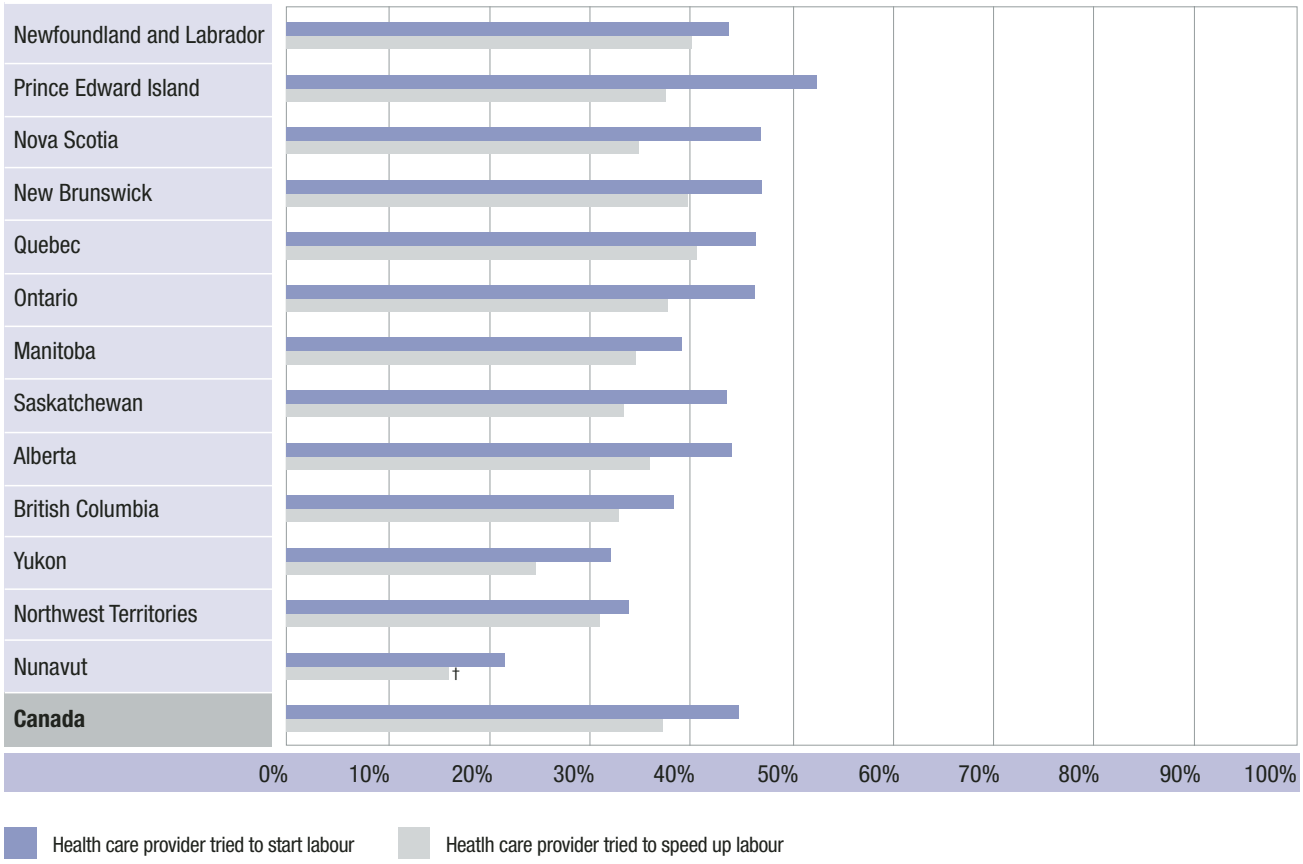
Results

- About 45% (44.8%, 95% CI: 43.4–46.1) of women with a vaginal birth or who attempted a vaginal birth reported that their health care provider tried to start labour by the use of medication or some other technique. This varied substantially among Canadian provinces and territories, from 52.5% (95% CI: 47.7–57.2) in Prince Edward Island and 47.0% (95% CI: 41.3–52.6) in New Brunswick to 32.1% (95% CI: 26.0–38.1) in Yukon and 21.6% (95% CI: 15.6–27.6) in Nunavut (Figure 20.1).

- A lower proportion of women who had a vaginal delivery reported that their health care provider attempted to start labour (42.1%, 95% CI: 40.6–43.5) compared with those who tried for a vaginal delivery, but went on to deliver by cesarean (65.0%, 95% CI: 61.0–69.0). An attempt to start labour was also reported more frequently by primiparous women than multiparous women (50.7%, 95% CI: 48.7–52.7 and 39.4%, 95% CI: 37.5–41.4, respectively).
- Thirty-seven percent (37.3%, 95% CI: 36.0–38.6) of women with a vaginal birth or who attempted a vaginal birth reported that their health care provider attempted to speed up labour using medication or some other technique. The proportion of women who reported that their health care provider tried to speed up labour varied across provinces and territories, from 40.6% (95% CI: 37.7–43.5) in Quebec and 40.1% (95% CI: 34.8–45.4) in Newfoundland and Labrador to 24.7% (95% CI: 19.1–30.4) in Yukon and 16.1%† (95% CI: 10.6–21.5) in Nunavut (Figure 20.1).
- Fewer women who had a vaginal delivery reported that their health care provider tried to speed up labour (34.7%, 95% CI: 33.4–36.1) compared with those who attempted a vaginal delivery, but delivered by cesarean (56.7%, 95% CI: 52.6–60.8). The percentage of primiparous mothers reporting that their health care provider tried to speed up labour was higher than multiparous mothers (44.7%, 95% CI: 42.8–46.7 and 30.8%, 95% CI: 28.9–32.6, respectively). More women living in a household above the low income cut-off reported that their health care provider tried to speed up their labour (38.8%, 95% CI: 37.2–40.3) compared with women living in a household at or below the low income cut-off (32.7%, 95% CI: 29.7–35.8).

† Coefficient of variation between 16.6% and 33.3%.

Figure 20.1 **Proportion of women whose health care provider tried to start or tried to speed up labour among women with a vaginal birth or who attempted a vaginal birth, by province/territory, Canada, 2006–2007**



† Coefficient of variation between 16.6% and 33.3%.

Summary

Overall, almost half (44.8%) of women with a vaginal birth or who attempted a vaginal birth reported that their health care provider tried to start their labour with medication or other techniques, and more than one-third (37.3%) indicated that their health care provider tried to speed up their labour. These proportions varied among provinces and territories. Almost two-thirds (65.0%) of women who delivered by cesarean after attempting a vaginal delivery had medication or other techniques to start their labour.

Limitations

Women may have interpreted starting or speeding up labour differently from the clinical definitions of labour induction and augmentation; therefore, women may have reported actions other than those covered by the clinical definitions. For example, women may have interpreted the sweeping of membranes (i.e., manual separation of the amniotic membrane from the lower uterine segment) as induction of labour, and they may have considered ongoing induction or other non-medical techniques (e.g., nipple stimulation or even ambulation) as labour augmentation. This difference in interpretation is the likely explanation for the large discrepancy between the MES and the *Canadian Perinatal Health Report, 2008 Edition*, in the rate of starting labour/labour induction (44.8% vs. 21.8%, respectively). The MES did not ask women to specify the technique used to start or speed up labour. Information about the reasons for induction or augmentation was not collected, nor was the gestational age at which the induction was initiated.

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Question numbers: VB_Q05–Q06

21 Fetal Heart Rate Monitoring

David Young, Lily Lee, Beverley Chalmers

Introduction

By the early 1900s, intermittent auscultation of the fetal heart rate had become the primary method of intrapartum fetal health surveillance.[1] Continuous assessment of the fetal heart rate became possible in the 1960s through the electronic fetal heart rate monitor. It was assumed and quickly accepted, without confirmation from randomized clinical trials, that the availability and interpretation of a continuous record would be more useful than intermittent assessment.[2] Except for a reduction in neonatal seizures (a short-term morbidity), a meta-analysis evaluating electronic fetal monitoring (EFM) versus intermittent auscultation did not find any benefit for the newborn in terms of mortality or substantive long-term morbidity, such as cerebral palsy.[3] An important finding of concern associated with EFM use was an increase in interventions such as cesarean delivery, assisted vaginal birth and the use of anesthesia.[3]

Although high-quality evidence supports the use of intermittent auscultation (e.g., stethoscope, Doppler) as an appropriate technique to monitor fetal health in normal labour,[4] EFM is still widely used as a routine part of intrapartum care. In a recent survey of maternity hospital policies and practices in Canada, 85% of hospitals indicated that almost all of the women had initial EFM.[5] In the United States, a survey of women who had recently given birth found that EFM was used at some point during labour in 94% of live births.[6] Canadian clinical guidelines recommend the use of intermittent auscultation for fetal surveillance during spontaneous labour in healthy term women who have no risk factors for adverse perinatal outcomes.[4]

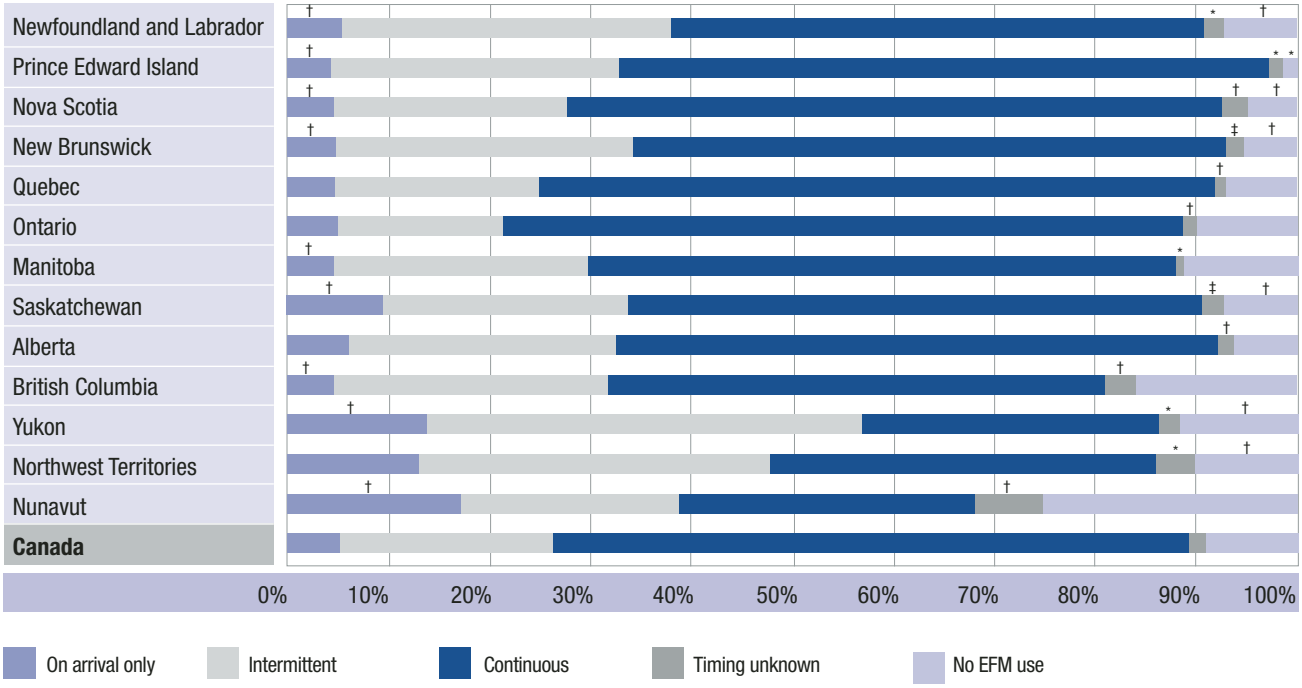
The MES asked women with a vaginal birth or who attempted a vaginal birth whether they were attached to an EFM machine. If so, they were asked when EFM was used (i.e., on arrival or admission, on and off throughout labour, or continuously). Women were also asked whether the fetal heart rate was monitored with another instrument such as a stethoscope, Doppler or fetoscope.

Results

- Overall, 90.8% (95% CI: 90.0–91.6) of women with a vaginal birth or who attempted a vaginal birth reported EFM at some time during labour. This varied regionally from 98.6% (95% CI: 97.5–99.7) in Prince Edward Island to 74.8% (95% CI: 67.9–81.7) in Nunavut (Figure 21.1).
- A continuous approach was adopted for 62.9% (95% CI: 61.5–64.2) of all women; 21.1% (95% CI: 19.9–22.3) reported intermittent use and 5.2% (95% CI: 4.6–5.8) reported use on admission, but not subsequently. These patterns of EFM use showed considerable regional variation (Figure 21.1).

- EFM use at some time during labour was higher for primiparous (94.0%, 95% CI: 93.0–94.9) than for multiparous women (87.9%, 95% CI: 86.6–89.2).
- Fetal heart rate was monitored by a stethoscope, Doppler or fetoscope in 32.3% (95% CI: 31.0–33.7) of women with a vaginal birth or who attempted a vaginal birth, with considerable regional variation. Monitoring by these methods ranged from 48.3% (95% CI: 41.9–54.7) in the Northwest Territories and about 43% in Yukon and British Columbia (43.9%, 95% CI: 37.3–50.5 and 43.4%, 95% CI: 39.0–47.8, respectively) to 21.8% (95% CI: 17.9–25.8) in Prince Edward Island and 20.4% (95% CI: 15.8–25.1) in New Brunswick (Figure 21.2).
- Forty-three percent (42.7%, 95% CI: 33.5–52.0) of women aged 40 years and older reported fetal heart rate monitoring by stethoscope, Doppler or fetoscope compared with 27.3% (95% CI: 21.4–33.2) of women aged 15–19 years (Figure 21.3).
- The proportion of women who experienced exclusive auscultation of the fetal heart rate during labour by either stethoscope, Doppler or fetoscope (i.e., EFM was not used at any time during labour) was 6.5% (95% CI: 5.8–7.3).

Figure 21.1 **Distribution of electronic fetal heart rate monitor (EFM) use during labour among women with a vaginal birth or who attempted a vaginal birth, by province/territory, Canada, 2006–2007**



* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.

Figure 21.2 **Proportion of stethoscope, Doppler or fetoscope use to monitor fetal heart rate during labour among women with a vaginal birth or who attempted a vaginal birth, by province/territory, Canada, 2006–2007**

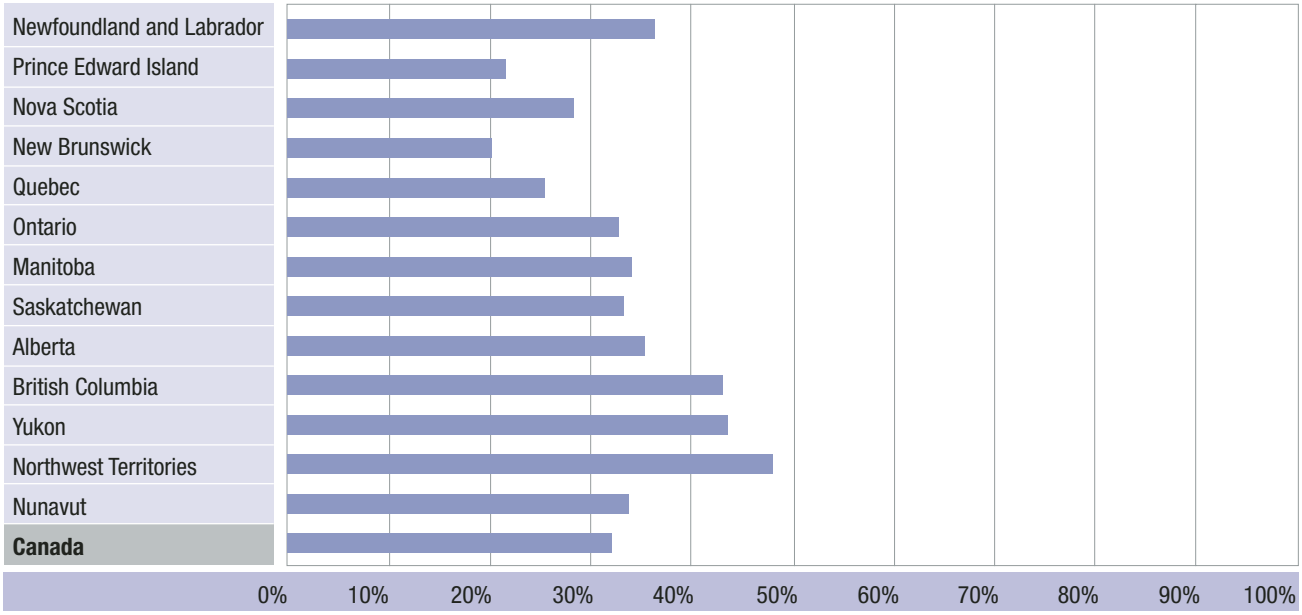
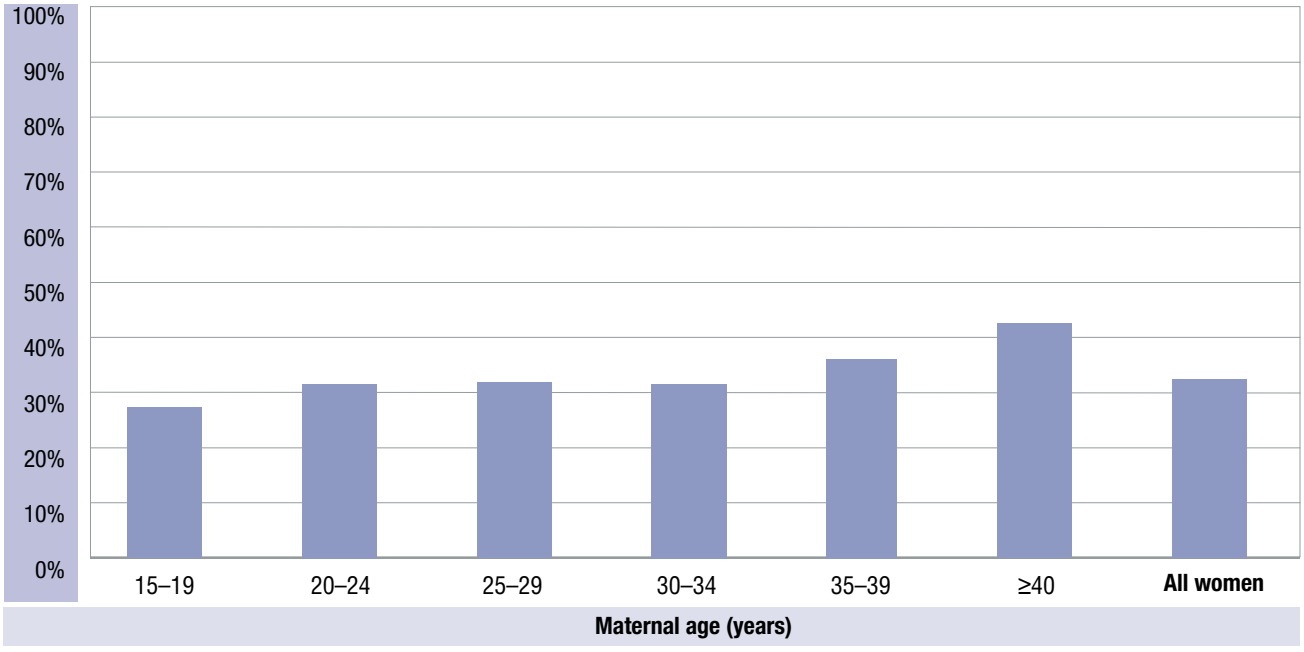


Figure 21.3 **Proportion of stethoscope, Doppler or fetoscope use to monitor fetal heart rate during labour among women with a vaginal birth or who attempted a vaginal birth, by maternal age, Canada, 2006–2007**



Summary

Among women with a vaginal birth or who attempted a vaginal birth, 90.8% reported having electronic fetal monitoring (EFM) at some time during labour and 62.9% reported having continuous use of EFM. The use of EFM decreased with increasing maternal age and was higher for primiparous than for multiparous women. A small proportion (6.5%) of women experienced exclusive auscultation of the fetal heart rate during labour by stethoscope, Doppler or fetoscope (i.e., EFM was not used at any time during labour).

Limitations

The MES could not distinguish between the techniques used for intermittent auscultation (i.e., stethoscope, Doppler or fetoscope). The use of intermittent auscultation by hand-held Doppler may have been reported by women as "some other method" or possibly EFM or stethoscope. Those women with a cesarean birth who did not attempt a vaginal birth were not asked about use of fetal heart rate monitoring.

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Question numbers: VB_Q10–Q13

22 Shaving, Enemas and Pushing on the Abdomen

Janusz Kaczorowski, David Young

Introduction

The liberal or routine use of pubic or perineal shaves and administration of enemas or suppositories to women in labour has been challenged for several decades. Shaving the perineum prior to labour had been a routine procedure for women in Canada, as it was believed to reduce the risk of infection in case of tears or episiotomy.[1,2] However, there is no evidence to support such claims.[1–4] Furthermore, there is evidence that shaves cause discomfort, embarrassment and microlaceration[2,5] as well as irritation and itching when the hair regrows.[1,2]

Similarly, enemas or suppositories to empty bowels in preparation for birth were believed to reduce the risk of infection and fecal contamination, and to shorten labour.[3,5,6] Nonetheless, differences in labour duration and reduced infection rates are not supported by existing evidence.[1,3,5] In addition, enemas are uncomfortable and potentially degrading.[6]

Another long-standing intervention involves pushing on the top of the abdomen of the mother to augment the intra-abdominal pressure to assist the vaginal delivery of the baby. In a survey conducted in the United States, 17% of women reported that their health care provider pushed on their abdomen during birth.[7] However, there is little evidence to support this practice.

A 2007 survey of routine policies and practices in Canadian hospitals providing maternity care found that 96% of hospitals had as their unit policy "no shave on admission" and 88% of hospitals had as their unit policy "no enema/suppository on admission."[4]

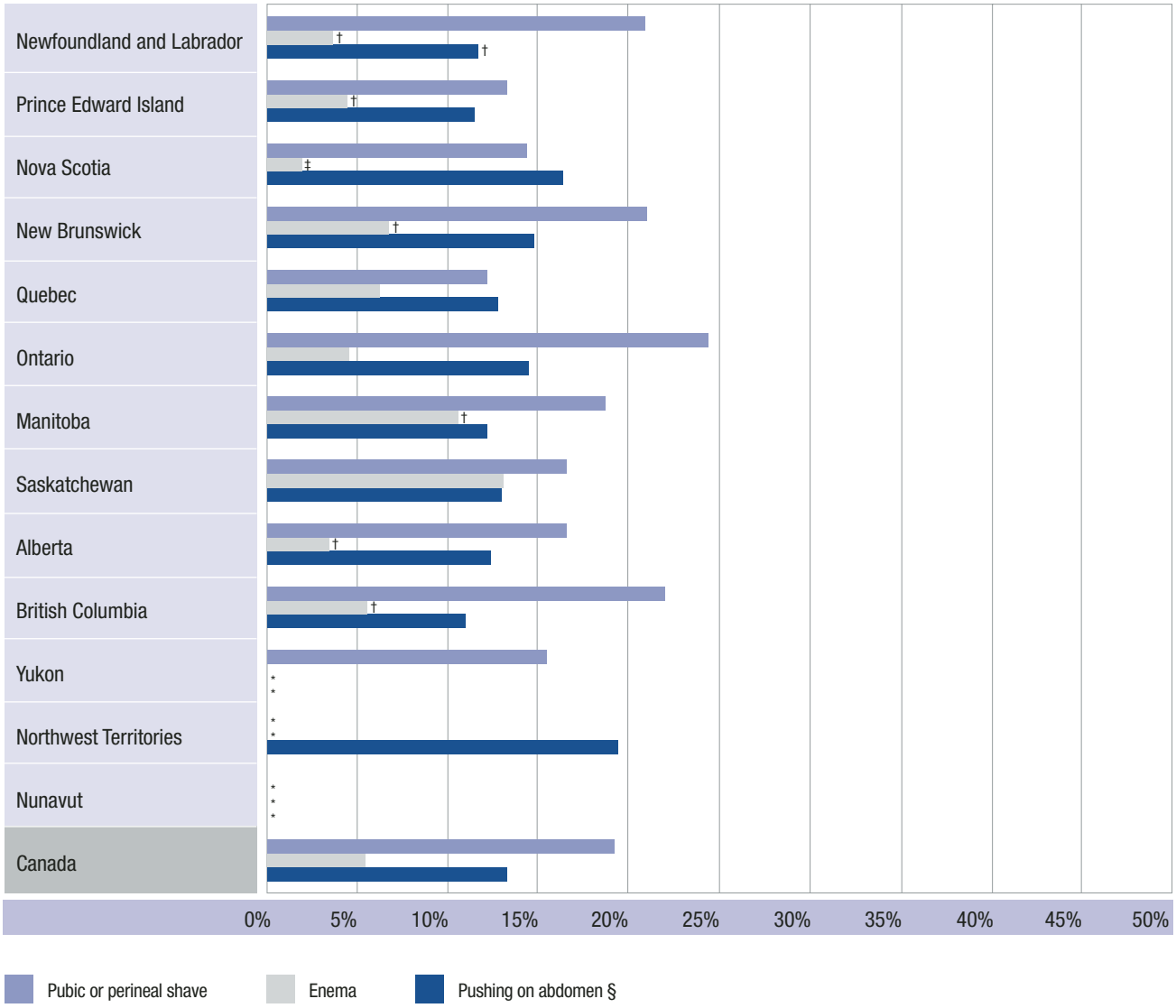
The MES asked women with a vaginal birth or who attempted a vaginal birth whether pubic hair or the hair around the vagina was shaved in preparation for birth. These women were also asked whether they had an enema in preparation for the birth and whether someone pushed on the top of their abdomen to help push the baby down during vaginal birth.

Results

- Overall, 19.1% (95% CI: 17.9–20.2) of women with a vaginal birth or who attempted a vaginal birth reported a pubic or perineal shave, with variation from 24.3% (95% CI: 22.1–26.5) in Ontario and 21.9% (95% CI: 18.6–25.2) in British Columbia to 13.2% (95% CI: 9.9–16.4) in Prince Edward Island and 12.1% (95% CI: 10.2–14.0) in Quebec (Figure 22.1).
- Women under 25 years of age (Figure 22.2), women who delivered by cesarean after attempting to deliver vaginally, primiparous women, women with lower levels of education (Figure 22.3) and women living in a household at or below the low income cut-off were more likely to report a pubic or perineal shave.
- Overall, 5.4% (95% CI: 4.7–6.0) of women with a vaginal birth or who attempted a vaginal birth reported having an enema. This percentage ranged from 13.0% (95% CI: 9.3–16.6) in Saskatchewan and 10.5%† (95% CI: 7.0–13.9) in Manitoba to 3.4%† (95% CI: 1.9–4.9) in Alberta and 1.9%† (95% CI: 0.5–3.3) in Nova Scotia (Figure 22.1).
- Women under 20 years of age, women 40 years and older (Figure 22.2), primiparous women, women with lower levels of education (Figure 22.3) and women living in a household at or below the low income cut-off were more likely to have an enema.
- Among the women who gave birth vaginally, 13.2% (95% CI: 12.1–14.2) reported that someone pushed on the top of their abdomen during the birth. Regionally, this ranged from 19.3% (95% CI: 14.0–24.6) in the Northwest Territories and 16.3% (95% CI: 12.3–20.4) in Nova Scotia to about 11% in Newfoundland and Labrador, and Prince Edward Island (11.6%, 95% CI: 7.7–15.6 and 11.4, 95% CI: 8.0–14.9, respectively) and 10.9% (95% CI: 7.9–13.9) in British Columbia (Figure 22.1).
- Women who graduated from university (Figure 22.3), women living in a household above the low income cut-off and women whose delivery was attended by a nurse or a midwife less frequently reported that someone pushed on the top of their abdomen during vaginal birth.

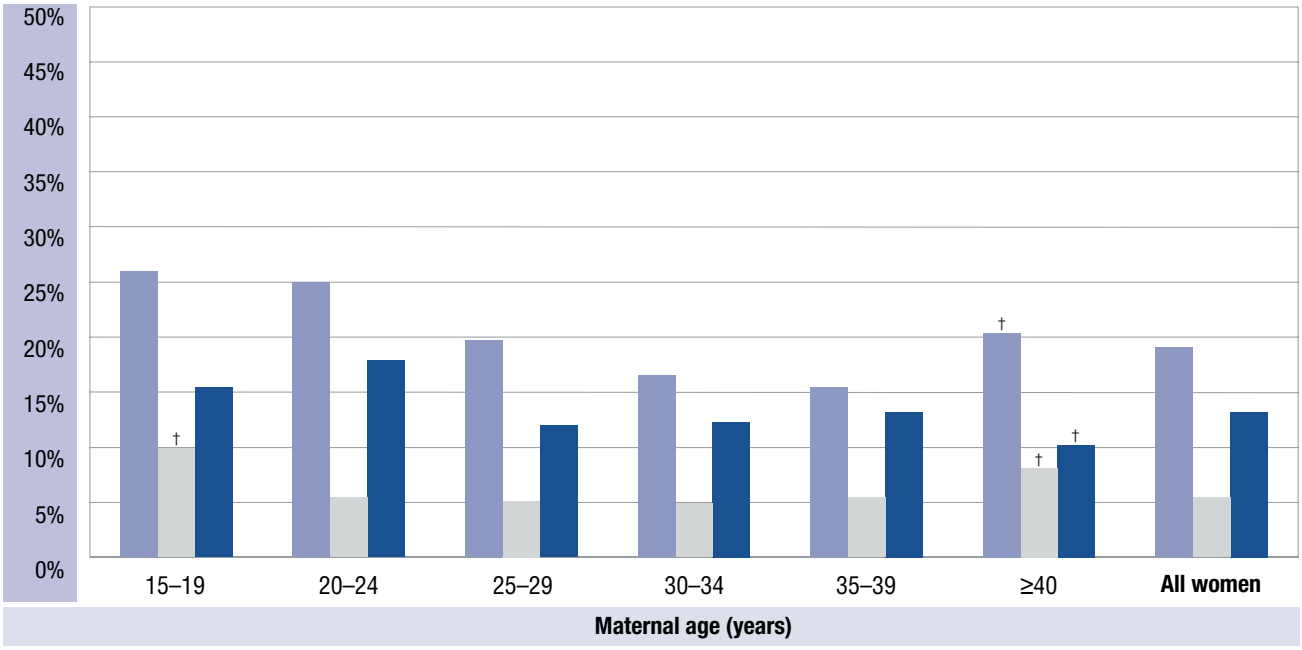
† Coefficient of variation between 16.6% and 33.3%.
† Coefficient of variation >33.3%.

Figure 22.1 **Proportion of women who experienced pubic or perineal shaving, enemas and pushing on the top of the abdomen among women with a vaginal birth or who attempted a vaginal birth, by province/territory, Canada, 2006–2007**



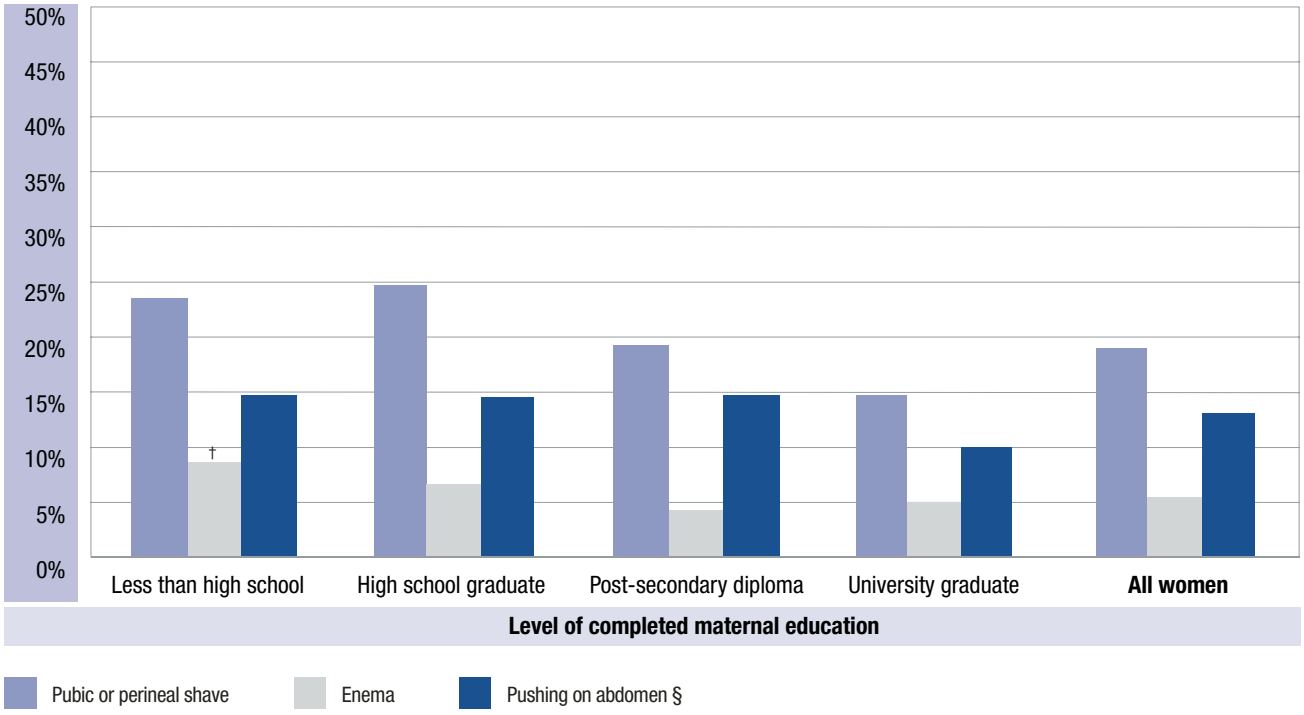
* Estimate not shown because unweighted numerator was less than 5.
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.
§ Includes women with a vaginal birth only.

Figure 22.2 **Proportion of women who experienced pubic or perineal shaving, enemas and pushing on the top of the abdomen among women with a vaginal birth or who attempted a vaginal birth, by maternal age, Canada, 2006–2007**



† Coefficient of variation between 16.6% and 33.3%.
§ Includes women with a vaginal birth only.

Figure 22.3 **Proportion of women who experienced pubic or perineal shaving, enemas and pushing on the top of the abdomen among women with a vaginal birth or who attempted a vaginal birth, by maternal education, Canada, 2006–2007**



† Coefficient of variation between 16.6% and 33.3%.
§ Includes women with a vaginal birth only.

Summary

Among women with a vaginal birth or who attempted a vaginal birth, almost one in five (19.1%) reported a pubic or perineal shave, 5.4% had an enema, and 13.2% experienced pushing on the top of their abdomen to help push the baby down during vaginal birth. Primiparous women, women with lower educational levels and those women living in a household at or below the low income cut-off were more likely to report these procedures. Large variations among provinces and territories were also observed.

Limitations

The MES did not ask women to specify whether pubic or perineal shaves or enemas were requested by women or were administered by a health care provider as "routine." Since the MES did not ask women to specify who carried out shaving or enemas in preparation for the birth, the percentages may include those that were self-administered. Women may have interpreted palpation of the abdomen by a health care provider as pushing on the top of the abdomen during birth.

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Question numbers: VB_Q08–Q09, BB_Q02, LB_Q18

23 Episiotomy and Perineal Stitches

Beverley O'Brien, Janusz Kaczorowski

Introduction

An episiotomy is a surgical incision through the perineum made to enlarge the vaginal opening during vaginal delivery. This procedure is based on the belief that it will lessen perineal lacerations and neonatal trauma, facilitate operative vaginal birth and protect pelvic floor function. However, the routine use of episiotomy has been questioned. A recent systematic review found no beneficial maternal outcomes and a potential for harm from routine versus restricted use of episiotomy.[1] Midline episiotomy is associated with a significant increase in severe perineal lacerations, in particular when it is performed during vacuum- or forceps-assisted vaginal delivery.[2] The value of restricted use of episiotomy in relation to fetal health still needs to be explored.[3]

Internationally, both the World Health Organization (WHO) and the American College of Obstetricians and Gynecologists recommend restricted use of episiotomy;[4,5] however, the decision to perform an episiotomy is highly variable and dependent on the clinical situation and clinician preference. In Canada, the rate of episiotomy among women with a hospital vaginal birth has been decreasing. According to the *Canadian Perinatal Health Report, 2008 Edition*, the rate decreased from 31.1% in 1995–1996 to 20.4% in 2004–2005, a relative decrease of 34%.[6] Whether or not some minor lacerations and tears are sutured also reflects clinician preference. The WHO recommends that minor lacerations and tears not be routinely sutured.[7]

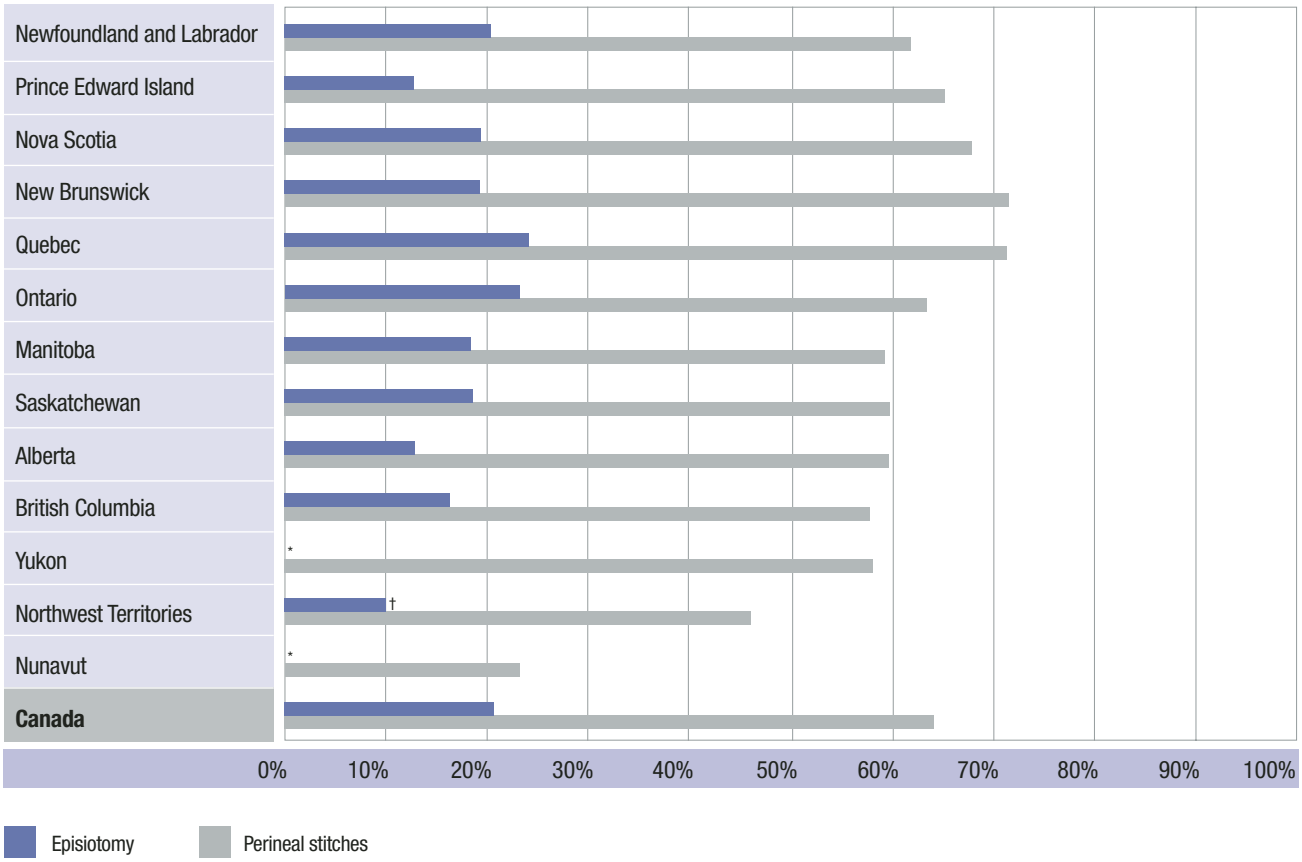
The MES asked women with a vaginal birth or who attempted a vaginal birth if, just before the birth, they had an episiotomy or a cut to enlarge the vaginal opening, and whether they had stitches near the opening of the vagina to repair a tear or cut.

Results

- Among women with a vaginal birth or who attempted a vaginal birth, 20.7% (95% CI: 19.6–21.8) reported having an episiotomy. Episiotomy use varied by region, from 24.1% (95% CI: 21.6–26.6) in Quebec and 23.2% (95% CI: 21.1–25.3) in Ontario to approximately 13% in Alberta and Prince Edward Island (12.9%, 95% CI: 10.3–15.6, and 12.8%, 95% CI: 9.7–15.9, respectively), and 10.0%† (95% CI: 6.3–13.6) in the Northwest Territories (Figure 23.1).
- The proportion of women who reported an episiotomy varied by maternal age, ranging from 23.3% (95% CI: 19.9-26.7) among women aged 35–39 years to 14.4% (95% CI: 10.2-18.6) among women aged 15–19 years (Figure 23.2). Primiparous women (27.1%, 95% CI: 25.3–28.8) were more likely to experience episiotomy than multiparous women (15.0%, 95% CI: 13.6–16.4). Women with a post-secondary diploma (22.4%, 95% CI: 20.4–24.3) were more likely to have an episiotomy than those with high school (17.7%, 95% CI: 15.3–20.0) or those with less than high school education (14.2%, 95% CI: 10.6–17.8) (Figure 23.3).
- Among women with a vaginal birth or who attempted a vaginal birth, 64.1% (95% CI: 62.8–65.4) reported having stitches. The percentage of women who had stitches ranged from 71.5% (95% CI: 66.4–76.5) in New Brunswick and 71.3% (95% CI: 68.6–73.9) in Quebec to 46.0% (95% CI: 40.0–52.1) in the Northwest Territories and 23.2% (95% CI: 16.8–29.6) in Nunavut (Figure 23.1).
- Primiparous women were more likely to have stitches (70.6%, 95% CI: 68.8–72.4) than multiparous women (58.2%, 95% CI: 56.3–60.2). University graduates were more likely to have stitches (69.1%, 95% CI: 66.9–71.3) than those with post-secondary (64.1%, 95% CI: 61.9–66.3) or lower levels of education (Figure 23.3). Women living in a household above the low income cut-off (65.5%, 95% CI: 63.9–67.0) were more likely to have stitches than those women living in a household at or below the low income cut-off (59.6%, 95% CI: 56.5–62.7).
- About a third (35.9%; 95% CI: 34.5–37.2) of women with a vaginal birth or who attempted a vaginal birth reported that they did not have an episiotomy or perineal stitches, implying an intact perineum or tears not requiring stitches.

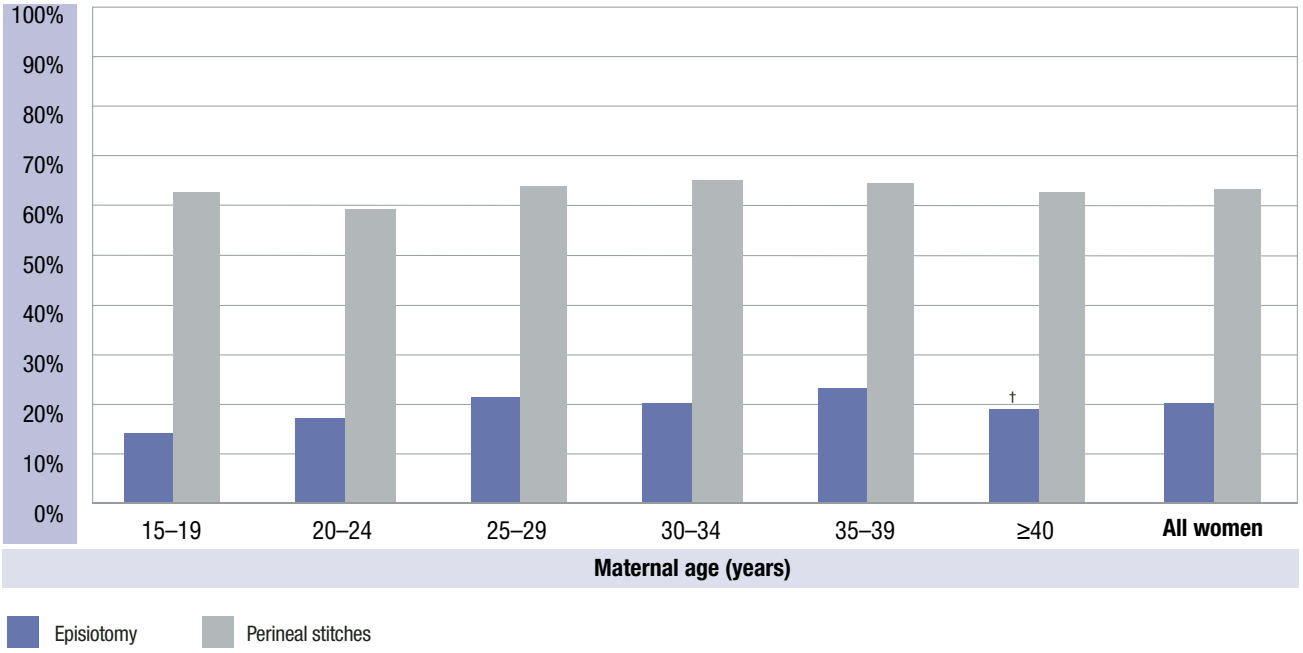
† Coefficient of variation between 16.6% and 33.3%.

Figure 23.1 **Proportion of women who had an episiotomy or perineal stitches among women with a vaginal birth or who attempted a vaginal birth, by province/territory, Canada, 2006–2007**



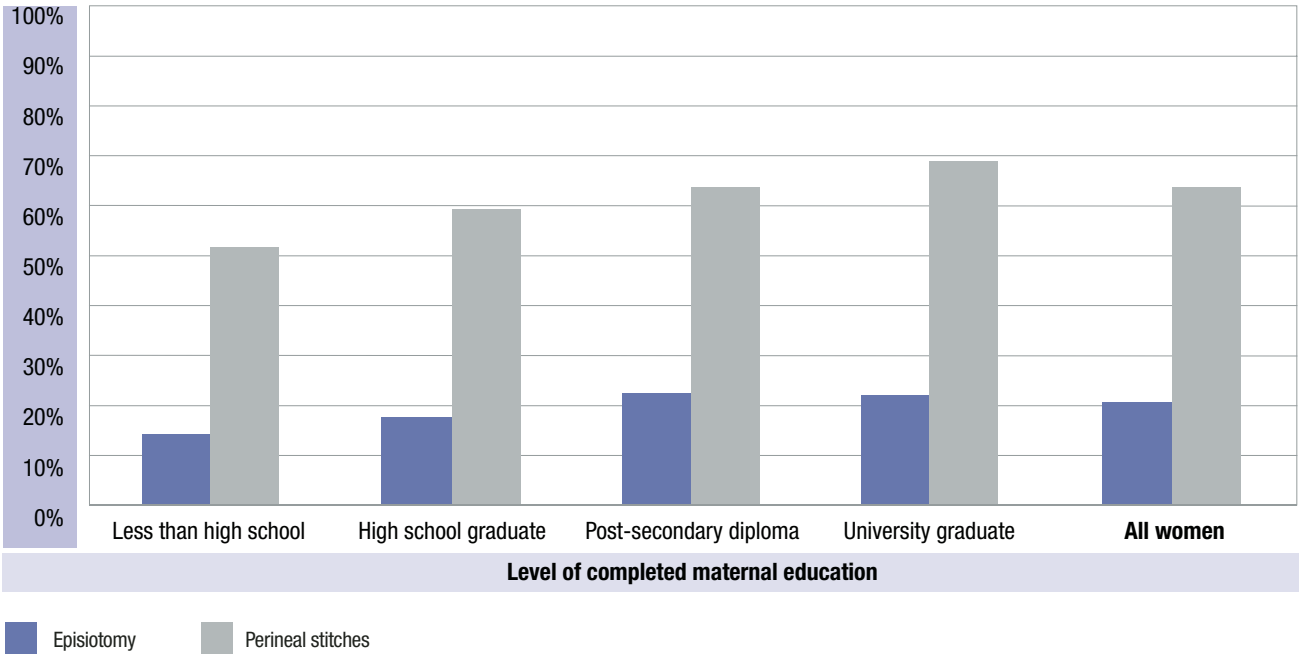
* Estimate not shown because unweighted numerator was less than 5.
† Coefficient of variation between 16.6% and 33.3%.

Figure 23.2 **Proportion of women who had an episiotomy or perineal stitches among women with a vaginal birth or who attempted a vaginal birth, by maternal age, Canada, 2006–2007**



† Coefficient of variation between 16.6% and 33.3%.

Figure 23.3 **Proportion of women who had an episiotomy or perineal stitches among women with a vaginal birth or who attempted a vaginal birth, by maternal education, Canada, 2006–2007**



Summary

One in five (20.7%) women with a vaginal birth or who attempted a vaginal birth experienced an episiotomy. Two-thirds (64.1%) of women reported having perineal stitches near the opening of the vagina to repair a tear or cut. Primiparous women, women with higher educational levels and those living in one of the provinces were more likely to have these procedures. Just over one-third (35.9%) of women with a vaginal birth or who attempted a vaginal birth reported that they had neither an episiotomy nor perineal stitches, implying an intact perineum or tears not requiring stitches.

Limitations

The MES did not ask women about the extent of their perineal tear, or whether stitches were used for minimal lacerations or for an extensive repair of the perineum.

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Question numbers: BB_Q03–Q04

24 Pain Management

Beverley O'Brien, David Young, Beverley Chalmers

Introduction

The intensity of the pain experience in labour and strategies for coping with pain vary among individuals. Some women desire pain relief with medication, while others wish to avoid medication. Pain during labour can be managed by medication-based or medication-free techniques, or a combination of both. These depend on availability and maternal preferences. Epidural anesthesia is a medication-based technique that is frequently used to relieve pain during labour and birth. A meta-analysis that compared epidural anesthesia with opiates found that women who received epidural anesthesia were more likely to have instrument-assisted vaginal births.[1] They also tended to have a longer second stage and were more likely to have labour augmentation, very low blood pressure, fever and difficulty voiding.[1]

A systematic review of immersion in water (e.g., bathtub/pool) during labour and birth found that, compared with women who did not use water immersion during the first stage of labour, women who used water immersion required less epidural/spinal analgesia and reported less pain, without adverse neonatal outcomes.[2] A recent systematic review of the effects on maternal and newborn outcomes of alternative and complementary methods of pain management during labour found that women who used acupuncture or hypnosis during labour were less likely to require analgesia; however, it concluded that few other complementary approaches have been subjected to enough scientific scrutiny to determine their value.[3]

The MES asked women with a vaginal birth or who attempted a vaginal birth what medication-based and medication-free techniques they used to cope with pain in labour or birth and the level of helpfulness of each technique. Women with a cesarean birth were asked about the kind of anesthesia they were given for the cesarean. All women were also asked whether, before labour and birth, they had enough information about the use of medication-free pain-management techniques (e.g., breathing exercises or massage), and the potential side effects of the use of pain medication and anesthesia.

Results

- Among women with a vaginal birth or who attempted a vaginal birth, the medication-free techniques that were most frequently reported for pain management were breathing exercises (74.1%, 95% CI: 72.9–75.3), position change (69.5%, 95% CI: 68.2–70.8) and walking (52.0%, 95% CI: 50.7–53.3). Fewer than half of women experienced massage (33.0%, 95% CI: 31.6–34.3), a bath or a shower (32.5%, 95% CI: 31.3–33.8) or sitting on a birthing ball (18.1%, 95% CI: 17.1–19.0) (Figure 24.1).
- More than half (57.3%, 95% CI: 56.0–58.5) of all women with a vaginal birth or who attempted a vaginal birth had an epidural or spinal anesthesia, whereas fewer than a quarter reported using "pain-killing" medication or gas (22.0%, 95% CI: 20.9–23.1 and 20.5%, 95% CI: 19.5–21.5, respectively) (Figure 24.1). The proportion of women who received an epidural ranged from 66.7% (95% CI: 64.1–69.3) in Quebec and 60.7% (95% CI: 58.4–63.0) in Ontario, to 24.2% (95% CI: 18.7–29.8) in Yukon and 13.0%† (95% CI: 8.0–17.9) in Nunavut (Figure 24.2).
- Women with a vaginal birth or who attempted a vaginal birth had epidural anesthesia more frequently if they were primiparous (71.6%, 95% CI: 69.7–73.5), eventually had a cesarean birth (84.4%, 95% CI: 81.5–87.3), had higher levels of education (post-secondary: 58.7%, 95% CI: 56.6–60.8; university graduate: 59.6%, 95% CI: 57.3–61.8) or were living in a household above the low income cut-off (59.4%, 95% CI: 57.9–60.9).
- Among the women who used a particular pain-management technique, epidural or spinal anesthesia (81.1%, 95% CI: 79.7–82.6) was most likely to be reported as "very helpful," followed by a bath or shower for pain relief (54.8%, 95% CI: 52.5–57.2). The technique with the lowest rating of "very helpful" was gas breathed through a mask (22.5%, 95% CI: 20.0–25.1) (Figure 24.3).
- Almost a quarter (23.0%, 95% CI: 21.9–24.2) of women with a vaginal birth or who attempted a vaginal birth reported using only medication-free pain-relief techniques and 68.9% (95% CI: 67.6–70.2) reported use of both medication-based and medication-free techniques during labour. Exclusive use of medication-free pain-relief techniques ranged from 54.2% (95% CI: 46.8–61.6) in Nunavut and 31.2% (95% CI: 25.1–37.4) in Yukon to 13.7% (95% CI: 9.9–17.5) in New Brunswick and 13.5% (95% CI: 9.8–17.2) in Nova Scotia (Figure 24.4).
- Medication-free pain-management techniques were reported more frequently by women who experienced a vaginal birth (25.1%, 95% CI: 23.8–26.3) compared with women who attempted a vaginal birth but eventually delivered by cesarean (7.7%, 95% CI: 5.4–10.0), and by multiparous women (31.1%, 95% CI: 29.3–32.9) compared with primiparous women (14.1%, 95% CI: 12.6–15.5).
- Among women who had a cesarean birth, 90.9% (95% CI: 89.5–92.3) had an epidural or spinal anesthesia, 3.8% (95% CI: 2.8–4.7) had general anesthesia and 5.4% (95% CI: 4.3–6.5) had both for their cesarean. The proportion of women who had any general anesthesia (either with or without epidural/spinal anesthesia) during their cesarean was 12.8% (95% CI: 10.3–15.2) for women with an unplanned cesarean birth and 5.6% (95% CI: 4.0–7.2) for women with a planned cesarean birth.
- About three-quarters (77.0%, 95% CI: 75.9–78.0) of all women received enough information prior to labour about both medication-based and medication-free pain-management techniques,

and the potential side effects of pain medication and anesthesia during labour and birth. This percentage ranged from 84.9% (95% CI: 80.5–89.3) in Yukon and 82.7% (95% CI: 79.6–85.8) in Prince Edward Island to 70.1% (95% CI: 64.9–75.3) in the Northwest Territories and 50.5% (95% CI: 43.2–57.7) in Nunavut (Figure 24.5).

- Women with post-secondary or university education were more likely to receive enough information than those with high school or less than high school education. Those women living in households at or below the low income cut-off were less likely to receive enough information (73.1%, 95% CI: 70.5–75.8) than those women living in a household above the low income cut-off (78.4%, 95% CI: 77.2–79.6).

† Coefficient of variation between 16.6% and 33.3%.

Figure 24.1 **Proportion of women using specific pain-management techniques among women with a vaginal birth or who attempted a vaginal birth, Canada, 2006–2007**

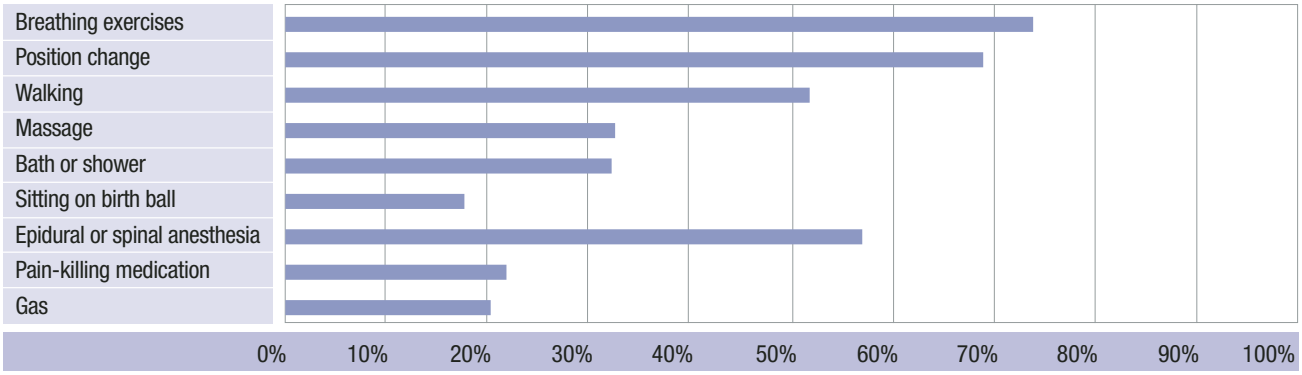
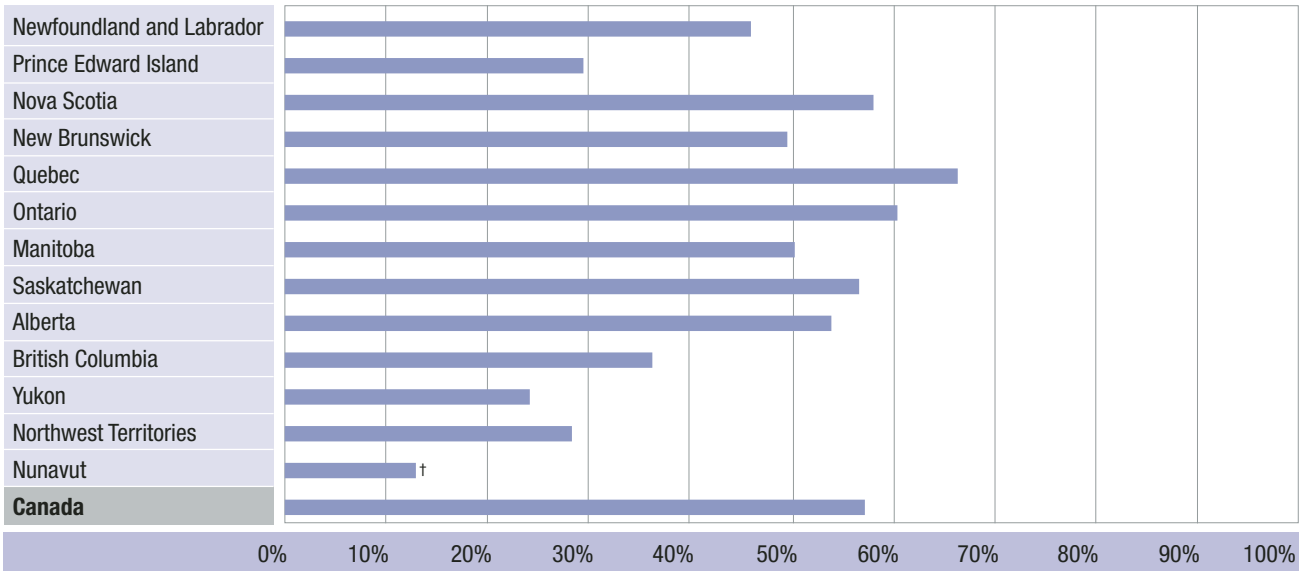


Figure 24.2 **Proportion of women who had an epidural or spinal anesthesia among women with a vaginal birth or who attempted a vaginal birth, by province/territory, Canada, 2006–2007**



† Coefficient of variation between 16.6% and 33.3%.

Figure 24.3 **Distribution of women's perceptions of the helpfulness of pain-management techniques used during labour and birth, Canada, 2006–2007**

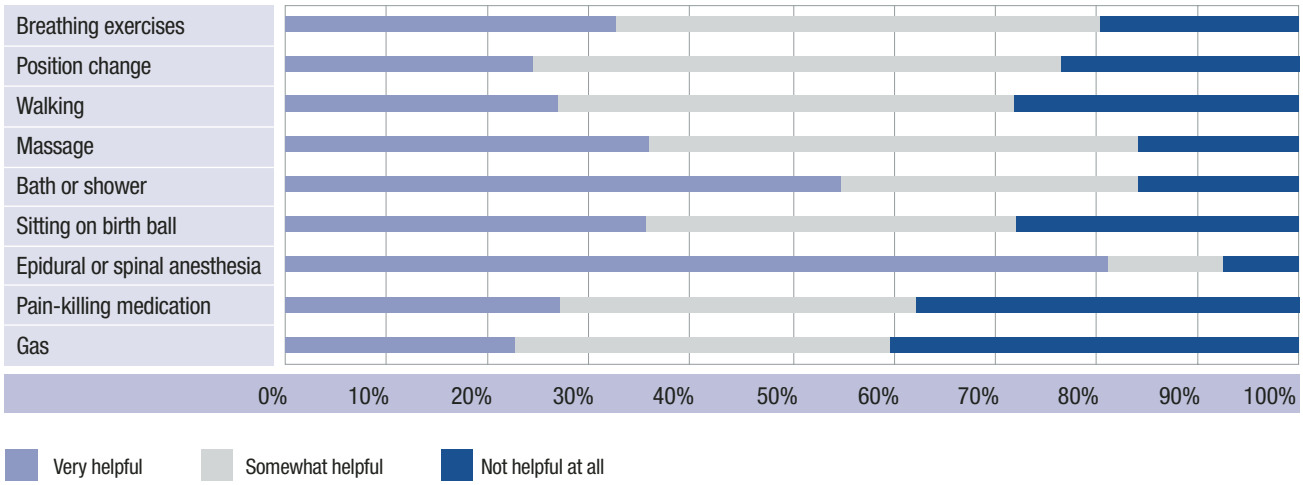
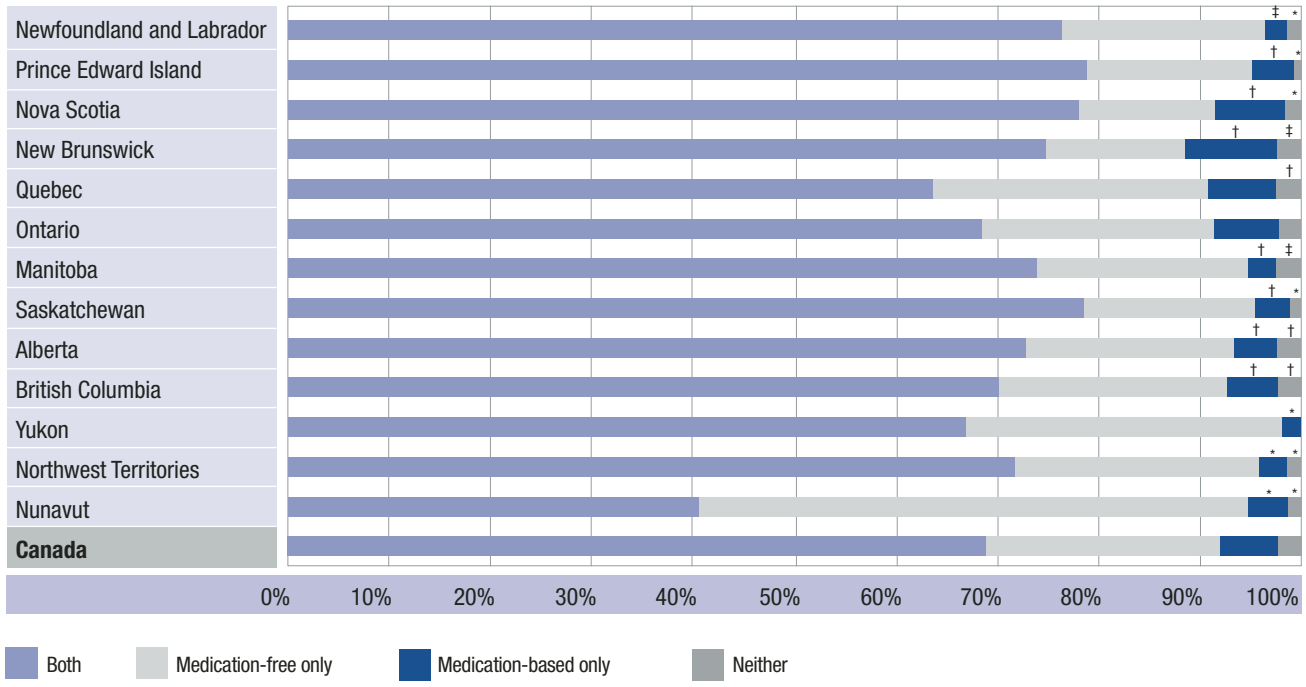
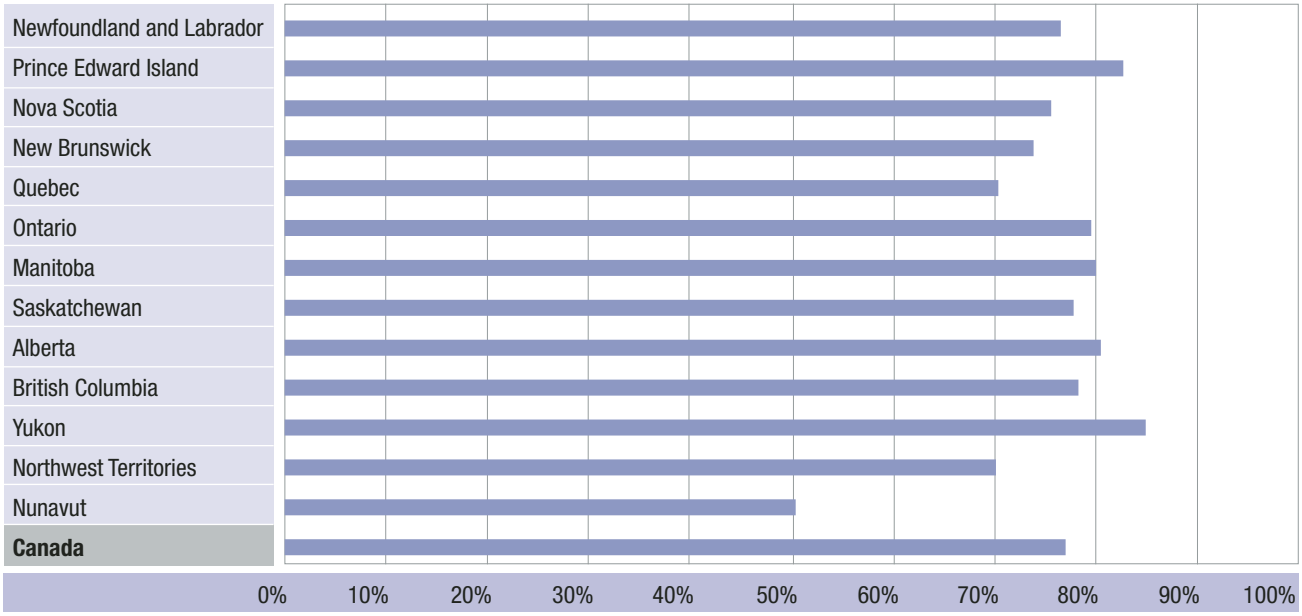


Figure 24.4 **Proportion of women who used medication-based techniques, medication-free techniques or both to relieve pain during labour and birth among women with a vaginal birth or who attempted a vaginal birth, by province/territory, Canada, 2006–2007**



* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.

Figure 24.5 **Proportion of women who received enough information about medication-free pain management and potential side effects of pain medication and anesthesia, by province/territory, Canada, 2006–2007**



Summary

Among women with a vaginal birth or who attempted a vaginal birth, breathing exercises (74.1%) and changing positions (69.5%) were the medication-free techniques most frequently reported for pain management in labour or birth. Baths or showers were the medication-free pain management technique with the highest rating of "very helpful" (54.8%). Epidural or spinal anesthesia was the medication-based technique most frequently used (57.3%), and most women (81.1%) who used this technique believed that it was "very helpful." There was considerable variation in the use of epidural or spinal anesthesia between the provinces and the territories. Many women (68.9%) used both medication-based and medication-free pain-management techniques during labour or birth. Three-quarters (77.0%) of all women received enough information prior to labour about both medication-based and medication-free pain-management techniques and the potential side effects of pain medication and anesthesia during labour and birth.

Limitations

The MES did not ask about the availability of pain-management methods. It is possible that some women did not use certain techniques because they were not available. Information on the timing of the effectiveness of pain-management techniques during labour was not obtained. It is possible that some techniques were effective initially but less helpful as labour progressed. Women may have used other pain-management techniques that the MES did not ask about.

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Question numbers: SI_Q07–Q08, PM_Q01A–Q01F, PM_Q02–Q14, LB_Q18, CS_Q01, BB_Q01

25 Support in Labour and Birth

Beverley Chalmers, Beverley O'Brien, Madeline Boscoe

Introduction

Concerns about the medicalization of women's birth experiences and evidence of improved outcomes associated with support for women in labour and birth have resulted in a call for the provision of continuous one-to-one support for women in labour and birth.[1] A recent meta-analysis indicated that, compared with women who received usual care, women who received one-to-one continuous support during labour and birth were more likely to have a shorter labour and spontaneous vaginal birth and less likely to use intrapartum analgesia or report dissatisfaction with their childbirth experiences.[2] Greater benefits were observed when the support was offered by someone who was not a member of the hospital staff (i.e., the only role was to support women in labour), when the support began early in labour and when it occurred in settings where epidural anesthesia was not routinely available.[2] Support may include practical, informational and emotional support, as well as advocacy on behalf of the labouring woman.

The MES asked women whether they had their husband or partner or a companion other than their husband or partner with them during labour and during the birth and their satisfaction with the support received from them. They were also asked whether they had enough information prior to birth about what their husband or partner could do to support them during labour and the birth.

Note: Questions pertaining to presence of a husband or partner and satisfaction with the support received from a husband or partner were asked for labour and for birth separately; however, the questions pertaining to presence of a companion and satisfaction with the support received from a companion did not distinguish between labour and birth.

Results

- Most women had a husband or partner with them during labour (94.6%, 95% CI: 94.1–95.2) and during the birth (92.3%, 95% CI: 91.6–93.0). Across jurisdictions, the proportion of women who had a husband or partner with them during labour ranged from 96.6% (95% CI: 94.4–98.8) in Yukon to 36.3% (95% CI: 28.9–43.7) in Nunavut, and the proportion of women who had a husband or partner with them during the birth ranged from 94.9% (95% CI: 92.3–97.5) in Yukon to 37.8% (95% CI: 30.4–45.2) in Nunavut (Figure 25.1).

- Younger women (15–19 years) were less likely to have had a husband or partner with them during labour (83.8%, 95% CI: 79.4–88.2) and during the birth (78.8%, 95% CI: 73.9–83.6) compared with older women (Figure 25.2). Women living in a household at or below the low income cut-off were less likely to have had a husband or partner with them during labour (85.9%, 95% CI: 83.8–87.9) and during the birth (83.1%, 95% CI: 80.9–85.4) than those women living in a household above the low income cut-off (97.5%, 95% CI: 97.0–98.0 and 95.5%, 95% CI: 94.8–96.1, respectively).
- The majority of women were "very satisfied" with the support they received from their husband or partner during labour (82.7%, 95% CI: 81.7–83.7) and even more so for the support they received during the birth (87.0%, 95% CI: 86.1–87.9), although younger women (15–19 years) were less likely to report being "very satisfied" with this kind of support in either labour (66.1%, 95% CI: 59.8–72.5) or birth (74.2%, 95% CI: 68.1–80.3) (Figure 25.3).
- About a third of women (35.5%, 95% CI: 34.2–36.7) reported having a companion other than their husband or partner with them during labour or the birth. This percentage ranged from 57.7% (95% CI: 50.5–64.9) in Nunavut and 49.9% (95% CI: 44.4–55.5) in the Northwest Territories to 34.0% (95% CI: 29.6–38.4) in Saskatchewan and 28.9% (95% CI: 26.5–31.3) in Quebec (Figure 25.1).
- The proportion of women who had a companion other than their husband or partner with them during labour or birth decreased with increasing maternal age. Younger women (15–19 years) (73.0%, 95% CI: 67.8–78.2) were more likely than older women to have a companion during labour or the birth (Figure 25.2), as were primiparous women (44.9%, 95% CI: 43.0–46.8) compared with multiparous women (27.6%, 95% CI: 26.1–29.2). Women living in a household at or below the low income cut-off (47.3%, 95% CI: 44.4–50.2), compared with those women living in a household above the low income cut-off (31.6%, 95% CI: 30.2–33.0), were also more likely to have a companion other than their husband or partner with them during labour or the birth.
- The majority (85.8%, 95% CI: 84.4–87.2) of women with a companion other than their husband or partner during labour or the birth were "very satisfied" with the support they received (Figure 25.3).
- Most (92.1%, 95% CI: 91.4–92.8) women reported receiving enough information about what their husband or partner could do to support them during labour and the birth.

Figure 25.1 **Proportion of women with a husband/partner or companion present during labour and birth, by province/territory, Canada, 2006–2007**

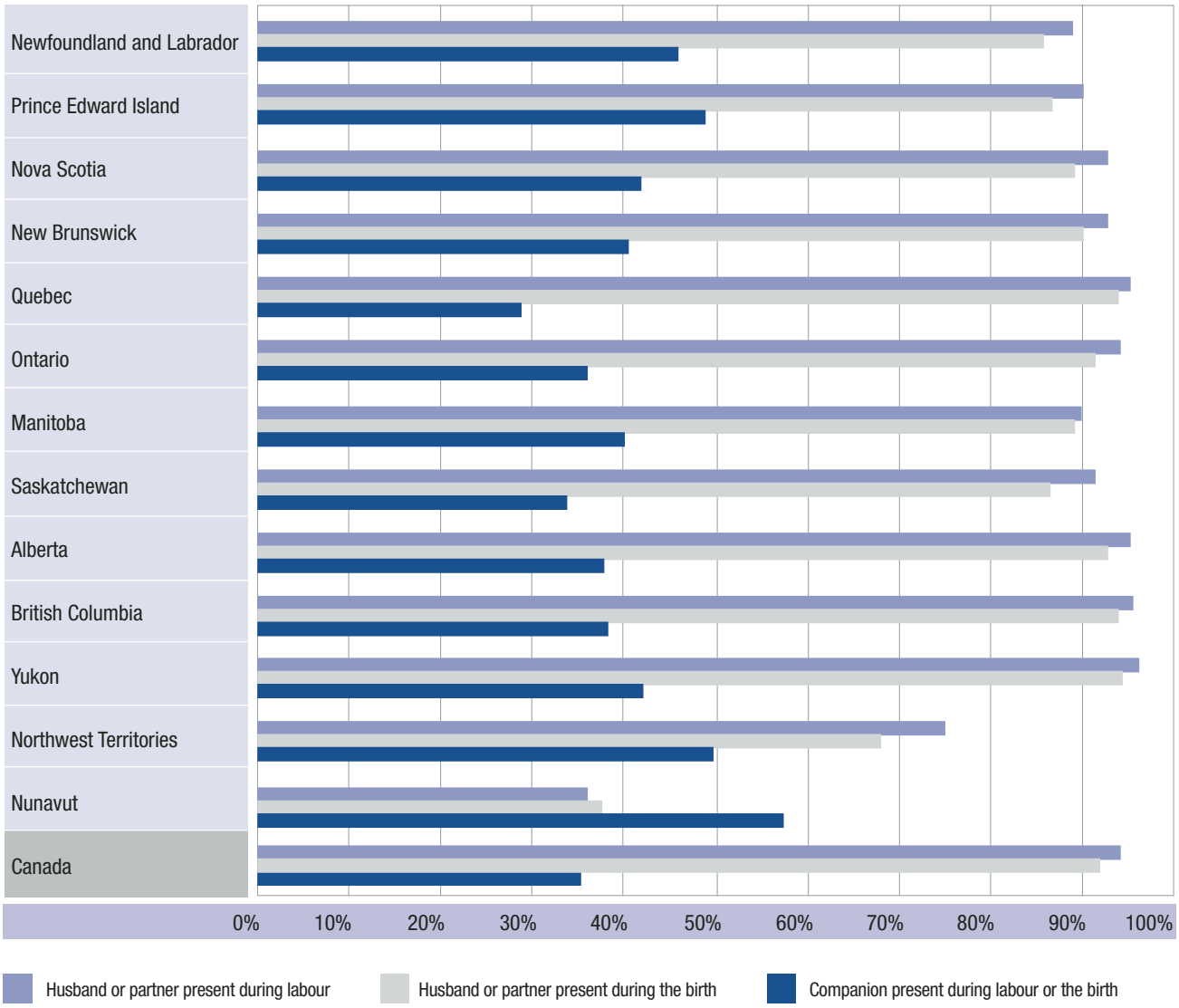


Figure 25.2 **Proportion of women with a husband/partner or companion present during labour and birth, by maternal age, Canada, 2006–2007**

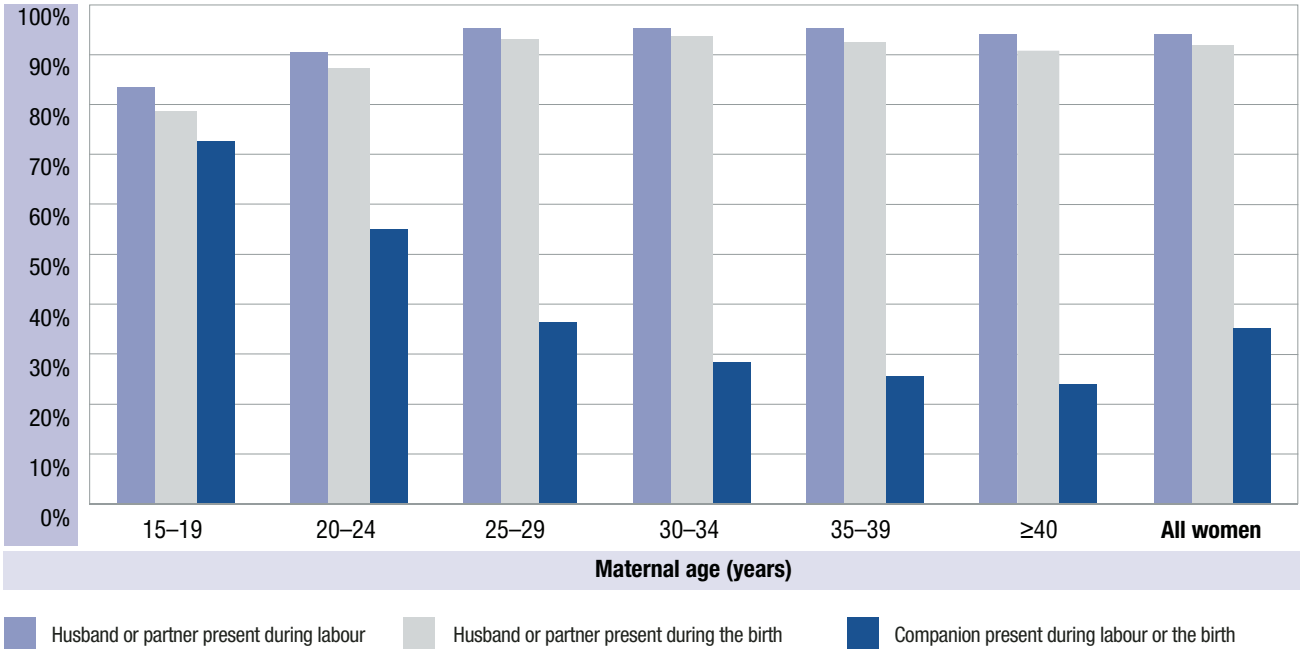
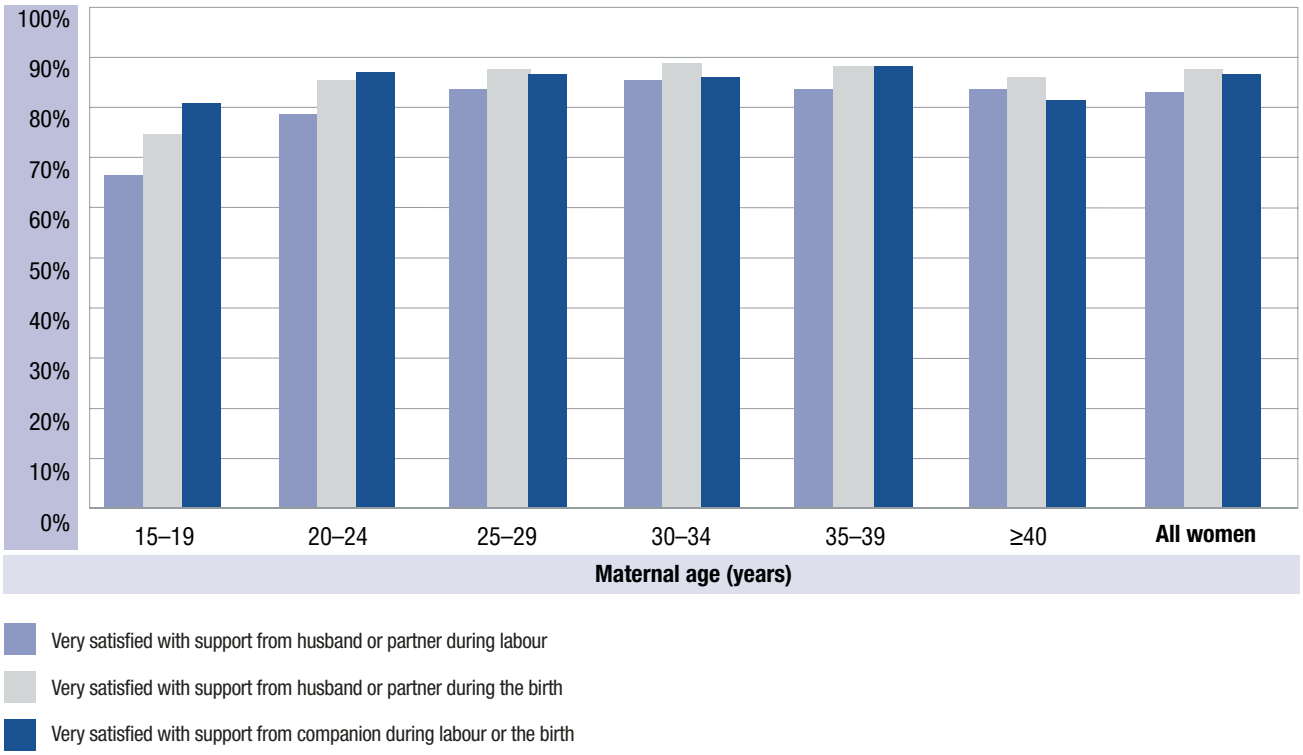


Figure 25.3 **Proportion of women who were "very satisfied" with the support they received from their husband/partner or companion during labour and birth, by maternal age, Canada, 2006–2007**



Summary

The majority of women in the MES had their husband or partner with them during both labour (94.6%) and birth (92.3%). About one-third (35.5%) of women had a companion other than their husband or partner present during labour or the birth. Younger women (15–19 years) and women living in a household at or below the low income cut-off were more likely to have a companion other than their husband or partner with them during labour or the birth. The majority of women were very satisfied with the support received from their husband or partner, or their companion.

Limitations

The MES did not ask women how long husbands, partners or companions were with them during labour or whether there was also continuous, one-to-one health care provider support.

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Question numbers: LB_Q12–Q17, SI_Q06

26 Mother-Infant Contact at Birth

Beverley Chalmers, Beverley O'Brien, Madeline Boscoe

Introduction

Early skin-to-skin contact between mother and infant has been shown to be beneficial. In addition to improving breastfeeding outcomes and early mother-infant attachment, studies indicate that skin-to-skin contact may reduce infant crying and increase infant cardio-respiratory stability, and has no adverse effects.[1] It should not be momentary, but continue for the first hour or more after birth and as much as possible thereafter. Restriction of mother-infant contact and skin-to-skin contact after birth may have undesirable effects including breastfeeding failure and less affectionate behaviour by the mother toward her baby.[2]

The MES asked mothers when they held their baby for the first time, their feelings about the timing of this first contact, whether the baby was naked (i.e., not wrapped, dressed or in a diaper) and whether they held their baby against their naked skin. The MES also explored whether babies were in the same room or bed with the mother during most of the first hour after birth, and whether they were in the same room during the first 24 hours after birth. Questions about mother-infant contact were asked only of women whose babies were not admitted to an intensive care or special care unit immediately after birth.

Note: As early skin-to-skin contact and rooming-in of mothers and babies are components of the "10 Steps" of the Baby-Friendly Hospital Initiative to promote and support breastfeeding, this section is complementary to section 30 (Baby-Friendly Hospital Initiative) in Chapter 3 of this report.

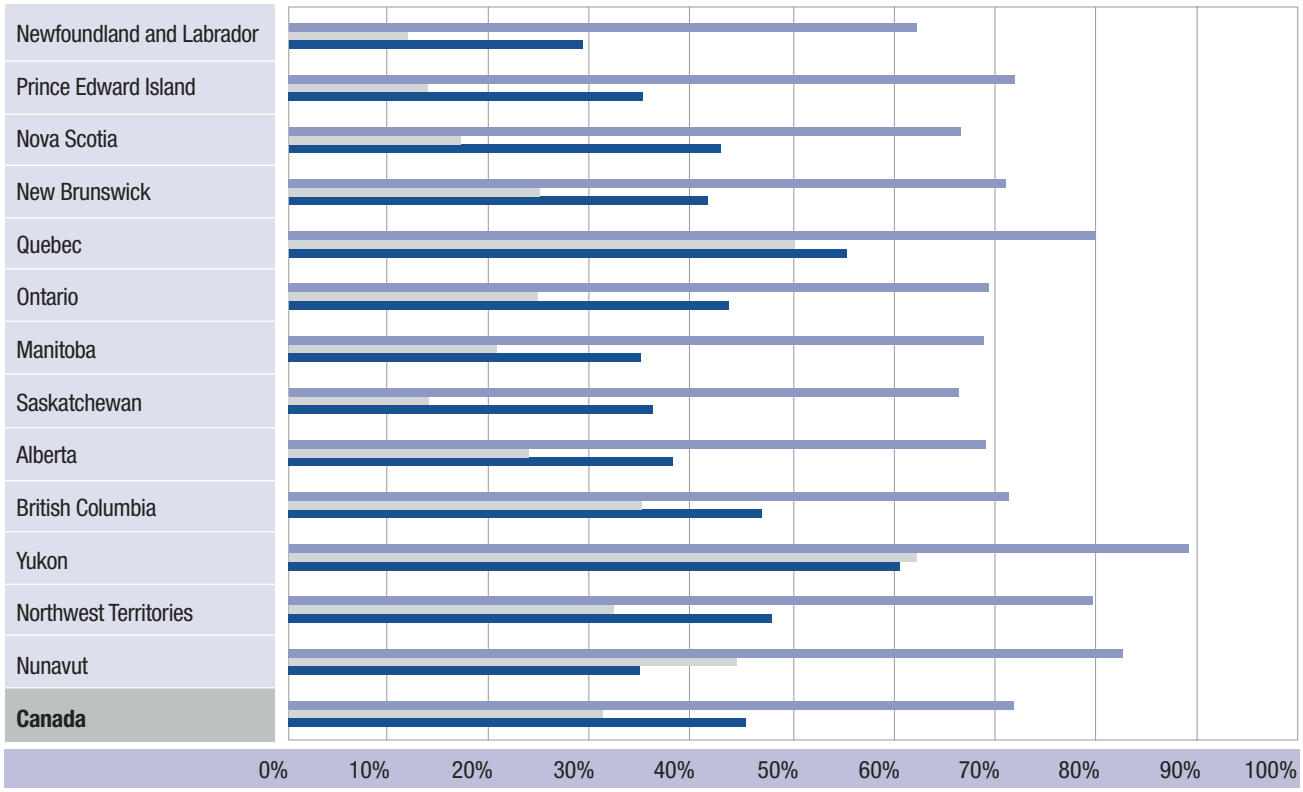
Results

- Overall, almost three-quarters (71.9%, 95% CI: 70.7–73.2) of women reported holding their baby immediately or within five minutes of birth. The percentage of women who reported contact with their baby within five minutes of birth ranged from 89.2% (95% CI: 85.5–92.9) in Yukon, 82.7% (95% CI: 76.7–88.7) in Nunavut and 80.0% (95% CI: 77.7–82.3) in Quebec, to 66% in Nova Scotia and Saskatchewan (66.6%, 95% CI: 61.8–71.5, and 66.4%, 95% CI: 61.4–71.4, respectively) and 62.2% (95% CI: 57.0–67.4) in Newfoundland and Labrador (Figure 26.1).
- Women who had cesarean births were less likely to hold their baby immediately after birth (29.0%, 95% CI: 26.5–31.6) compared with those giving birth vaginally (85.7%, 95% CI: 84.6–86.8).
- Most women (86.2%, 95% CI: 85.3–87.1) felt that they held their baby at the right time, 10.4% (95% CI: 9.6–11.2) reported that they held their baby too late and 3.4% (95% CI: 2.8–3.9) reported holding their baby too soon. Women who delivered vaginally were more likely to feel that the timing of their first contact with their baby was the right time (91.0%, 95% CI: 90.1–91.9) compared with

women who delivered by cesarean (71.3%, 95% CI: 68.8–73.8). About a quarter (26.2%, 95% CI: 23.8–28.6) of women who had a cesarean delivery felt they had held their baby too late.

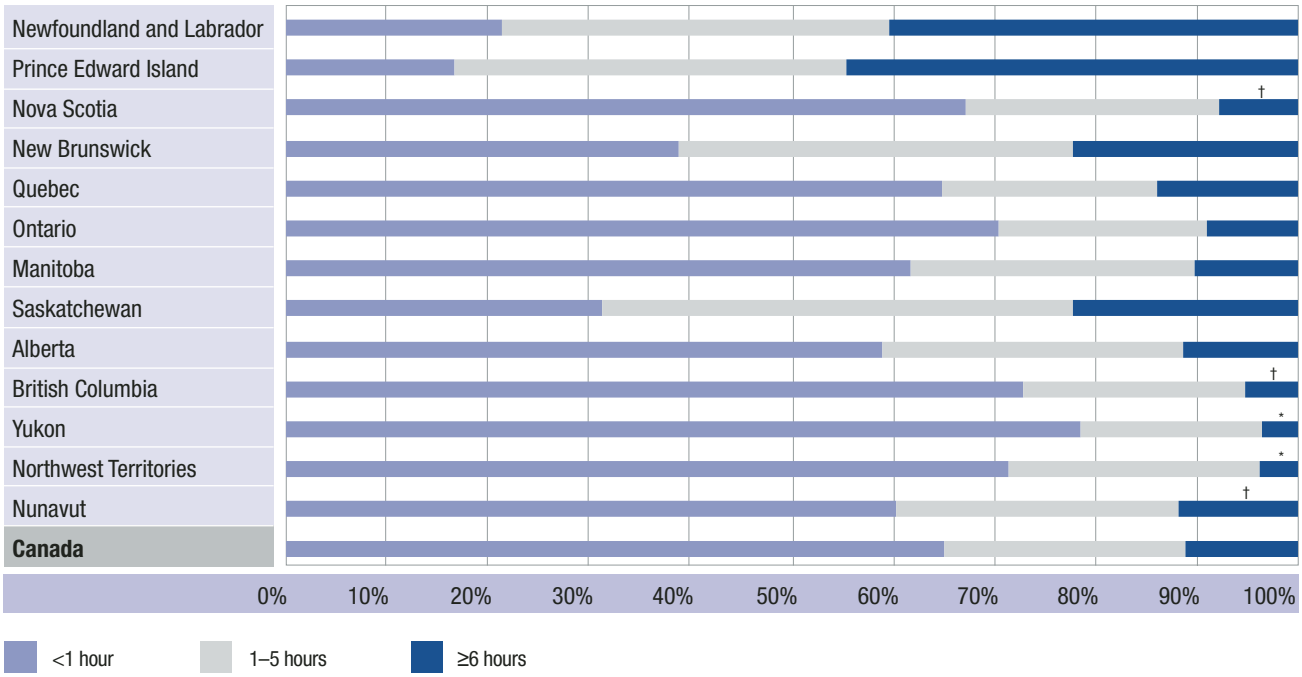
- Fewer than a third (31.1%, 95% CI: 29.8–32.3) of women reported holding their baby naked against their own naked skin (skin-to-skin contact) when first holding their baby. Skin-to-skin contact after birth ranged from 62.2% (95% CI: 56.4–68.0) in Yukon and 50.2% (95% CI: 47.4–53.0) in Quebec to 13.8% (95% CI: 10.8–16.8) in Prince Edward Island and 11.8% (95% CI: 8.4–15.3) in Newfoundland and Labrador (Figure 26.1).
- Younger women (15–19 years) were less likely (18.1%, 95% CI: 13.2–23.1) to report skin-to-skin contact with their baby immediately after birth compared with older women. Similarly, women giving birth by cesarean were less likely to have skin-to-skin contact with their baby immediately after birth (7.5%, 95% CI: 6.0–9.1) than women experiencing a vaginal birth (38.7%, 95% CI: 37.1–40.2).
- During most of the first hour after birth, 13.9% (95% CI: 13.0–14.8) of women reported that their baby was not in the same room, and 40.8% (95% CI: 39.5–42.1) reported that their baby was in the same room but not in their bed. Fewer than half (45.3%, 95% CI: 43.9–46.6) of women reported having their baby in their bed during the first hour after birth, and this varied by province and territory from 60.6% (95% CI: 54.5–66.6) in Yukon and 55.3% (95% CI: 52.5–58.0) in Quebec to 29.1% (95% CI: 24.2–34.0) among women in Newfoundland and Labrador (Figure 26.1). Those giving birth by cesarean were less likely to have their baby in bed with them during the first hour after birth (22.6%, 95% CI: 20.2–25.1) compared with those who delivered vaginally (52.5%, 95% CI: 51.0–54.0).
- During the first 24 hours after birth, 65.0% (95% CI: 63.8–66.2) of women reported that their baby spent less than one hour out of their room (24-hour rooming-in). Twenty-four percent (23.8%, 95% CI: 22.7–24.9) of women reported that their baby spent between one and five hours out of their room, and a further 11.2% (95% CI: 10.4–12.0) reported that their baby was not in their room for six hours or more during the first 24 hours after birth. The proportion of women reporting 24-hour rooming-in ranged from 78.6% (95% CI: 73.8–83.5) in Yukon and 72.8% (95% CI: 69.3–76.2) in British Columbia to 21.4% (95% CI: 17.1–25.6) in Newfoundland and Labrador and 16.7% (95% CI: 13.4–19.9) in Prince Edward Island (Figure 26.2).
- Women who had a vaginal birth (70.9%, 95% CI: 69.9–72.2) were more likely to report that their baby spent less than one hour out of their room during the first 24 hours after birth than women who delivered by cesarean (46.5%, 95% CI: 43.8–49.3) (Figure 26.3).

Figure 26.1 **Distribution of types of mother-infant contact after birth, by province/territory, Canada, 2006–2007 §**



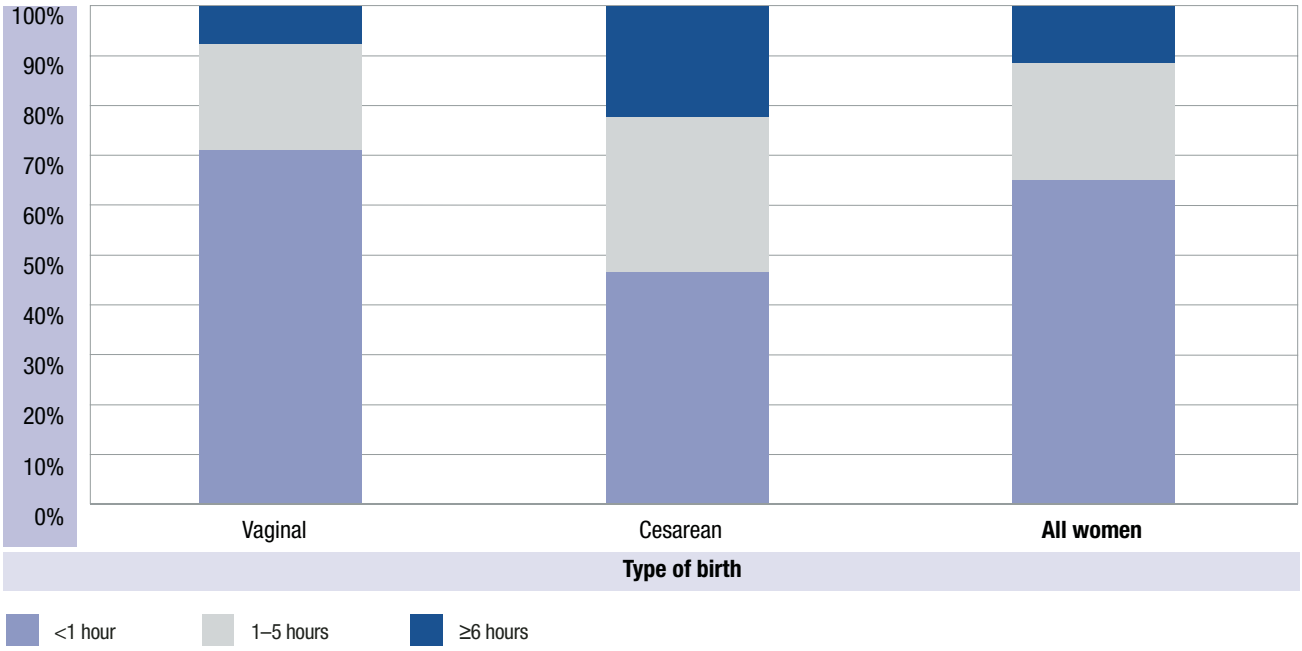
§ Women whose baby was admitted to an intensive care or special care unit immediately after birth were excluded.

Figure 26.2 Distribution of number of hours baby spent out of mother's room during the first 24 hours after birth, by province/territory, Canada, 2006–2007 §



* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
§ Women whose baby was admitted to an intensive care or special care unit immediately after birth were excluded.

Figure 26.3 Distribution of number of hours baby spent out of mother's room during the first 24 hours after birth, by type of birth, Canada, 2006–2007 §



§ Women whose baby was admitted to an intensive care or special care unit immediately after birth were excluded.

Summary

Almost three-quarters (71.9%) of women held their baby for the first time either immediately after giving birth or within five minutes. About one-third (31.1%) of mothers reported holding their baby skin-to-skin at the first contact, and 45.3% had them in their bed during the first hour after giving birth. The number of hours that the baby spent out of their mother's room during the first 24 hours after birth was longer among women who had a cesarean birth. Mother-infant contact after birth varied among provinces and territories.

Limitations

The MES did not ask about mother-infant contact for women whose babies were admitted to an intensive care or special care unit.

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Question numbers: PP_Q04–Q11, LB_Q18

27 Birth Experiences and Satisfaction with Care

Beverley Chalmers, Catherine Royle

Introduction

A positive birth experience may improve adjustment to parenting, influence positive self-care and increase adherence to future health care recommendations and follow-up care.[1] However, measuring women's satisfaction with childbirth experiences is difficult. A number of factors may contribute to women's ratings including personal expectations, knowledge about and experience of birth, support and quality of care from caregivers, methods of and events surrounding delivery and socio-demographic issues. In addition, the timing of ratings (soon after birth or months later), the wording of questions and the rating scales used may affect women's satisfaction ratings.[2]

Ratings of satisfaction with health care are often used in conjunction with other clinical measures to assess quality of service. However, some reports have cautioned against regarding women's ratings of satisfaction with their care as a reflection of quality of care, as women may evaluate whatever pregnancy and birth experiences they have as positive—the so-called "what is, must be best" phenomenon.[3]

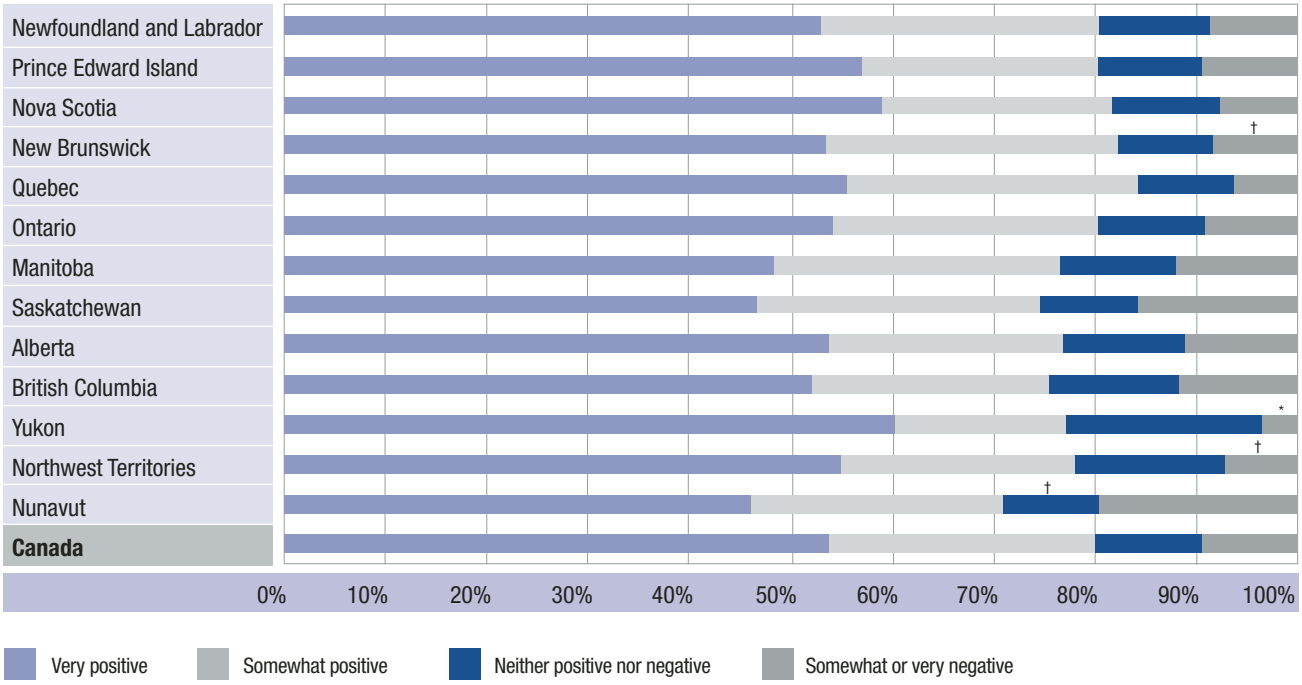
Despite these challenges, most national or large-scale surveys of women's maternity experiences include an assessment of satisfaction with various aspects of pregnancy, birth and postpartum experiences.

The MES asked women to rate their overall experience of labour and birth and whether their health care provider gave them enough information about the progress of their labour. Women were also asked to think about their entire pregnancy, labour and birth, and immediate postpartum experience, and to rate their satisfaction with six aspects of their interaction with health care providers: the information given by health care providers, the compassion and understanding shown by providers, the health care providers' competence, the concern shown by health care providers for privacy and dignity, the respect shown to them by providers, and their personal involvement in decision making.

Results

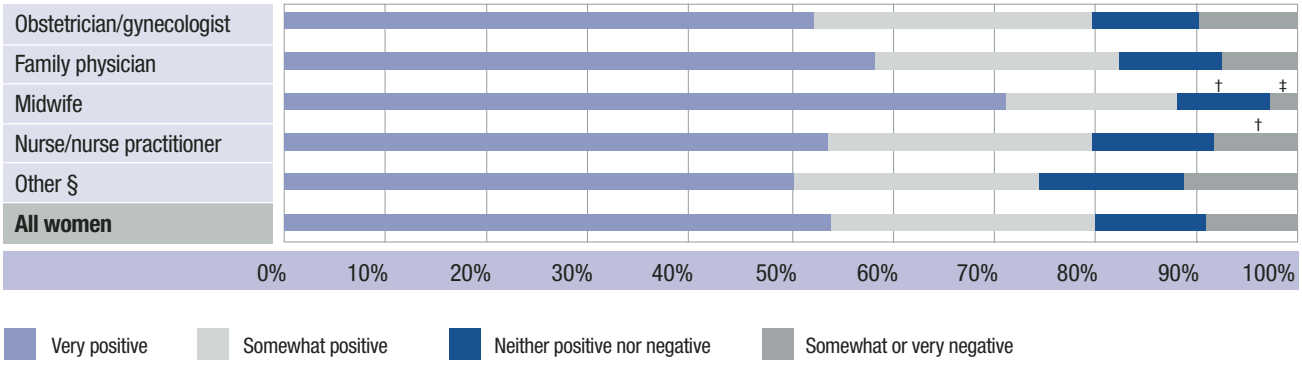
- About half (53.8%, 95% CI: 52.5–55.1) of women reported their overall experience of labour and birth as "very positive." This percentage ranged from 60.5% (95% CI: 54.8–66.2) in Yukon and 59.0% (95% CI: 54.4–63.7) in Nova Scotia to 48.4% (95% CI: 43.3–53.5) in Manitoba, 46.8% (95% CI: 42.0–51.6) in Saskatchewan and 46.1% (95% CI: 38.9–53.4) in Nunavut (Figure 27.1).
- Women whose birth was attended primarily by a midwife were more likely to rate their overall experience of labour and birth as "very positive" (71.1%, 95% CI: 65.3–76.8) than were women who were attended primarily by a family physician (58.3%, 95% CI: 55.1–61.5), nurse/nurse practitioner (53.6%, 95% CI: 47.8–59.5) or an obstetrician/gynecologist (52.3%, 95% CI: 50.7–53.9) (Figure 27.2).
- Multiparous women were more likely to give "very positive" ratings of their overall labour and birth experience (56.5%, 95% CI: 54.7–58.2) than were primiparous women (50.7%, 95% CI: 48.7–52.6).
- Most women (89.1%, 95% CI: 88.2–90.0) received information from their health care provider about the progress of their labour. This ranged from 96.3% (95% CI: 94.0–98.6) among women in Yukon to 79.2% (95% CI: 73.4–85.1) among women in Nunavut.
- Almost two-thirds (61.8%, 95% CI: 60.6–63.0) of women reported being "very satisfied" with the information given by their health care providers throughout their entire pregnancy, labour and birth, and immediate postpartum period (Figure 27.3). Younger mothers (15–19 years) were less likely to be "very satisfied" with the information that they received from their health care providers (48.1%, 95% CI: 42.1–54.1) compared with older mothers. About two-thirds of women (65.4%, 95% CI: 64.1–66.6) were "very satisfied" with the compassion and understanding shown them by their health care providers (Figure 27.3).
- About three-quarters of women gave "very satisfied" ratings regarding the perceived competence of their health care providers (75.9%, 95% CI: 74.8–77.0), the concern shown by their health care providers for their privacy and dignity (75.6%, 95% CI: 74.5–76.7), the respect shown to them by their health care providers (78.5%, 95% CI: 77.5–79.6) and their personal involvement in decision making (72.6%, 95% CI: 71.5–73.8) (Figure 27.3). Younger mothers (15–19 years) were less likely to give "very satisfied" ratings of each of these characteristics.

Figure 27.1 Distribution of women's ratings of their overall experience of labour and birth, by province/territory, Canada, 2006–2007



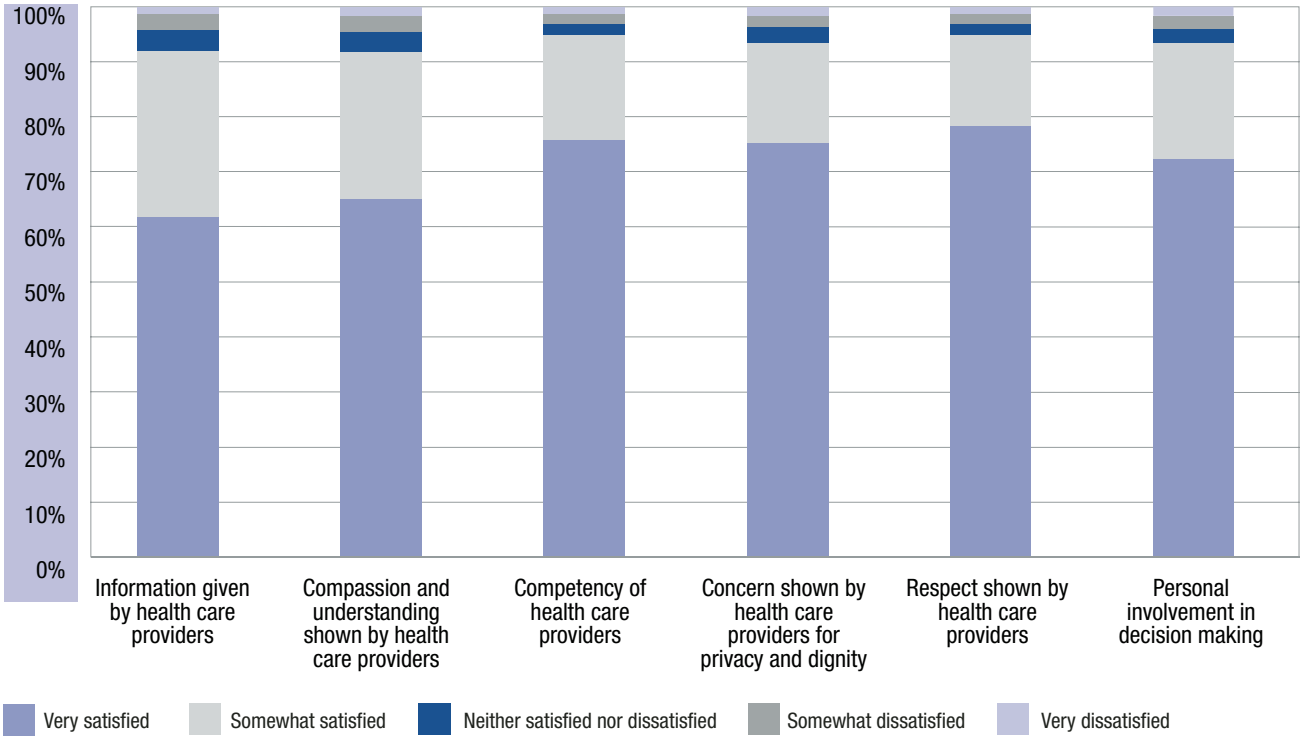
* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.

Figure 27.2 Distribution of women's ratings of their overall experience of labour and birth, by type of birth attendant, Canada, 2006–2007



† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.
§ Includes those care providers whose type was unspecified by mothers, including physicians of unspecified specialization.

Figure 27.3 **Distribution of women's satisfaction with aspects of interaction with health care providers during entire pregnancy, labour and birth, and immediate postpartum period, Canada, 2006–2007**



Summary

A little over half (53.8%) of women reported their overall experience of labour and birth as "very positive." Ratings of this experience varied among the provinces and territories. More women attended by midwives at birth (71.1%) reported their experience of labour and birth as "very positive" than those attended by other health care providers. Regarding the interaction between women and their health care providers, about three-quarters of women were "very satisfied" with the respect shown to them (78.5%), the perceived competence of the health care providers (75.9%), the concern shown for their privacy and dignity (75.6%), and with their personal involvement in decision making (72.6%). About two-thirds of women were "very satisfied" with the compassion and understanding shown to them (65.4%) and the information given to them (61.8%) by their health care providers throughout the entire pregnancy, labour and birth, and immediate postpartum period.

Limitations

The MES explored only selected aspects of women's satisfaction with their labour and birth, and immediate postpartum experiences. Questions regarding interactions with health care providers did not distinguish between providers or between pregnancy, labour and birth, and immediate postpartum periods.

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Question numbers: VB_Q06B, PM_Q14, PC_Q05A–Q05B, PP_Q19A–Q19F

Chapter 3: Postpartum

28 Length of Maternal Stay in Hospital

Susie Dzakpasu, Cathy Kimak

Introduction

In Canada, postpartum hospital stays for mothers and their babies have decreased steadily over the last 15 years. In 1991–1992, an estimated 3.7% of women with a vaginal birth had a total stay in hospital of less than two days, compared with 25.5% in 2004–2005. In 1991–1992, an estimated 2.7% of women with a cesarean birth had a total stay in hospital of less than four days, compared with 52.5% in 2004–2005.[1,2]

Benefits associated with a short hospital stay include a reduction in hospital costs and a family-centred postpartum adjustment in the home. However, the impact of a short hospital stay on the health of the mother and her baby continues to be debated, with some studies finding an increase in maternal and neonatal morbidity and others finding no adverse effects.[3–7] To minimize the risk of adverse health outcomes, the physical, psychological and social well-being of the mother and her newborn must be carefully assessed prior to hospital discharge.[7] Additionally, women should be referred for community follow-up services, such as postpartum home visits and breastfeeding support resources. The availability and usefulness of follow-up services may influence women's satisfaction with their hospital stay.

The MES asked women who gave birth in a hospital, clinic or birthing centre about the length of their stay following the birth and about the length of stay of their baby. Women were also asked if the length of their stay was "about right," "too short" or "too long." A short maternal length of stay in hospital was defined as less than two days for women with a vaginal birth and less than four days for women with a cesarean birth.

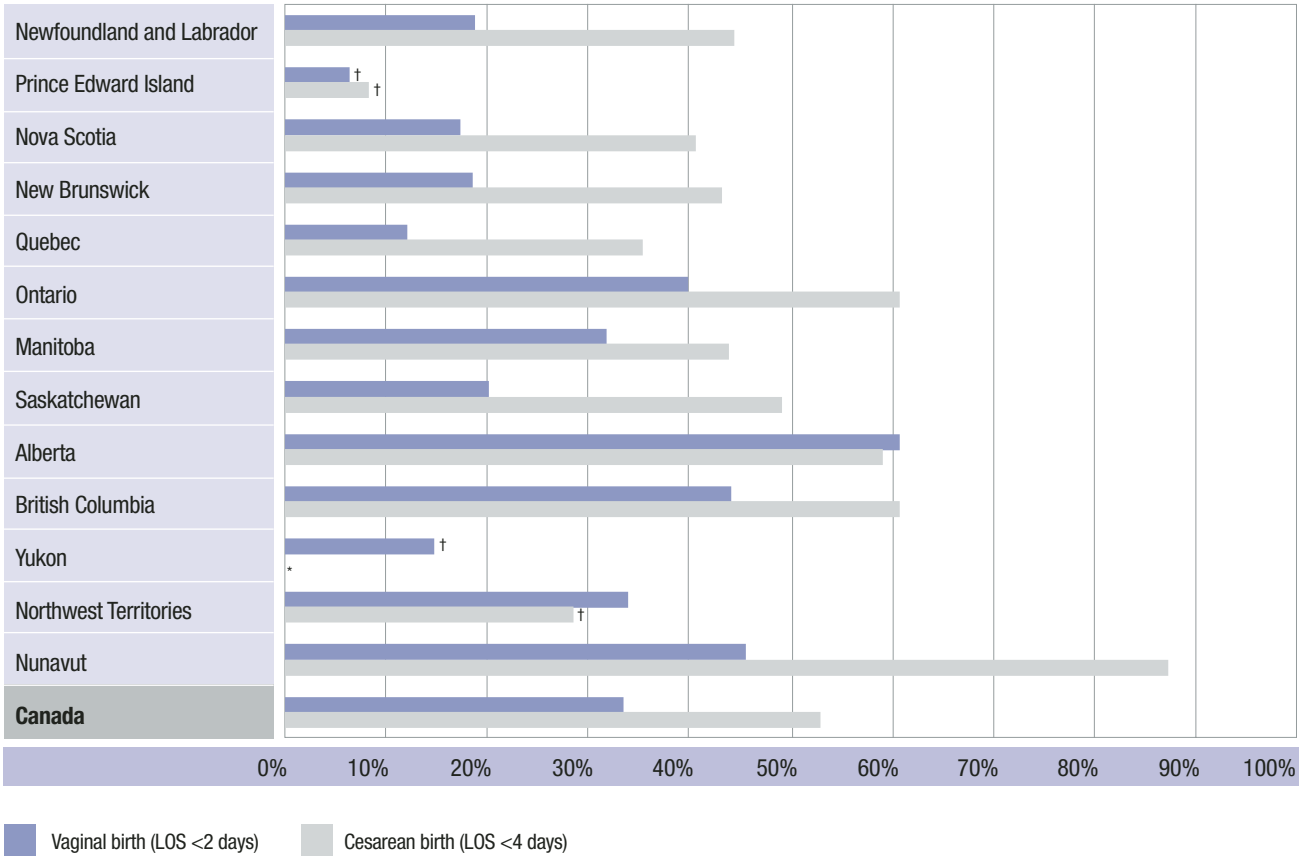
Results

- The average maternal length of stay in hospital following birth was 2.1 days (95% CI: 2.0–2.2) for women with a vaginal birth and 3.8 days (95% CI: 3.6–4.0) for women with a cesarean birth. Overall, 33.6% (95% CI: 32.3–34.9) of women with a vaginal birth stayed in hospital for less than two days and 53.0% (95% CI: 50.5–55.6) of women with a cesarean birth stayed in hospital for less than four days.
- Among women with a vaginal birth, the proportion with a short length of hospital stay varied by region, from 60.7% (95% CI: 56.7–64.6) in Alberta to 6.4%† (95% CI: 4.0–8.9) in Prince Edward Island. Among women with a cesarean birth, the proportion with a short length of hospital stay ranged from 87.5% (95% CI: 71.9–103.0) in Nunavut to 8.3%† (95% CI: 4.4–12.3) in Prince Edward Island (Figure 28.1).

- Among women with a vaginal birth, a short length of stay in hospital was less common among younger mothers (15–19 years) (28.8%, 95% CI: 22.8–34.9) compared with older mothers (Figure 28.2), and among primiparous mothers (22.5%, 95% CI: 20.7–24.4) compared with multiparous mothers (41.9%, 95% CI: 40.0–43.7). Similarly, among women with a cesarean birth, a short length of stay in hospital was less common among younger mothers (15–19 years) (34.2%†, 95% CI: 20.8–47.7) compared with older mothers (Figure 28.2), and among primiparous mothers (49.0%, 95% CI: 45.5–52.5) compared with multiparous mothers (57.3%, 95% CI: 53.6–61.0).
- About 70% (69.5%, 95% CI: 68.3–70.6) of women reported their hospital stay as "about right," regardless of whether they had experienced a short hospital stay or not. A higher proportion of women with short stays indicated that their stay had been "too short," and a higher proportion of women with a longer length of stay rated their stay as "too long" (Figure 28.3).
- Among babies born in a hospital, clinic or birthing centre, most (95.2%, 95% CI: 94.7–95.8) went home with their mothers.

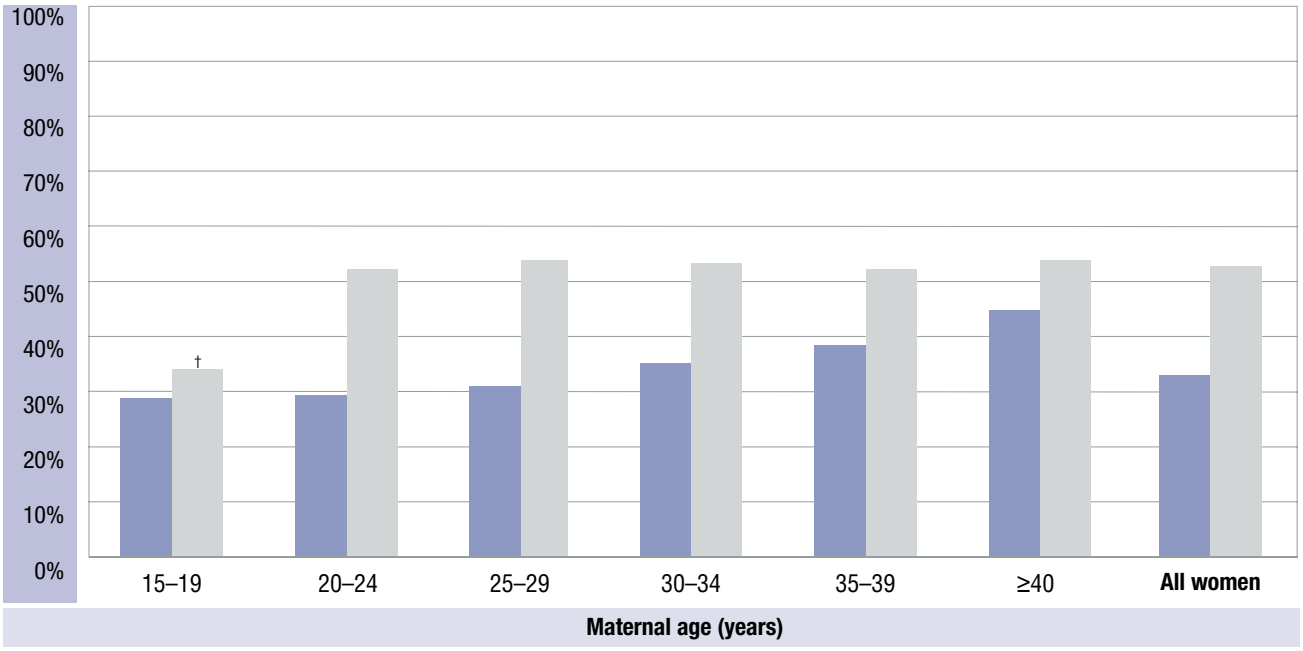
† Coefficient of variation between 16.6% and 33.3%.

Figure 28.1 **Proportion of women with a short length of stay (LOS) in hospital after birth, by type of birth and province/territory, Canada, 2006–2007**



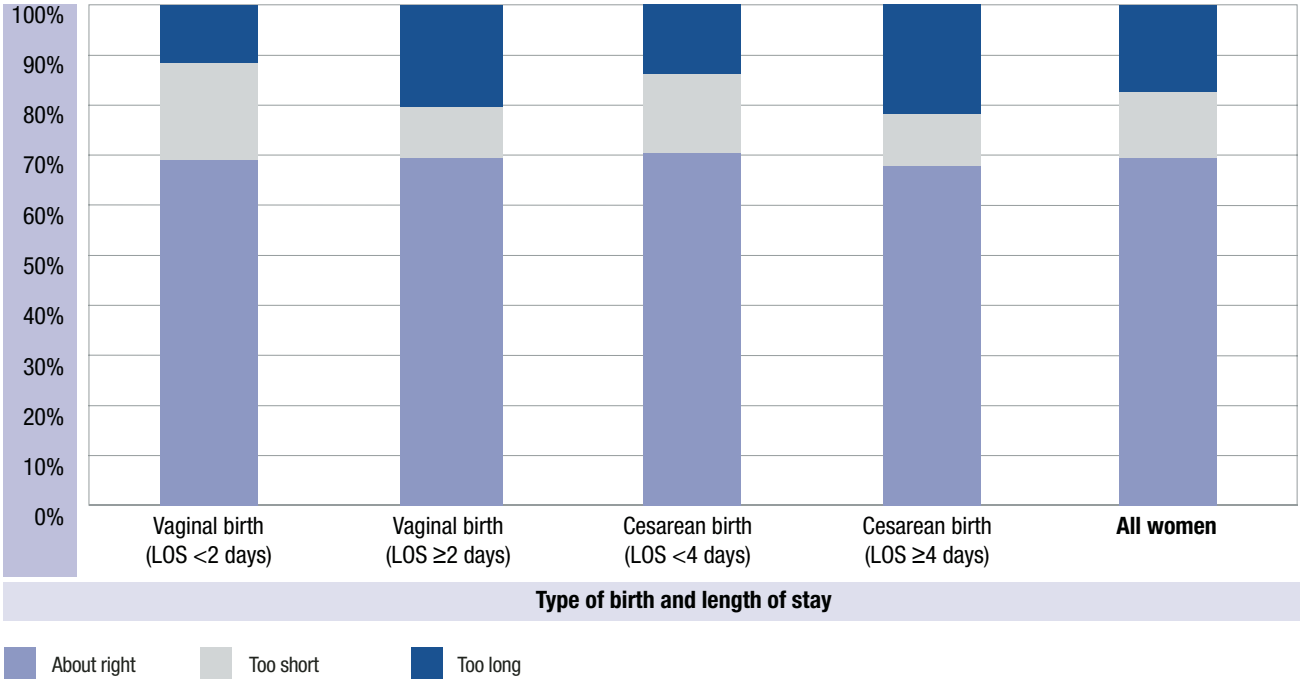
* Estimate not shown because unweighted numerator was less than 5.
† Coefficient of variation between 16.6% and 33.3%

Figure 28.2 **Proportion of women with a short length of stay (LOS) in hospital after birth, by type of birth and maternal age, Canada, 2006–2007**



† Coefficient of variation between 16.6% and 33.3%.

Figure 28.3 **Distribution of women's perceptions of their length of stay (LOS) in hospital after birth, by length of stay and type of birth, Canada, 2006–2007**



Summary

About one-third (33.6%) of women with a vaginal birth stayed in hospital less than two days and more than half (53.0%) of women with a cesarean birth stayed less than four days following birth. The proportion of women with a short length of hospital stay varied considerably among provinces and territories. Seventy percent (69.5%) of women reported their hospital stay as "about right" regardless of whether they had experienced a short or longer hospital stay.

Limitations

The MES asked women how many days, weeks or months they stayed in the hospital and therefore did not capture responses in hours. The MES did not ask women whether the length of stay following birth was their preference or their health care provider's recommendation.

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Question numbers: PPD12, PP_Q13–Q14

29 Breastfeeding Rates

Beverley Chalmers, Catherine Royle

Introduction

Breastfeeding is internationally recognized as the optimal method of infant feeding given its beneficial effects on infant growth, immunity and cognitive development.[1–4] In addition, a number of benefits, such as reduced postpartum bleeding, delayed resumption of ovulation and improved bone remineralization, have been identified in breastfeeding mothers.[5]

The 2005 Canadian Community Health Survey estimated that 87% of women who gave birth in the preceding five years initiated breastfeeding, with 51% reporting any breastfeeding at six months, and 16.4% reporting exclusive breastfeeding at six months postpartum.[6] Canada's rate of any breastfeeding at six months in 2005 was the same as that reported in the same year for Finland (51%), higher than the rates in the United Kingdom (21%), the Netherlands (25%) and Italy (38%), and lower than the rates in Sweden (74%), Norway (80%) and Moldova (81%).[7]

The Public Health Agency of Canada, Health Canada, the Canadian Paediatric Society and Dietitians of Canada recommend exclusive breastfeeding for the first six months after birth for healthy term infants, with the introduction of complementary foods at six months of age and continued breastfeeding for up to two years of age and beyond.[8] This is consistent with recommendations by the World Health Organization and United Nations Children's Fund.[9]

The MES asked women how they intended to feed their baby prior to the birth, whether they initiated breastfeeding and for how long they breastfed. Women were also asked when liquids, such as water, juice or formula, and solids were first added to their baby's diet to estimate the duration of exclusive breastfeeding. The analyses of breastfeeding at six months exclude women interviewed at less than six months postpartum (13% of MES respondents).

Note: As increased breastfeeding is the objective of the "10 Steps" of the Baby-Friendly Hospital Initiative to promote and support breastfeeding, this section is complementary to section 30 (Baby-Friendly Hospital Initiative) in Chapter 3 of this report.

Results

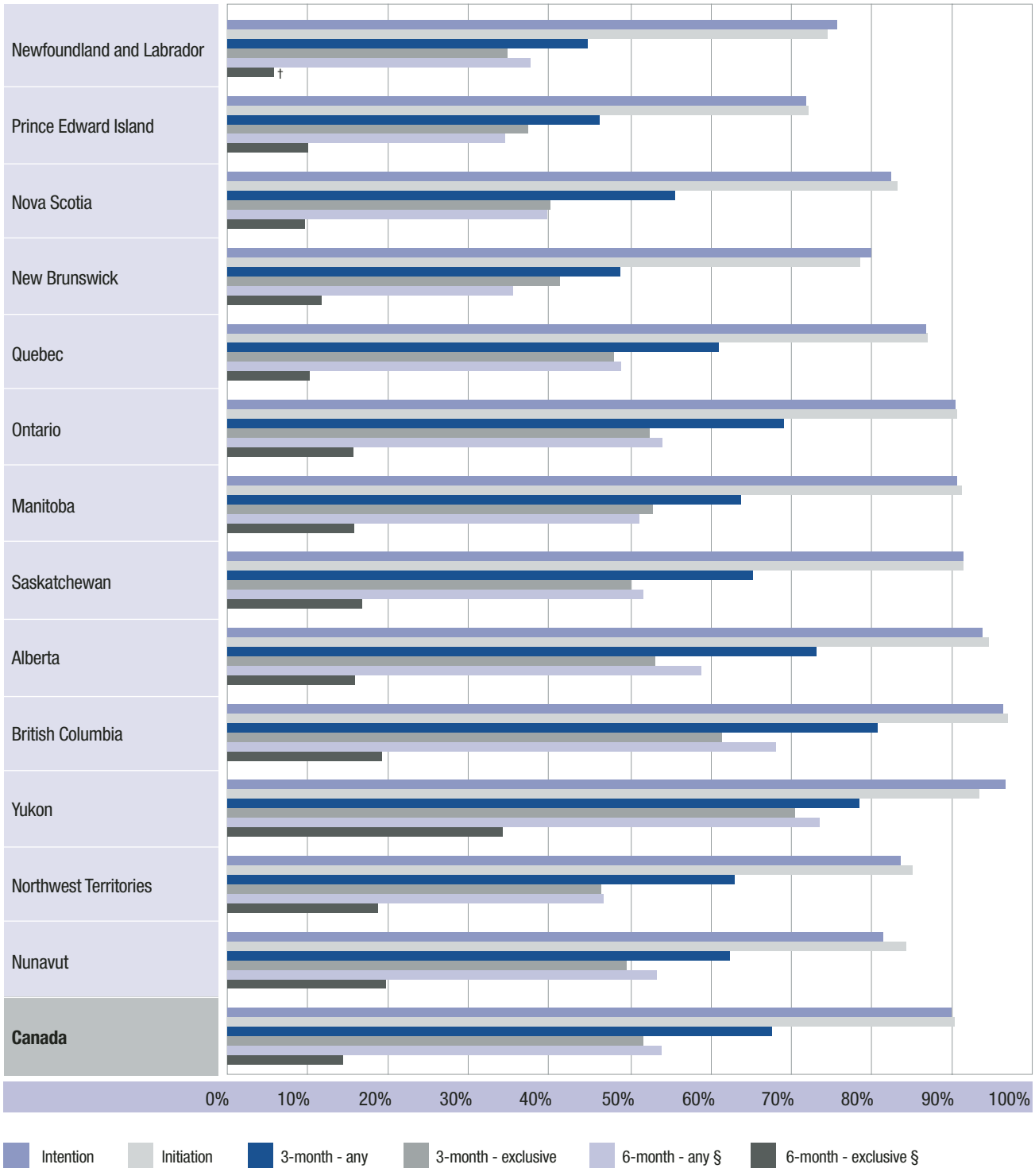
- Overall, 90.0% (95% CI: 89.3–90.7) of women intended to breastfeed prior to giving birth. Breastfeeding intention varied from about 96% in Yukon and British Columbia (96.7%, 95% CI: 94.5–98.9, and 96.4%, 95% CI: 95.1–97.8, respectively) to 71.9% (95% CI: 68.1–75.7) in Prince Edward Island (Figure 29.1). Breastfeeding intention was higher among primiparous women (93.2%, 95% CI: 92.3–94.1) than multiparous women (87.5%, 95% CI: 86.4–88.6) (Figure 29.2),

and was lower among women living in households at or below the low income cut-off (86.9%, 95% CI: 84.9–88.9) than among women living in households above this income level (91.1%, 95% CI: 90.3–91.9). Breastfeeding intention increased with increasing maternal age (Figure 29.4).

- Breastfeeding initiation was high (90.3%, 95% CI: 89.6–91.0), ranging from 97.0% (95% CI: 95.8–98.3) of women in British Columbia and 94.6% (95% CI: 92.8–96.3) in Alberta to about three-quarters of women in Newfoundland and Labrador, and Prince Edward Island (74.6%, 95% CI: 70.3–79.0 and 72.2%, 95% CI: 68.6–75.9, respectively) (Figure 29.1). Primiparous women (92.8%, 95% CI: 91.8–93.7) were more likely to initiate breastfeeding than multiparous women (88.4%, 95% CI: 87.4–89.4) (Figure 29.2). Women living in households above the low income cut-off (91.1%, 95% CI: 90.3–91.9) were more likely to initiate breastfeeding than those living at or below this level (87.7%, 95% CI: 85.8–89.6), and women with university education (96.1%, 95% CI: 95.3–96.9) were more likely to initiate breastfeeding than women with lower educational levels (Figure 29.3). Younger mothers (15–19 years) were less likely to initiate breastfeeding (83.6%, 95% CI: 79.6–87.7) compared with older mothers (Figure 29.4).
- A little more than half (51.7%, 95% CI: 50.4–53.0) of women reported exclusively breastfeeding their baby at three months postpartum, while 67.6% (95% CI: 66.5–68.8) of women reported any breastfeeding at three months. The proportion of women who were exclusively breastfeeding at six months postpartum was 14.4% (95% CI: 13.5–15.4), while that of any breastfeeding at six months was 53.9% (95% CI: 52.6–55.2). Exclusive breastfeeding at three months ranged from 70.5% (95% CI: 65.2–75.8) in Yukon to 34.8% (95% CI: 30.1–39.6) in Newfoundland and Labrador, and at six months from 34.2% (95% CI: 28.6–39.7) in Yukon to 5.8%† (95% CI: 3.4–8.3) in Newfoundland and Labrador (Figure 29.1).
- Compared with older mothers, younger mothers (15–19 years) were less likely to breastfeed at three months postpartum, either exclusively (34.1%, 95% CI: 28.4–39.7) or at all (40.5%, 95% CI: 34.6–46.4). These mothers were also less likely to breastfeed at six months with 5.1%† (95% CI: 2.3–7.8) reporting exclusive and 22.8% (95% CI: 17.9–27.8) reporting any breastfeeding (Figure 29.4). Although primiparous women reported higher breastfeeding intention and initiation than multiparous women, they were less likely to exclusively breastfeed at three (49.2%, 95% CI: 47.2–51.1) and six (12.5%, 95% CI: 11.2–13.9) months postpartum, compared with multiparous women (Figure 29.2).
- Most (87.2%, 95% CI: 85–89.4) babies who were admitted to intensive care or special care units immediately after birth were breastfed.
- Among breastfed babies who had liquids other than breast milk introduced to their diets by the time of the survey, on average, liquids were added at 12.6 weeks (95% CI: 12.4–12.9). Twenty-one percent (21.0%, 95% CI: 20.0–22.1) of breastfeeding mothers added other liquids within the first week after the birth. By 14 days after birth, 25.2% (95% CI: 24.1–26.4) of breastfeeding mothers had added other liquids.
- Among babies who had solids introduced to their diets, solids were added on average at 4.8 months (95% CI: 4.8–4.8).

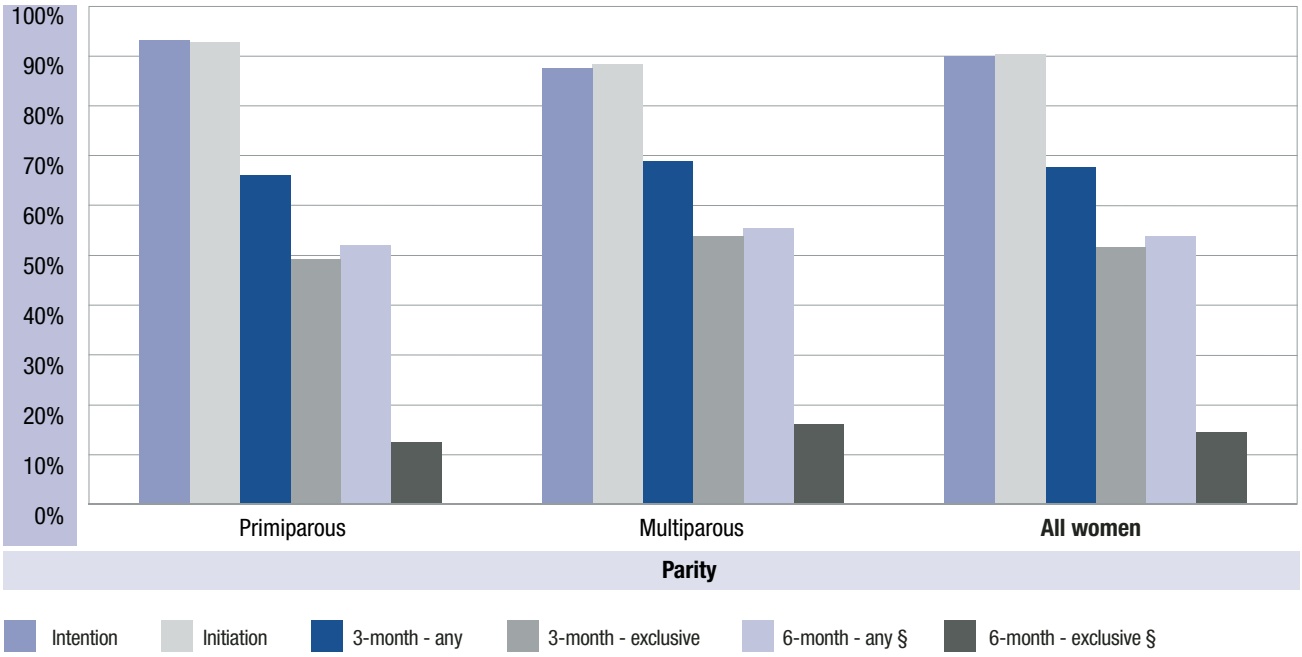
† Coefficient of variation between 16.6% and 33.3%.

Figure 29.1 **Proportion of women who intended to breastfeed, proportion who initiated breastfeeding and duration of breastfeeding, by province/territory, Canada, 2006–2007**



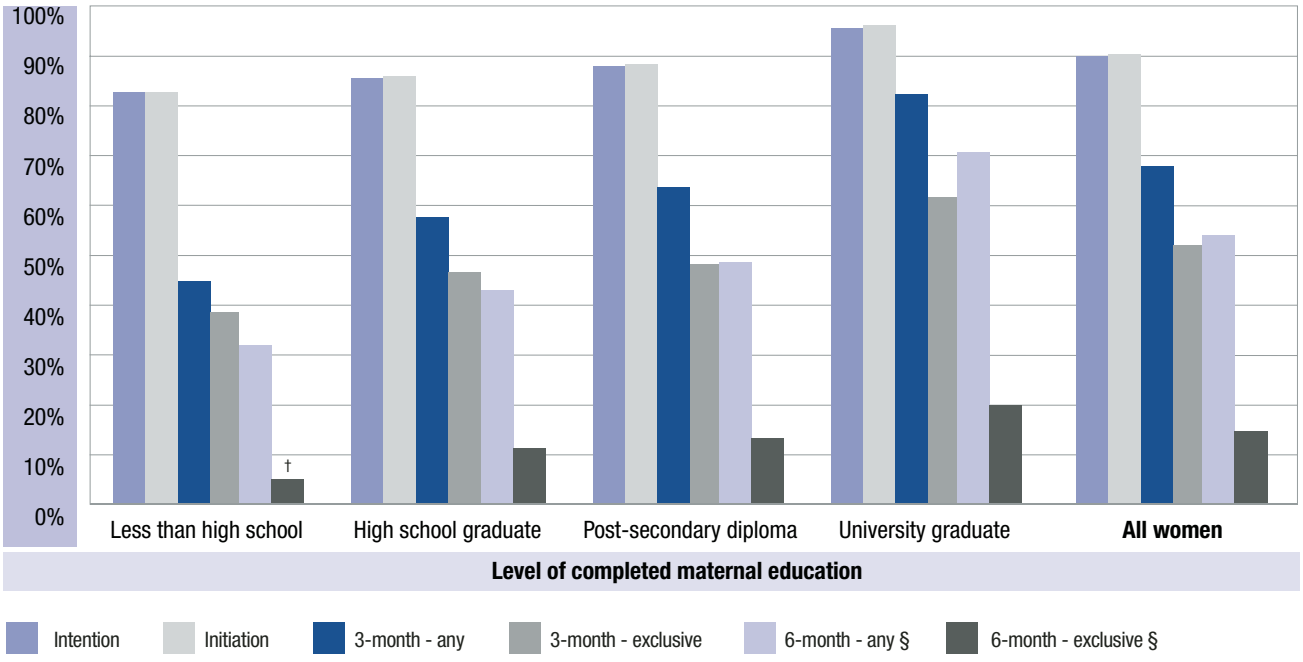
† Coefficient of variation between 16.6% and 33.3%.
§ Rates of breastfeeding at six months exclude women interviewed at less than six months postpartum.

Figure 29.2 **Proportion of women who intended to breastfeed, proportion who initiated breastfeeding and duration of breastfeeding, by parity, Canada, 2006–2007**



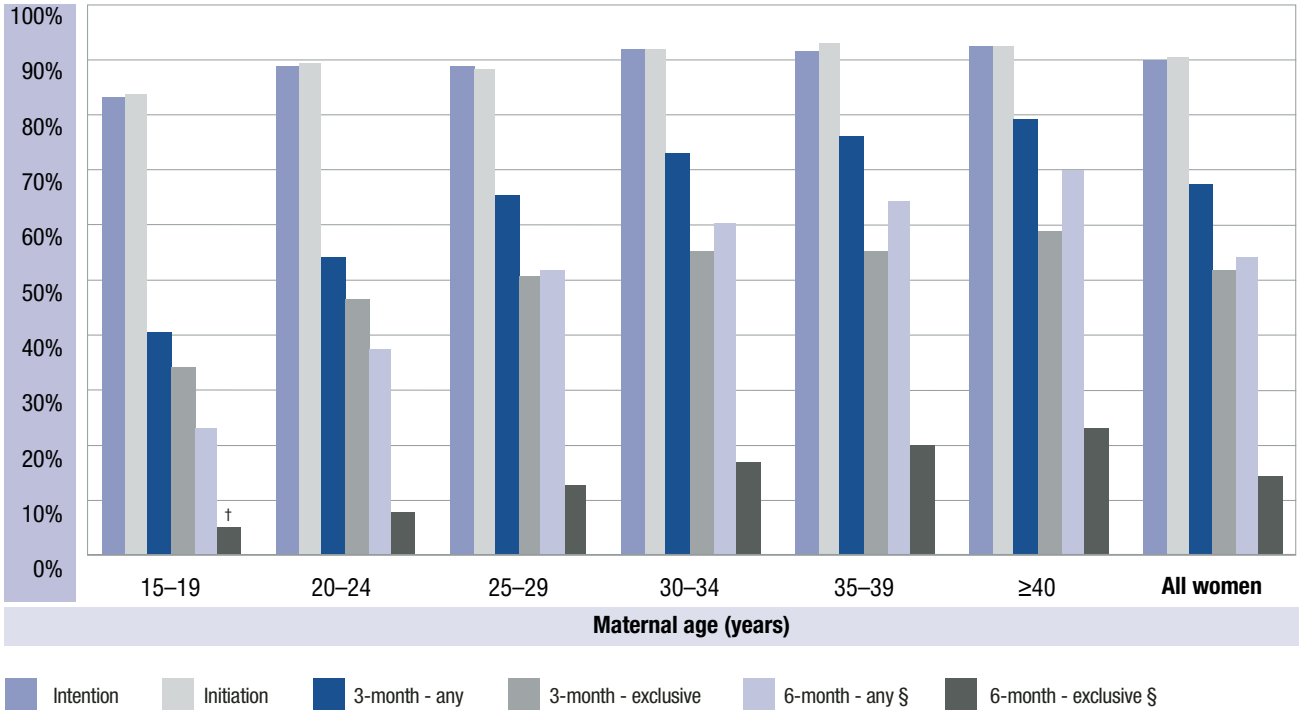
§ Rates of breastfeeding at six months exclude women interviewed at less than six months postpartum.

Figure 29.3 **Proportion of women who intended to breastfeed, proportion who initiated breastfeeding and duration of breastfeeding, by maternal education, Canada, 2006–2007**



† Coefficient of variation between 16.6% and 33.3%.
§ Rates of breastfeeding at six months exclude women interviewed at less than six months postpartum.

Figure 29.4 **Proportion of women who intended to breastfeed, proportion who initiated breastfeeding and duration of breastfeeding, by maternal age, Canada, 2006–2007**



† Coefficient of variation between 16.6% and 33.3%.
§ Rates of breastfeeding at six months exclude women interviewed at less than six months postpartum.

Summary

Although the majority (90.3%) of women initiated breastfeeding, the proportion of women reporting any or exclusive breastfeeding at six months postpartum was lower (53.9% and 14.4%, respectively). The rates of breastfeeding were higher in western than in eastern Canada, increased with maternal age and educational level, and were higher among women living in a household above the low income cut-off.

Limitations

Women's responses to questions about breastfeeding duration and timing of the introduction of liquids and solids were given in either months or weeks, and conversion from one unit to another is subject to some rounding error. Social desirability to breastfeed may have influenced women to over-report breastfeeding initiation and duration.

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Question numbers: BF_Q01–Q02, BFD08, BFD09, BF_Q10, BFD11

30 Baby-Friendly Hospital Initiative

Beverley Chalmers, Catherine Royle

Introduction

The Baby-Friendly Hospital Initiative (BFHI) is a global breastfeeding promotion program developed and implemented by the World Health Organization and the United Nations Children's Fund.[1,2] It recommends that all maternity care centres adhere to "10 Steps" that promote and support breastfeeding. The Canadian-led Promotion of Breastfeeding Intervention Trial (PROBIT), the largest randomized trial ever conducted in the area of human lactation, provided strong evidence that the BFHI increases prolonged and exclusive breastfeeding, which in turn improves infant health in the first year of life[3] and results in improved children's cognitive development at school age.[4]

BFHI 10 Steps

Step 1: Have a written breastfeeding policy that is routinely communicated to all health care staff.

Step 2: Train all health care staff in skills necessary to implement this policy.

Step 3: Inform all pregnant women about the benefits and management of breastfeeding.

Step 4: Help mothers initiate breastfeeding within a half-hour of birth.*

Step 5: Show mothers how to breastfeed and how to maintain lactation even if they should be separated from their infants.

Step 6: Give newborn infants no food and drink other than breast milk, unless medically indicated.

Step 7: Practise rooming-in; allow mothers and infants to remain together 24 hours a day.**

Step 8: Encourage breastfeeding on demand.

Step 9: Give no artificial teats or pacifiers (also called dummies or soothers) to breastfeeding infants.

Step 10: Foster the establishment of breastfeeding support groups, and refer mothers to them on discharge from the hospital or clinic.

* Step 4 is clarified by the BFHI to include skin-to-skin mother-infant contact as soon as the baby is born, followed by breastfeeding when the baby shows signs of readiness to feed, usually within the first hour after delivery. Breastfeeding within the first five minutes after birth is usually not appropriate and is not recommended.[5]

** Step 7 is defined as the baby in the mother's room for at least 23 hours a day.

The MES asked women questions related to Steps 3 to 10 of the BFHI. Specifically, women were asked whether they had enough information about breastfeeding prior to the birth, the timing of the first breastfeeding and whether assistance with breastfeeding initiation or free formula samples were offered. Women who breastfed or tried to breastfeed their baby even if only for a short time were asked about demand versus fixed-schedule feeding, pacifier or soother use and whether they were given information about community breastfeeding support services. Women whose baby was not admitted to an intensive care or special care unit immediately after birth were asked the amount of time their baby was in their room during the first 24 hours after the birth. No questions were asked in relation to Steps 1 and 2, as women would not have been involved with these steps.

Note: This section is complementary to section 26 (Mother-Infant Contact at Birth) in Chapter 2 and to section 29 (Breastfeeding Rates) in Chapter 3 of this report.

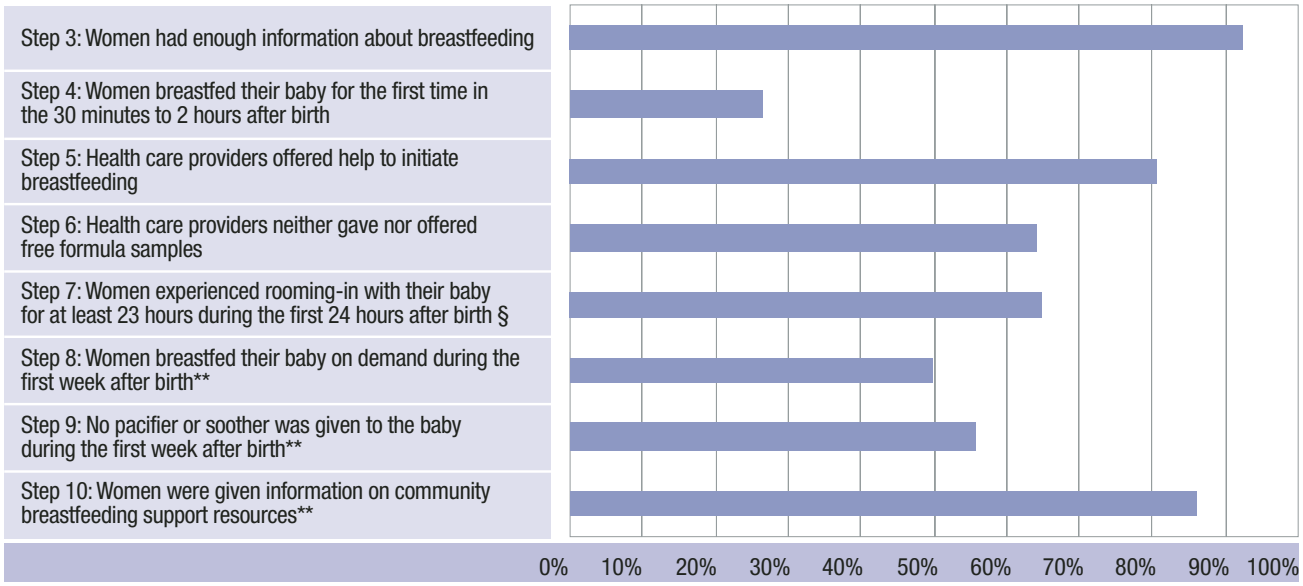
Results

- In relation to Step 3, 92.3% (95% CI: 91.6–93.0) of women reported having enough information about breastfeeding during pregnancy (Figure 30.1).
- In relation to Step 4, 19.8% (95% CI: 18.7-20.8) of women reported putting their baby to the breast for the first time within five minutes of giving birth. Twenty-one percent (21.5%, 95% CI: 20.4-22.6) of women first put their baby to the breast between six and 29 minutes, 26.6% (95% CI: 25.5-27.7) between 30 minutes and less than two hours, and 21.6% (95% CI: 20.6-22.7) two hours or more after the birth (Figure 30.2). Of babies who were admitted to an intensive care or special care unit and were breastfed, 60.2% (95% CI: 56.6-63.7) were put to the breast for the first time more than two hours after birth.
- In relation to Step 5, 80.7% (95% CI: 79.7–81.7) of women were offered help initiating breastfeeding by health care providers, with primiparous women (88.8%, 95% CI: 87.6–90.0) reporting this more often than multiparous women (74.0%, 95% CI: 72.6–75.5).
- In relation to Step 6, 64.2% (95% CI: 63.0–65.4) of women reported that they were neither given nor offered free formula samples by their health care providers, ranging from 77.3% (95% CI: 74.1–80.6) in British Columbia and 71.6% (95% CI: 66.0–77.2) in Yukon to 57.3% (95% CI: 55.1–59.4) in Ontario and 52.9% (95% CI: 45.8–60.1) in Nunavut (Figure 30.3). Women over the age of 20 and those with a university education were more likely not to be given or offered free formula samples compared with younger mothers (15–19 years) and those with less than university education. Mothers with a household income above the low income cut-off (66.7%, 95% CI: 65.3–68.1) were also more likely not to be given or offered free formula samples compared with mothers living in households at or below the low income cut-off (58.3%, 95% CI: 55.4–61.1), as were multiparous women (67.7%, 95% CI: 66.1–69.2) compared with primiparous women (60.0%, 95% CI: 58.1–61.9).
- In relation to Step 7, 65.0% (95% CI: 63.8–66.2) of women whose baby was not admitted to an intensive care or special care unit immediately after birth reported that their babies were in their room for at least 23 hours during the first 24 hours after birth. A further 23.8% (95% CI: 22.7–24.9) reported that their babies were in their room for between 19 and 23 hours during this

period. There was substantial regional variation with regard to rooming-in practices, with the proportion of women reporting at least 23-hour rooming-in ranging from 78.6% (95% CI: 73.8–83.5) in Yukon, 72.8% (95% CI: 69.3–76.2) in British Columbia and 71.4% (95% CI: 66.0–76.7) in the Northwest Territories to 21.4% (95% CI: 17.1–25.6) in Newfoundland and Labrador and 16.7% (95% CI: 13.4–19.9) in Prince Edward Island (Figure 30.4). Rooming-in also varied by type of birth, with women with a vaginal birth (70.9%, 95% CI: 69.6–72.2) being more likely to have their babies in their room for at least 23 hours during the first 24 hours after birth compared with women with a cesarean birth (46.5%, 95% CI: 43.8–49.3).

- In relation to Step 8, 49.8% (95% CI: 48.5–51.2) of women who breastfed reported breastfeeding their babies in the first week whenever they were hungry (demand feeding), whereas 17.7% (95% CI: 16.6–18.7) followed a fixed schedule and 32.5% (95% CI: 31.2–33.8) used a combination of demand and fixed-schedule feeding (Figure 30.5).
- In relation to Step 9, the proportion of breastfeeding women who reported that their newborn babies did not receive a pacifier or soother within the first week was 55.6% (95% CI: 54.3–56.9) (Figure 30.1). This proportion tended to increase with increasing levels of maternal age and education, with the babies of mothers over 40 years (67.8%, 95% CI: 60.6–75.1) and babies of mothers with a university education (63.6%, 95% CI: 61.5–65.8) being more likely not to receive a pacifier or soother compared with babies of mothers in lower age groups and lower educational levels.
- In relation to Step 10, 86.3% (95% CI: 85.4–87.2) of breastfeeding women were given information on community breastfeeding support resources (Figure 30.1).

Figure 30.1 **Proportion of women with experiences that are consistent with Steps 3 through 10 of the Baby-Friendly Hospital Initiative, Canada, 2006–2007**



§ Women whose baby was admitted to an intensive care or special care unit immediately after birth were excluded.
** Among women who breastfed or tried to breastfeed their baby even if only for a short time.

Figure 30.2 **Distribution of timing of first breastfeed, Canada, 2006–2007**

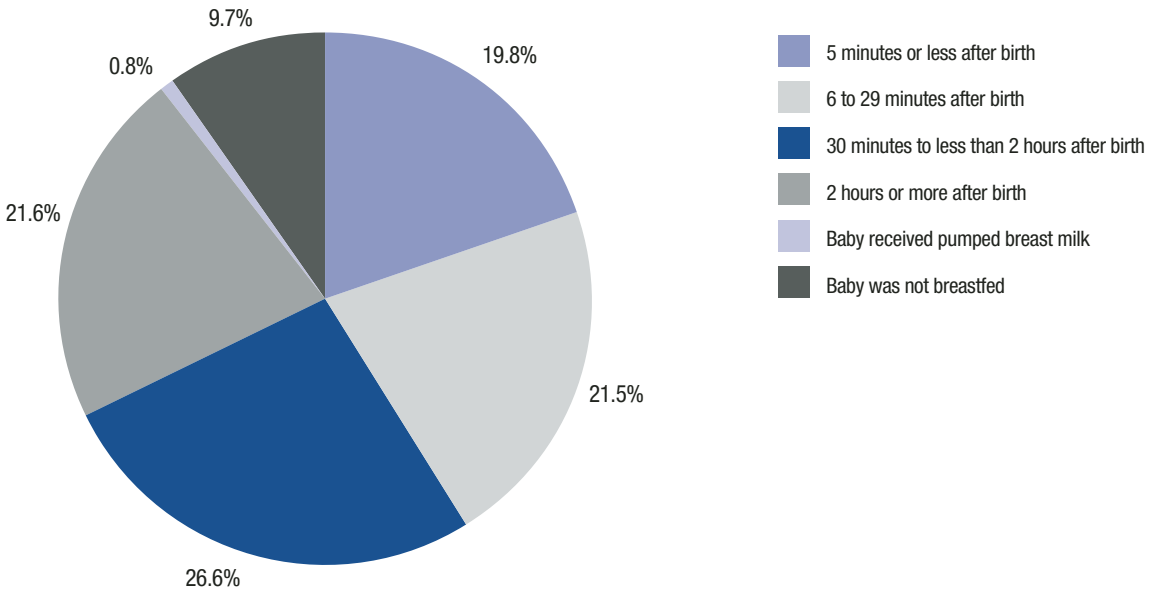


Figure 30.3 **Proportion of women whose health care provider neither gave nor offered free formula samples (BFHI Step 6), by province/territory, Canada, 2006–2007**

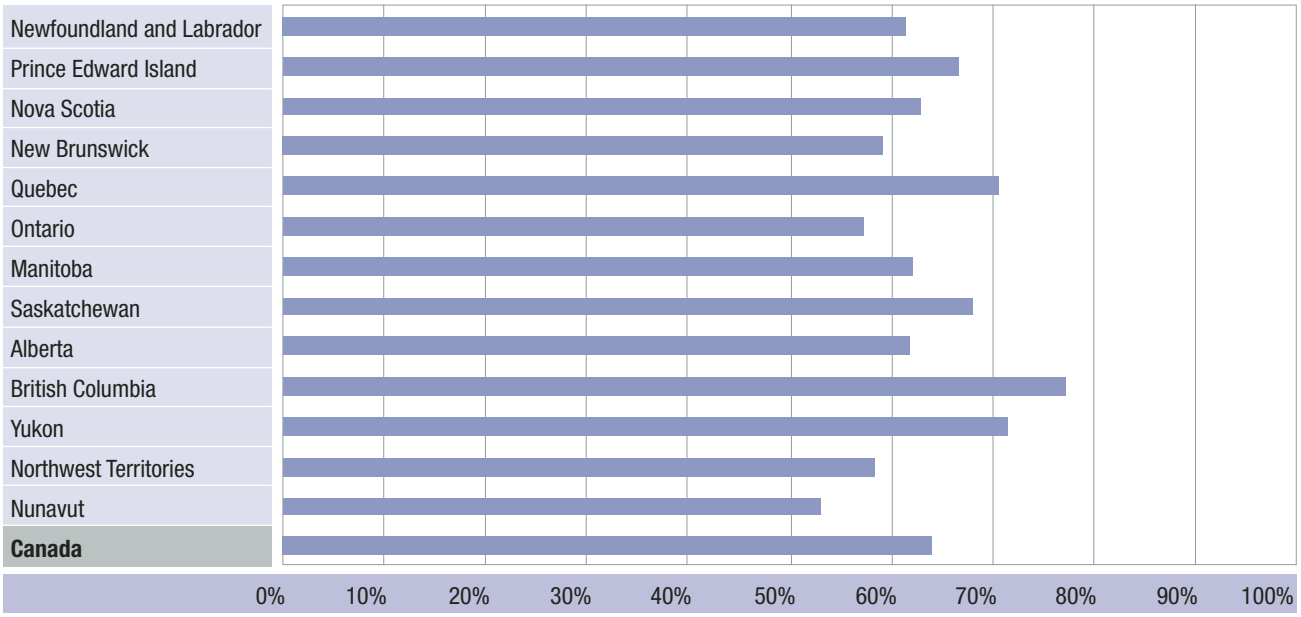
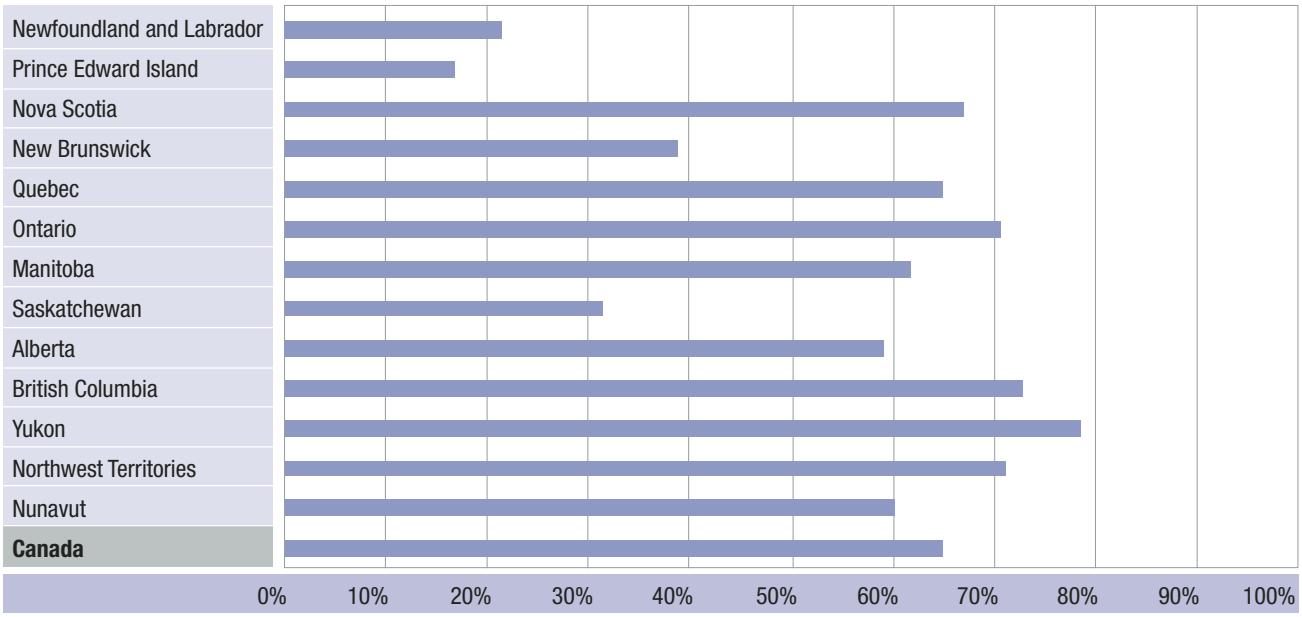
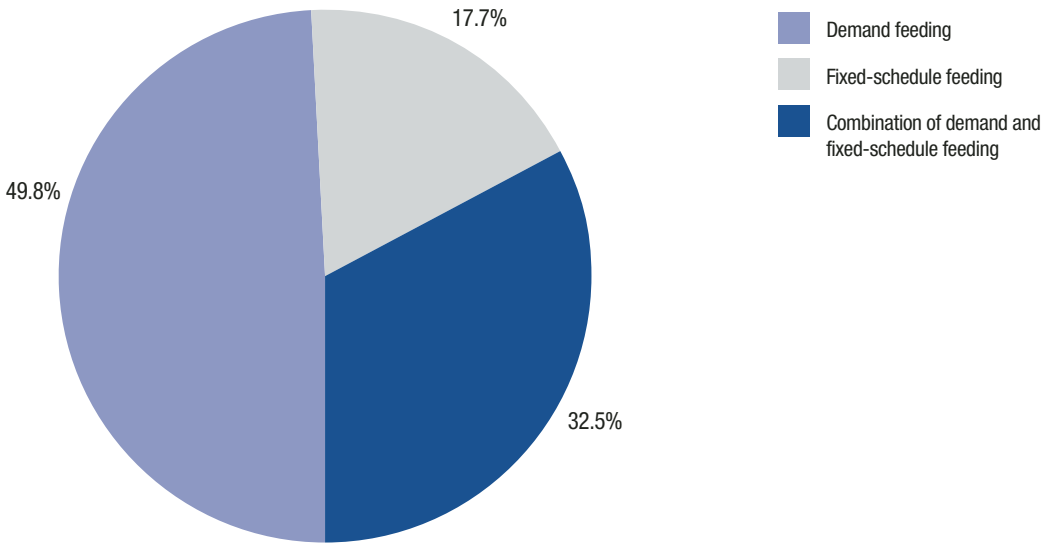


Figure 30.4 **Proportion of women who experienced rooming-in with their baby for at least 23 hours during the first 24 hours after birth (BFHI Step 7), by province/territory, Canada, 2006–2007 §**



§ Women whose baby was admitted to an intensive care or special care unit immediately after birth were excluded.

Figure 30.5 **Distribution of breastfeeding method during the first week after birth, Canada, 2006–2007**



Summary

The proportion of women with experiences that are consistent with Steps 3 through 10 of the Baby-Friendly Hospital Initiative is high for some of the steps, while others need improvement. Most mothers (80%–90%) reported having enough information about breastfeeding, being given information about community breastfeeding resources and being assisted with initiating breastfeeding. Practices not supportive of breastfeeding and the BFHI steps included: 50.2% of breastfeeding babies not being fed solely on demand in the first week after the birth, 44.4% of breastfeeding babies being given a pacifier during the first week after the birth, 35.8% of mothers being given or offered free formula samples, 35.0% of babies being away from their mother's room for more than one hour in the first 24 hours after the birth and 19.8% of babies commencing breastfeeding too early (i.e., within five minutes of birth).

Limitations

The MES did not explore the quality of the information or assistance given to women by health care providers regarding breastfeeding. Nor did it explore the nature of any additional sources of information available to women about breastfeeding. No questions were specifically asked about the babies' readiness to feed.

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Question numbers: PI_Q09, PP_Q10–Q11, BF_Q03–Q07, BF_Q09–Q10

31 Home Contact and Satisfaction with Postpartum Care

Cathy Kimak, Catherine Royle, Beverley Chalmers

Introduction

Across Canada, and in several other countries, there has been a reduction in length of hospital stay following birth.[1,2] This has resulted in the development of national and regional guidelines for postpartum care, as well as increased community perinatal services.[1,3–5] The goal of these community perinatal services is to support the health of new mothers and babies. However, researchers have identified a lack of evidence on which to base program decisions regarding the most effective models of follow-up care.[4,6]

Postpartum services in Canada are provided by hospitals, health centres, public health nurses and primary care providers. A variety of models are used, including phone calls, telephone triage services, clinic visits (drop-in and appointment) and home visits.

Satisfaction with postpartum care is an important indicator of maternal experiences. The level of satisfaction or dissatisfaction with respect to the care that mothers and their babies receive following delivery is also valuable to identify areas where improvements could be made.[7] Studies have found that maternal satisfaction with postpartum care is improved when the care is delivered through home visits rather than clinic or hospital visits.[8]

The MES asked women whether a health care provider contacted them at home (home visit or phone call) following the birth. Women were also asked how old their baby was when the contact was made. For women with a hospital or clinic birth, the time to contact following discharge was estimated by subtracting the length of hospital stay after birth from the baby's age at home contact. The MES also asked women about their level of satisfaction with their own and their baby's postpartum health care.

Results

- Overall, 93.3% (95% CI: 92.6–93.9) of women reported that a health care provider contacted them at home following the birth. This ranged from all or nearly all women in Prince Edward Island (100.0%, 95% CI: 100.0–100.0), British Columbia (99.6, 95% CI: 99.1–100.1), Alberta (99.4%, 95% CI: 98.8–100.0) and Newfoundland and Labrador (99.2%, 95% CI: 98.3–100.2) to 75.1% (95% CI: 70.7–79.4) in New Brunswick and 62.9% (95% CI: 55.7–70.1) of women in Nunavut (Figure 31.1).
- Primiparous women were somewhat more likely to be contacted (94.6%, 95% CI: 93.7–95.5) compared with multiparous women (92.2%, 95% CI: 91.3–93.1). Ninety-four percent (94.0%, 95% CI: 93.3–94.8) of women living in households above the low income cut-off were contacted by a

health care provider at home following the birth and 91.8% (95% CI: 90.2–93.4) of women living in households at or below the low income cut-off were contacted.

- Ninety-three percent (93.5%, 95% CI: 92.8–94.1) of women contacted were reached within 14 days after birth, with a mean time of 6.9 days (95% CI: 6.7–7.1) (median number of days was 5.0). The average time to contact at home varied by province and territory, from 14.6 days (95% CI: 11.6–17.7) in New Brunswick and 11.0 days (95% CI: 9.3–12.7) in the Northwest Territories to 4.1 days (95% CI: 3.8–4.4) in Alberta (Figure 31.2).
- Among the women who gave birth in a hospital or birthing centre, the mean time from discharge to contact at home was 4.4 days (95% CI: 4.2–4.6) (median number of days was 2.0). The average time from discharge to contact at home varied by province and territory from 11.8 days (95% CI: 8.8–14.8) in New Brunswick and 8.2 days (95% CI: 6.5–9.9) in the Northwest Territories to 2.1 days (95% CI: 1.8–2.4) in Alberta (Figure 31.2).
- Two-thirds (66.0%, 95% CI: 64.8–67.1) of mothers were "very satisfied" with the health care they had received for themselves in the period after birth and a further 24.9% (95% CI: 23.8–26.0) were "somewhat satisfied." The proportion of women who were "very satisfied" with their postpartum health care ranged from 85.1% (95% CI: 81.0–89.3) in Yukon and 74.5% (95% CI: 70.4–78.7) in Nova Scotia to 56.8% (95% CI: 54.0–59.5) in Quebec and 44.4% (95% CI: 37.1–51.6) in Nunavut (Figure 31.3).
- Almost three-quarters (74.5%, 95% CI: 73.4–75.6) of women were "very satisfied" with the health care their babies had received since birth, with estimates ranging from 86.5% (95% CI: 82.5–90.5) in Yukon and 82.9% (95% CI: 79.3–86.6) in New Brunswick to 63.3% (95% CI: 57.8–68.8) in the Northwest Territories and 61.5% (95% CI: 54.1–68.9) in Nunavut (Figure 31.4).

Figure 31.1 **Proportion of women who were contacted at home by a health care provider following birth, by province/territory, Canada, 2006–2007**

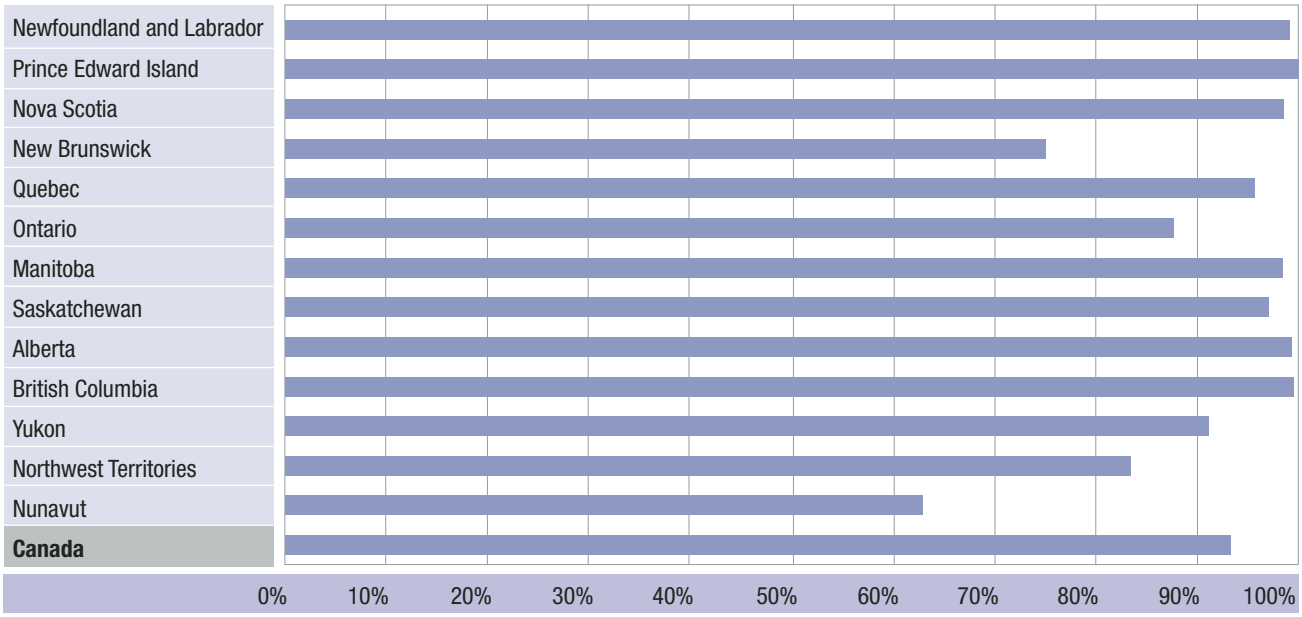
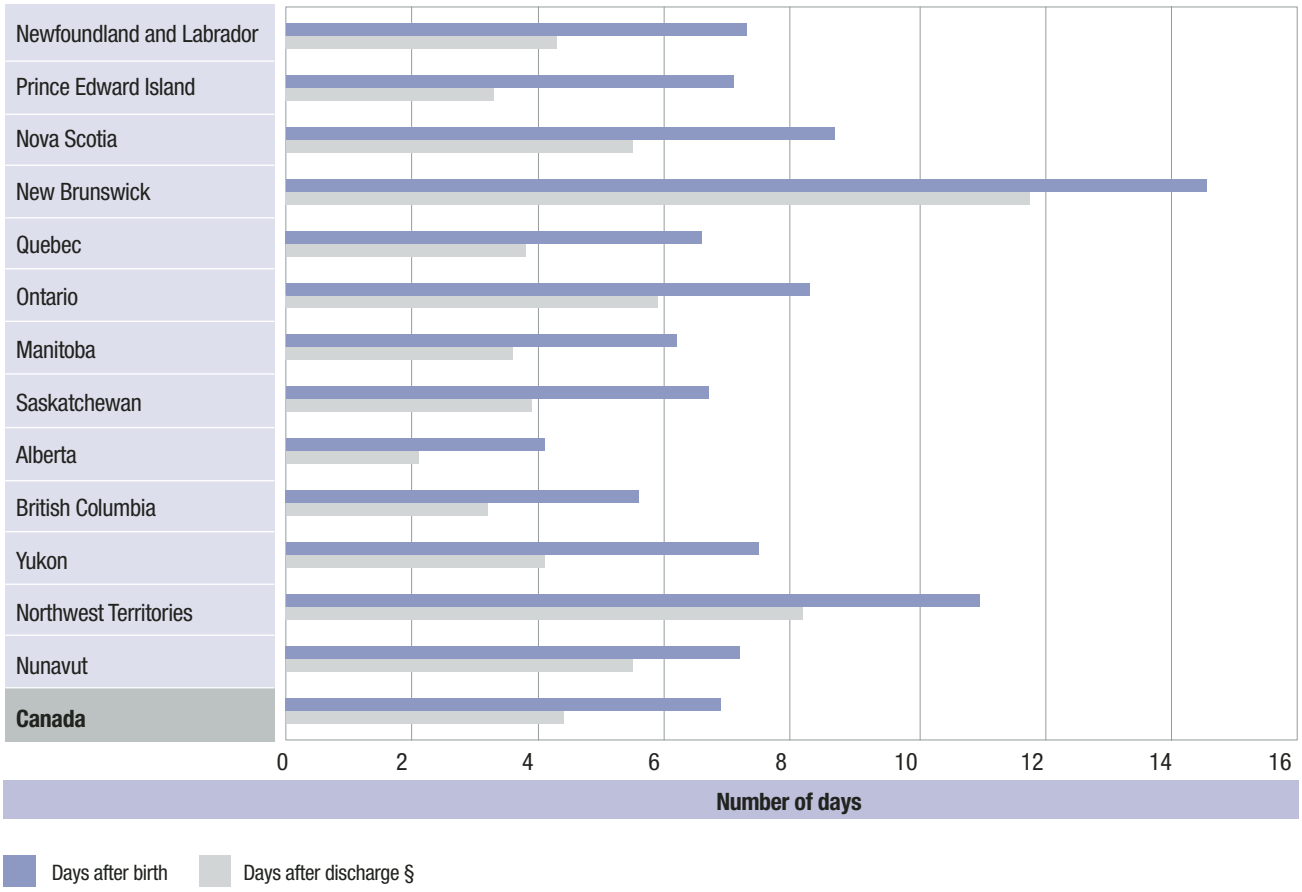
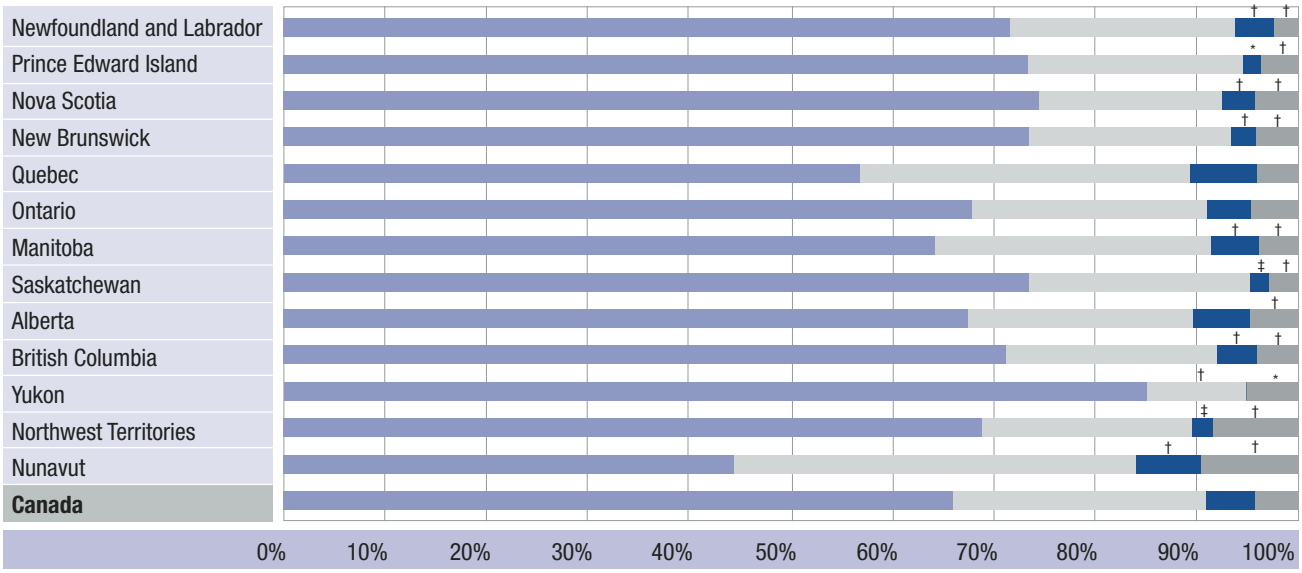


Figure 31.2 **Average number of days until contact at home by a health care provider among women contacted, by province/territory, Canada, 2006–2007**



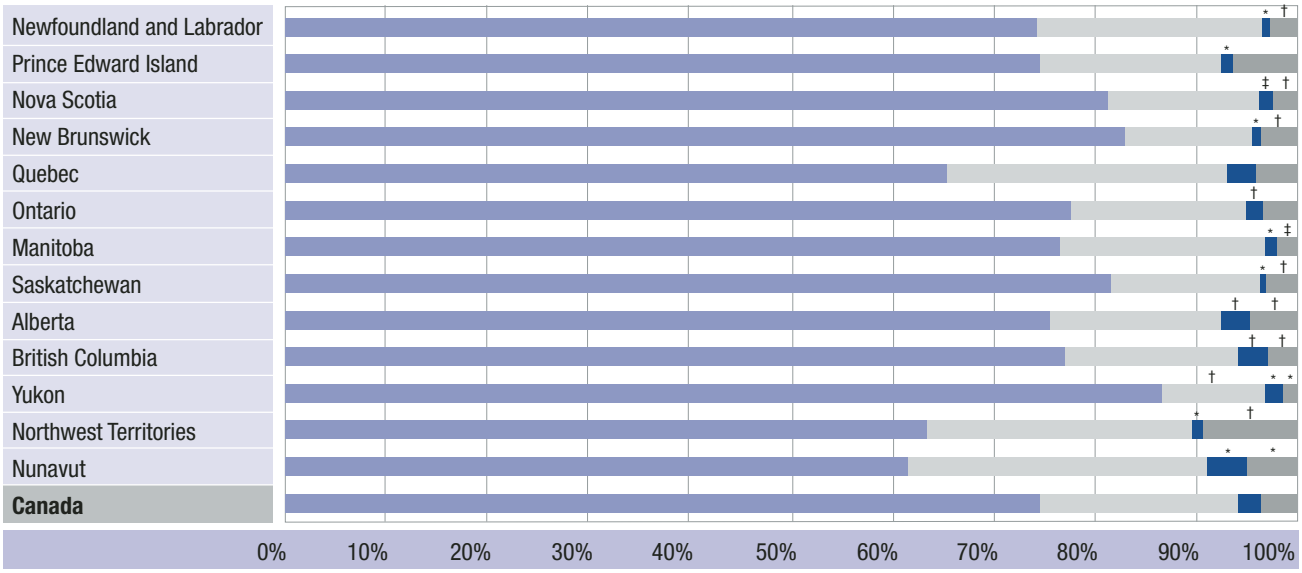
§ Days after discharge was estimated by subtracting the length of hospital stay after birth from the baby's age at home contact. Home births are excluded.

Figure 31.3 Distribution of women's satisfaction with maternal postpartum health care, by province/territory, Canada, 2006–2007



* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.

Figure 31.4 Distribution of women's satisfaction with infant postpartum health care, by province/territory, Canada, 2006–2007



* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.

Summary

The majority (93.3%) of women reported that a health care provider contacted them at home following the birth. On average, women were contacted at about seven days after birth and among those with a hospital or clinic birth, at about four days after discharge. This varied considerably among provinces and territories. More women were very satisfied with the postpartum health care received for their infants (74.5%) than for themselves (66.0%).

Limitations

The MES questions did not differentiate between women who received a home visit and those who received a phone call. Also, women were not asked about multiple contacts.

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Question numbers: MH_Q01–Q02, BH_Q06, MH_Q24

32 Postpartum Information

Dawn Kingston, Beverley Chalmers

Introduction

Understanding women's postpartum information needs is important in preparing women to care for their infant and themselves, to respond to physical and emotional postpartum changes, and to transition to parenthood.[1] Given the trend toward early hospital discharge after delivery, it is necessary for health professionals to understand women's information needs and to provide them with the most relevant information by the most effective means. A number of studies on women's postpartum information needs and sources of information have been carried out during the past two decades. However, most have been single-group descriptive studies that have focused almost exclusively on content, and they have not evaluated the independent effects of demographic characteristics on information needs (e.g., age, parity, region, socio-economic position) or maternal and infant outcomes associated with postpartum information needs.

Studies suggest that women's information needs change during the postpartum period,[1–3] that women's perceptions of what they need to know during the postpartum period differ from what their providers believe they should know,[2] and that addressing the information needs of new teenage mothers should include their mother's needs as well.[4]

The MES asked women to identify their single most useful source of information about the postpartum period (e.g., books, previous pregnancy, Internet, health care provider, family and friends) and whether they felt that they had received enough information on the following topics: possible effects of having a baby on their relationship with their partner, physical demands on their body during the first months after birth, possible negative feelings after having a baby, changes in their sexual responses, breastfeeding and formula-feeding, postpartum depression, using an infant car seat and sudden infant death syndrome.

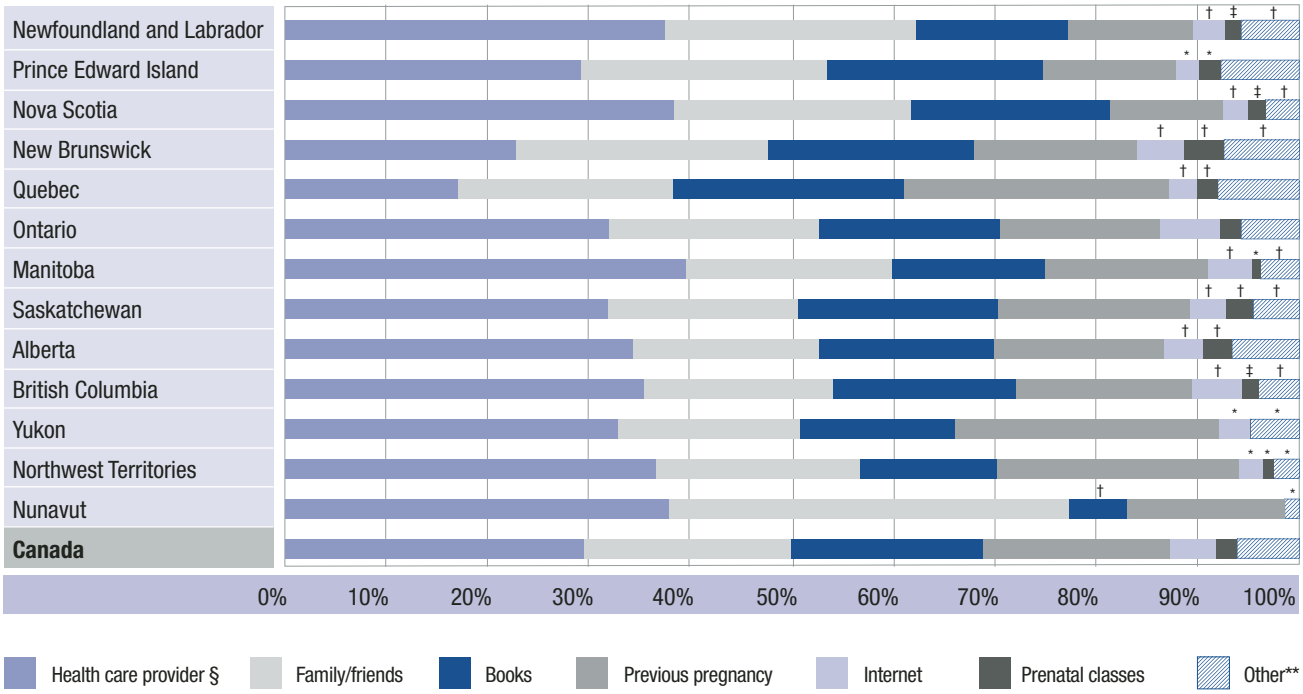
Results

- Overall, 29.4% (95% CI: 28.3–30.5) of women considered their most useful source of postpartum information to be a health care provider, followed by family or friends (20.5%, 95% CI: 19.5–21.5), books (18.9%, 95% CI: 17.9–20.0) or a previous pregnancy (18.5%, 95% CI: 17.6–19.5). Few women viewed the Internet (4.5%, 95% CI: 3.9–5.0) or prenatal childbirth classes (2.1%, 95% CI: 1.8–2.5) as their most useful source of postpartum information (Figure 32.1).

- Variations in information sources existed across the provinces and territories. The proportion of women reporting their health care provider as their most useful source of postpartum information ranged from 39.5% (95% CI: 34.6–44.5) in Manitoba and 38.3% (95% CI: 33.8–42.8) in Nova Scotia to 22.7% (95% CI: 18.6–26.8) in New Brunswick and 17.0% (95% CI: 15.0–19.1) in Quebec. The proportion of women reporting family or friends as their most useful source of postpartum information ranged from 39.5% (95% CI: 32.1–47.0) in Nunavut and 24.8% (95% CI: 20.5–29.2 in Newfoundland and Labrador to about 18% in Alberta and Yukon (18.4%, 95% CI: 15.5–21.2 and 18.0%, 95% CI: 13.3–22.6, respectively) (Figure 32.1).
- Age-related variations in what women considered the most useful source of information were observed. Younger women (under 30 years of age) reported family or friends as their most useful source of information, whereas women 30 years and older indicated a health care provider and their previous pregnancy were their most useful sources. About 10% (9.6%†, 95% CI: 6.2–13.0) of mothers aged 15–19 years indicated that some other source was their most useful source of information (Figure 32.2).
- The most useful sources of postpartum information for primiparous women were family or friends (31.8%, 95% CI: 30.1–33.5), health care provider (29.3%, 95% CI: 27.6–31.0) and books (22.8%, 95% CI: 21.1–24.4). Multiparous women viewed their previous pregnancy (33.6%, 95% CI: 31.9–35.2), health care provider (29.4%, 95% CI: 27.8–31.0) and books (15.8%, 95% CI: 14.5–17.1) as their most useful sources.
- Overall, most women reported that they had received enough information on specific postpartum issues. Topics on which fewer women reported having enough information included formula feeding (79.3%, 95% CI: 78.3–80.3) and changes in sexual responses or feelings (76.6%, 95% CI: 75.6–77.7) (Figure 32.3). Younger mothers (15–19 years) were less likely than older mothers to report having enough information on many topics.
- Although most information needs do not appear to differ greatly by parity, fewer primiparous women felt that they had enough information on the physical demands on their body during the first months after birth (74.8%, 95% CI: 73.1–76.5) compared with multiparous women (87.8%, 95% CI: 86.6–88.9).

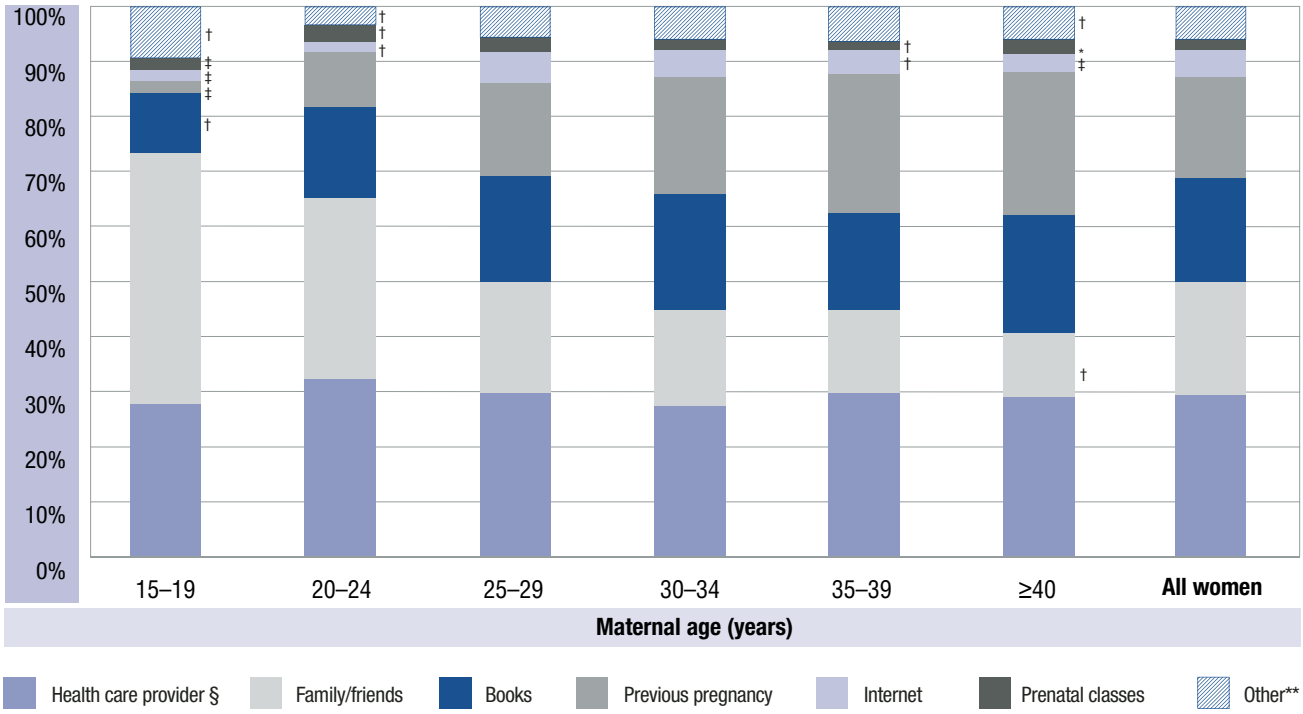
† Coefficient of variation between 16.6% and 33.3%.

Figure 32.1 **Distribution of sources of postpartum information considered by women as most useful, by province/territory, Canada, 2006–2007**



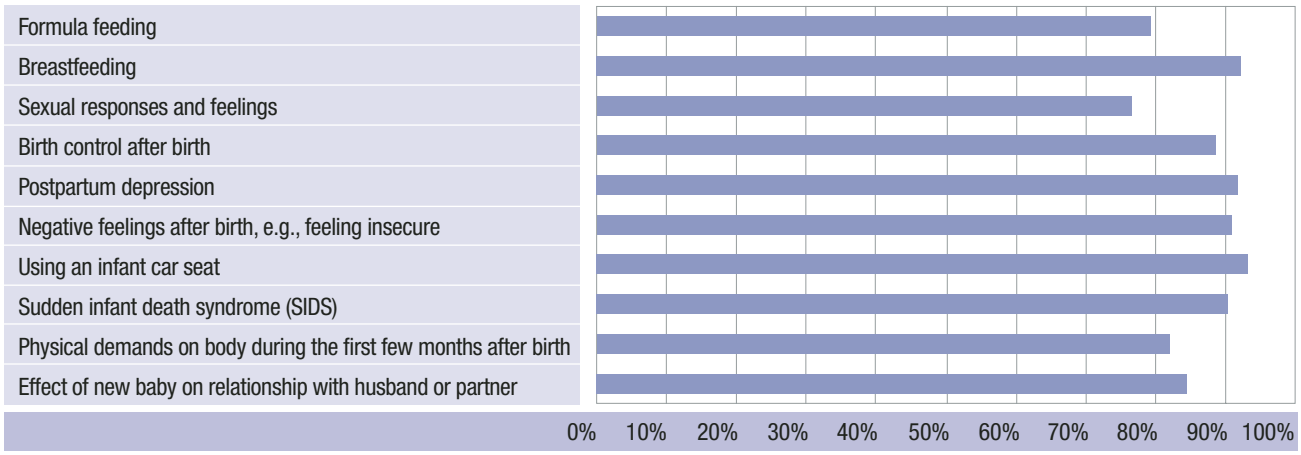
* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.
§ Obstetrician/gynecologist, family doctor/general practitioner, midwife and nurse/nurse practitioner.
** Includes doula.

Figure 32.2 **Distribution of sources of postpartum information considered by women as most useful, by maternal age, Canada, 2006–2007**



* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.
§ Obstetrician/gynecologist, family doctor/general practitioner, midwife and nurse/nurse practitioner.
** Includes doula.

Figure 32.3 **Proportion of women who received enough information on postpartum topics, Canada, 2006–2007**



Summary

Women reported health care providers (29.4%) as being the most useful source of postpartum information. Other useful sources included family or friends (20.5%), books (18.9%) and previous pregnancy (18.5%). Women reported that they had enough information on basic infant and maternal care (e.g., infant car seats, birth control, postpartum depression), but seemed somewhat less informed on issues related to the transition to parenthood (e.g., sexual changes, physical demands, effect on relationship with partner).

Limitations

The MES did not ask about the type of information received from different sources, the consistency of information received, whether information needs varied during the postpartum period or what other information women would like to receive. It is unclear whether differences in most useful sources of information across the provinces and territories are related to availability of information sources.

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Question numbers: PI_Q01–Q11

33 Maternity Leave

Susie Dzakpasu, Louise Pelletier

Introduction

In 2000, an amendment to Canada's *Employment Insurance Act* increased parental leave benefits from 10 to 35 weeks. In combination with the existing maternity leave benefit of 15 weeks, this amendment increased the total employment-protected (not necessarily paid) maternity and parental leave period from six months to one year. Although all provinces and territories provide employment-protected leave, the exact duration and level of compensation varies by jurisdiction and employer.[1,2] In 2001, 77% of women with infants were employed in the year prior to the birth, and 82% of these women had returned or planned to return to work within two years after the birth.[3]

A period of maternity leave following birth is important, as it allows mothers to care for themselves and their newborn with the assurance of being able to return to work. Longer maternity leave periods have been associated with increased breastfeeding, which is well established as beneficial to infant health.[4–6] However, there is ongoing debate regarding the impact of varying lengths of maternity leave on children's overall health, including on their cognitive and social development.[2,4,7] Studies suggest an association between longer leave periods and improved maternal mental health, including fewer depressive symptoms.[4,8]

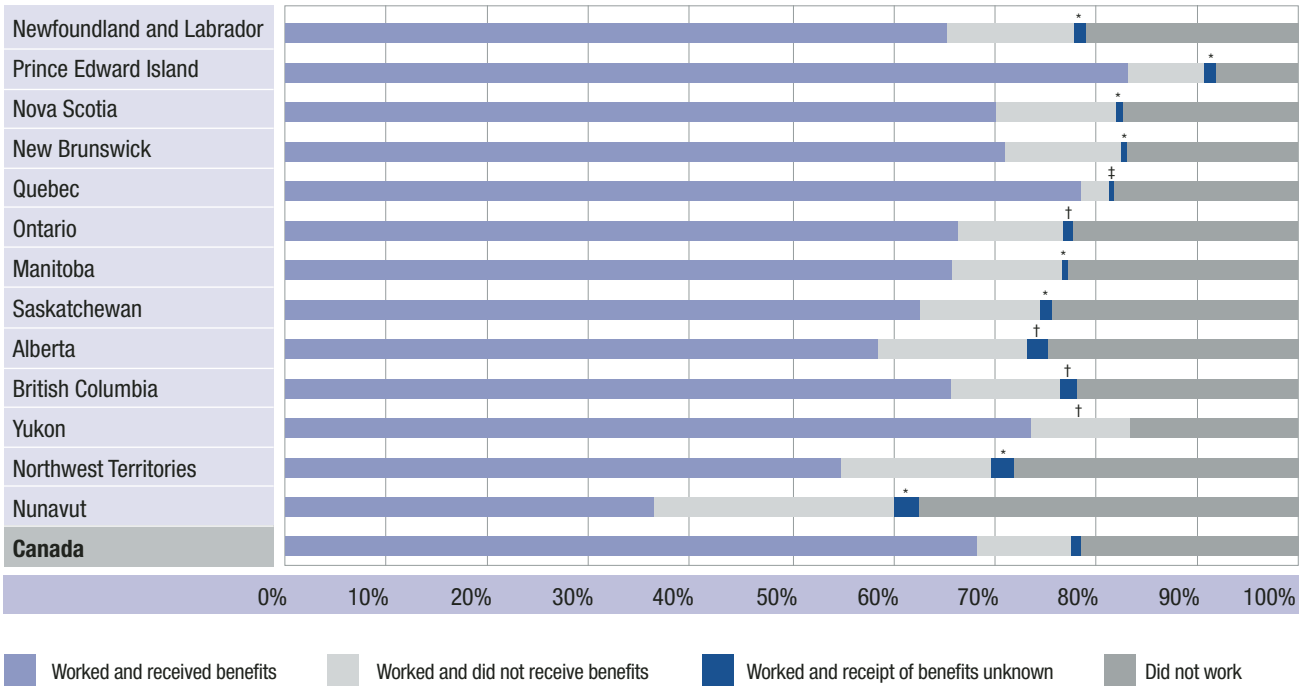
The MES asked women whether and when they stopped working prior to the birth of their child, and whether and when they had returned to work. Women were also asked if they received maternity or parental benefits paid by employment insurance while they were not working. The proportion of women who returned to work at six months postpartum excludes women interviewed at less than six months postpartum (13% of MES respondents).

Results

- About three-quarters (78.6%, 95% CI: 77.6–79.7) of women reported working at a paid job or business at some point during pregnancy, ranging from 91.9% (95% CI: 89.7–94.1) in Prince Edward Island to 62.5% (95% CI: 55.6–69.5) in Nunavut (Figure 33.1).
- Sixty-eight percent (68.3%, 95% CI: 67.1–69.4) of women worked during pregnancy and received maternity or parental benefits, 9.3% (95% CI: 8.6–10.1) of women worked and did not receive benefits, and 1.0% (95% CI: 0.8–1.3) worked but did not report whether they received benefits. There was considerable regional variation in the proportion of working women who received benefits (Figure 33.1).

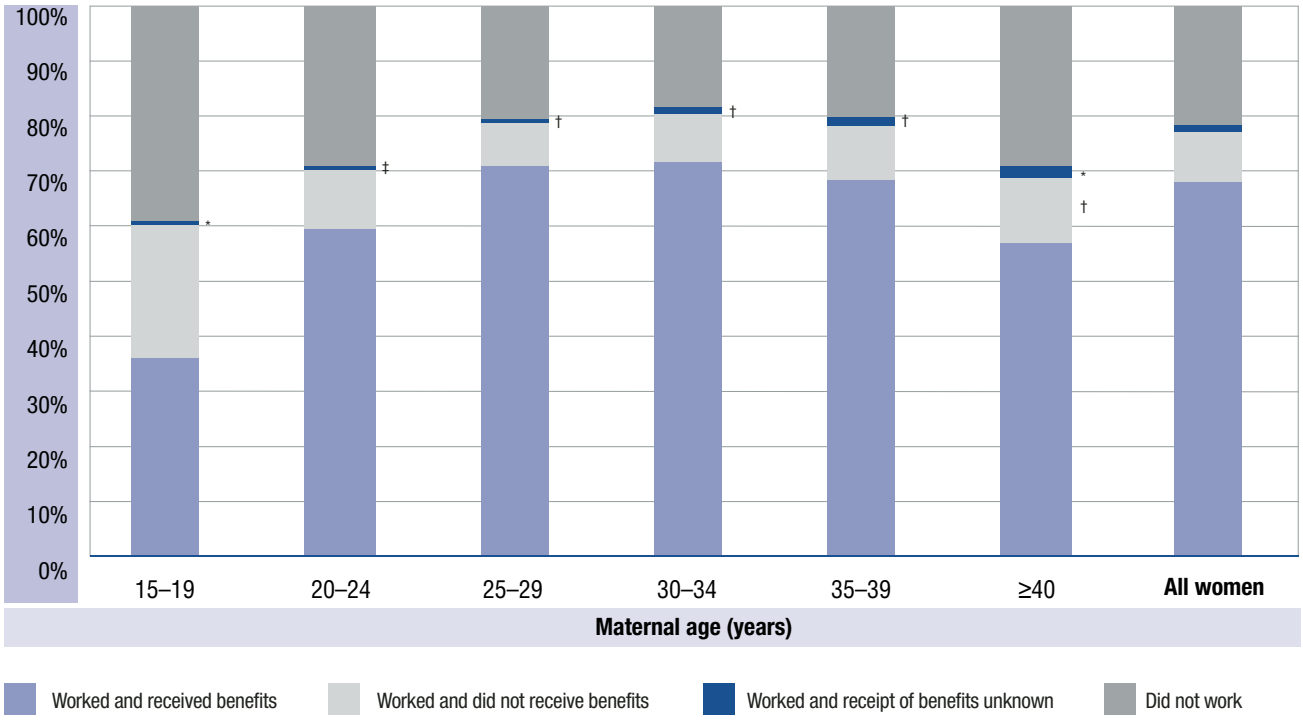
- Younger women and those with lower levels of education were less likely to have been working during pregnancy (Figures 33.2 and 33.3). This was also the case for multiparous women compared with primiparous women (70.8%, 95% CI: 69.2–72.5 vs. 88.2%, 95% CI: 87.0–89.4) and for women living in households at or below the low income cut-off compared with those above this level (59.6%, 95% CI: 56.7–62.6 vs. 85.2%, 95% CI: 84.1–86.2). Women in these groups who worked during pregnancy were also less likely to have received maternity or parental benefits. Twenty-four percent (24.2%, 95% CI: 23.0–25.3) of women had stopped working by 28 weeks' gestational age, 67.5% (95% CI: 66.3–68.8) by 36 weeks and almost all (92.9%, 95% CI: 92.2–93.7) by 38 weeks (Figure 33.4).
- Of women who worked during pregnancy, 11.6% (95% CI: 10.8–12.5) returned to work within six months of the birth. The proportion of women who returned to work within six months of birth varied from 21% in Prince Edward Island and the Northwest Territories (21.3%, 95% CI: 17.5–25.0 and 20.5%, 95% CI: 16.0–25.0, respectively) to 9.4% (95% CI: 7.7–11.0) in Quebec (Figure 33.5). Among all women who had returned to work by the time of the interview, "because of finances" (42.9%, 95% CI: 39.6–46.2) and "career is important or wanted to get back to work" (24.2%, 95% CI: 21.4–27.0) were most frequently reported as the main reason for returning to work.

Figure 33.1 **Distribution of women's employment status during pregnancy and receipt of maternity or parental benefits, by province/territory, Canada, 2006–2007**



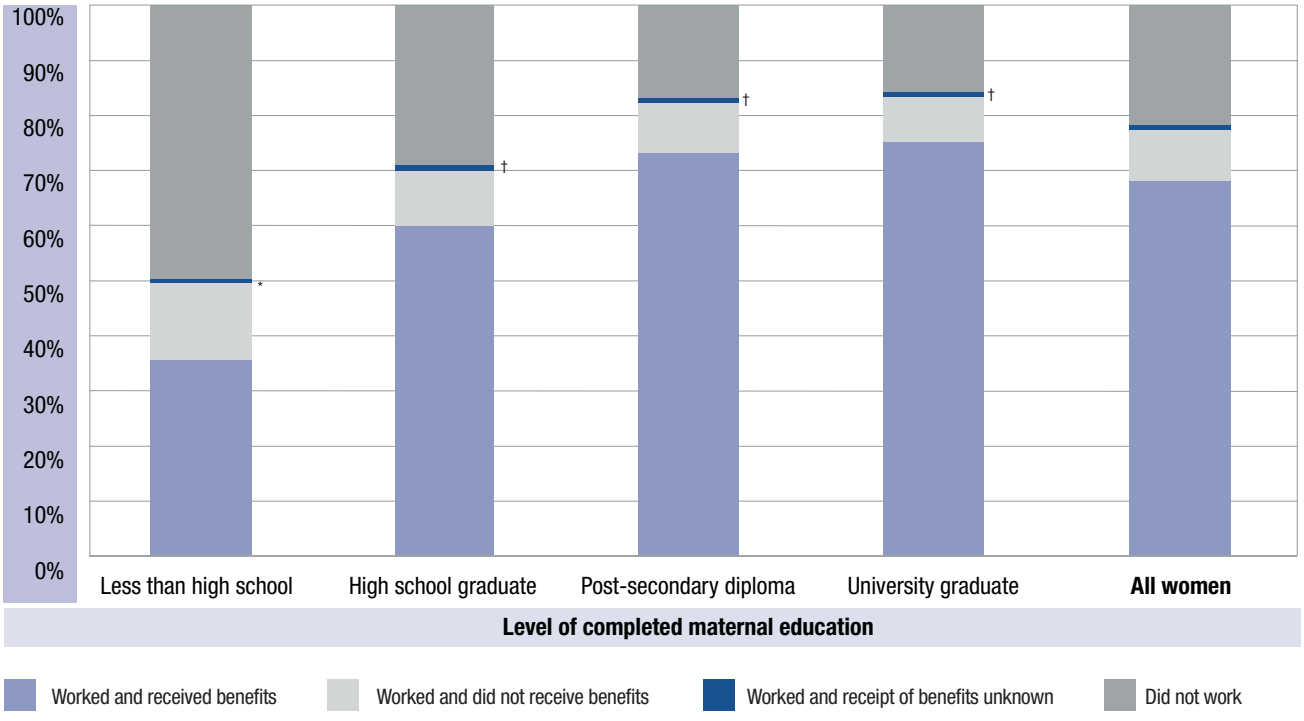
* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.

Figure 33.2 **Distribution of women's employment status during pregnancy and receipt of maternity or parental benefits, by maternal age, Canada, 2006–2007**



* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.

Figure 33.3 **Distribution of women's employment status during pregnancy and receipt of maternity or parental benefits, by maternal education, Canada, 2006–2007**



* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.

Figure 33.4 **Cumulative percent of when women stopped working during pregnancy, by gestational age, Canada, 2006–2007**

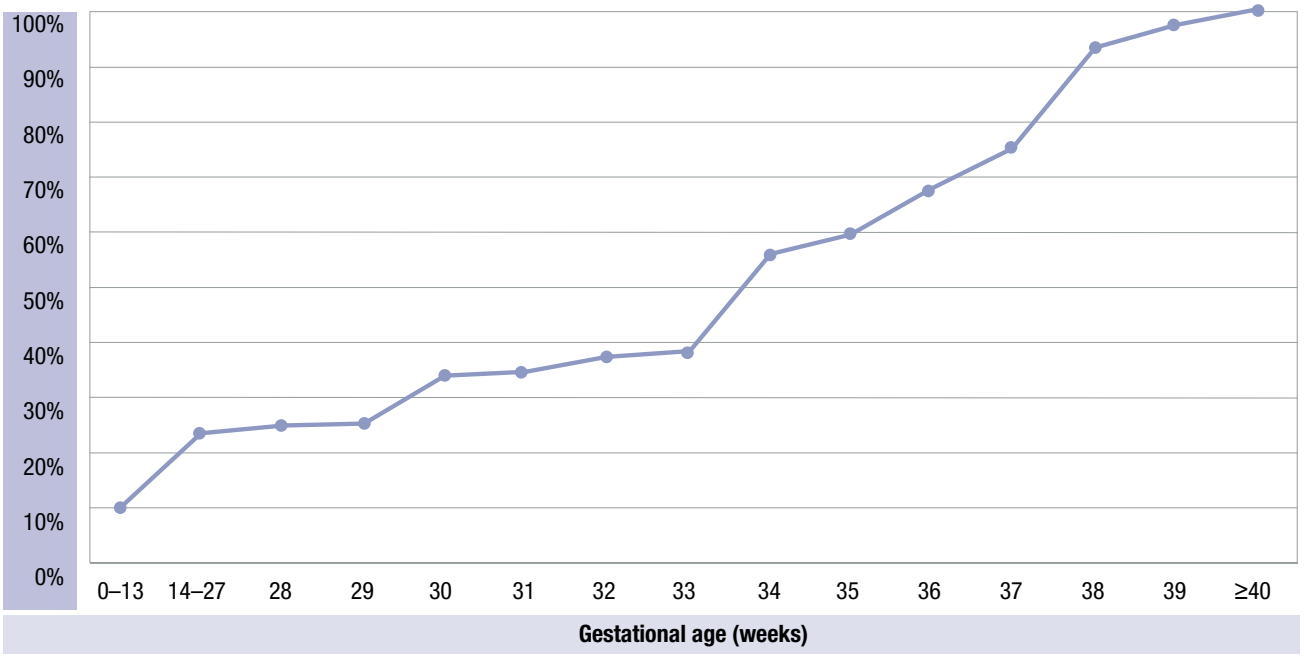
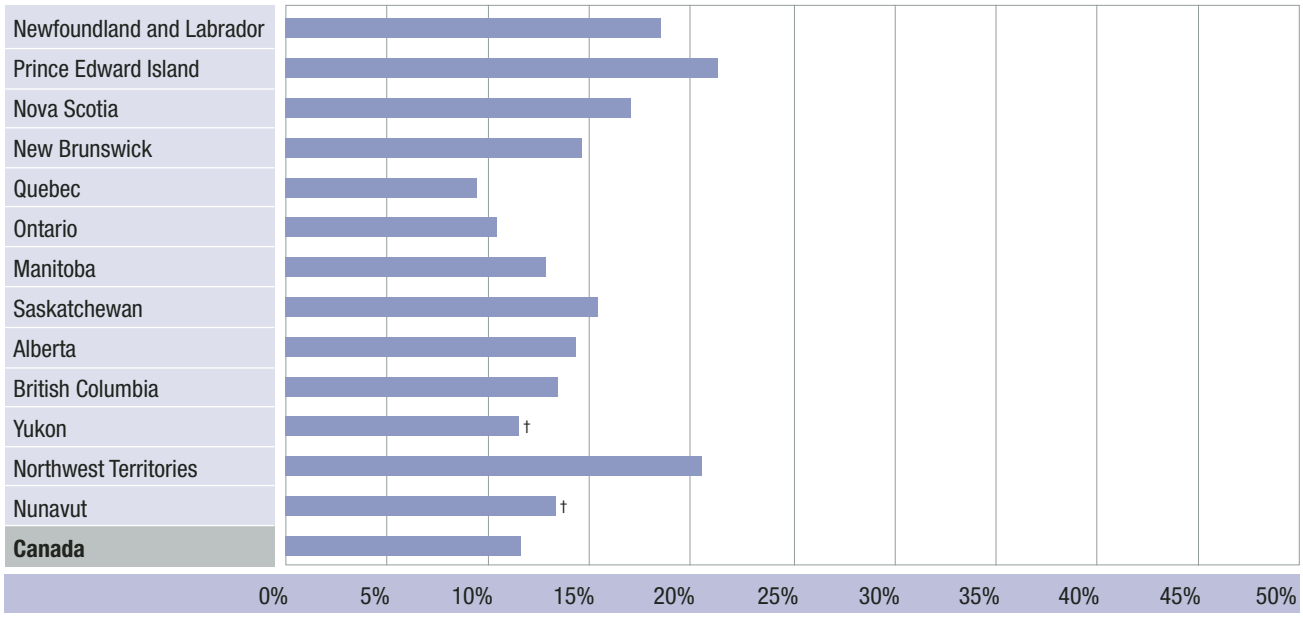


Figure 33.5 **Proportion of women who returned to work within six months of the birth, by province/territory, Canada, 2006–2007 §**



† Coefficient of variation between 16.6% and 33.3%.
§ Women who were interviewed before six months postpartum were excluded.

Summary

About three-quarters (78.6%) of women reported working at a paid job or business at some point during pregnancy. About two-thirds (68.3%) of women worked during their pregnancy and received some maternity or parental benefits, although this varied across provinces and territories. Of those who worked during pregnancy, 11.6% had returned to work within six months of the birth.

Limitations

The MES did not ask women why they stopped working at a particular gestational age, the percentage of income received while on maternity or parental leave, or the source of this income. Women who had not returned to work by the time of the interview were not asked about their planned length of maternity or parental leave; therefore, the full length of maternity or parental leave could not be determined for all respondents.

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Question numbers: WA_Q01–Q02, WAD03, WA_Q04, WA_Q06, WA_Q08

34 Maternal Postpartum Health

Susie Dzakpasu, Catherine Royle

Introduction

The postpartum period is a time of physiological adjustment for mothers, with health problems such as back pain, breast pain, headaches, perineal pain, hemorrhoids and urinary incontinence frequently cited.[1–3] These problems can be distressing for a new mother and can affect her functional health.

In addition to inquiring about specific physical problems, asking a woman to rate her health status provides valuable contextual information about her overall sense of well-being. Maternal hospital readmission rates can serve as an indirect indicator of severe postpartum maternal morbidity, although readmission rates are also influenced by factors such as availability of hospital resources, hospital admission policies and accessibility of outpatient services.[4,5] In 2004–2005, the estimated three-month maternal readmission rates following hospital births in Canada were 1.7% for vaginal births and 3.0% for cesarean births.[4]

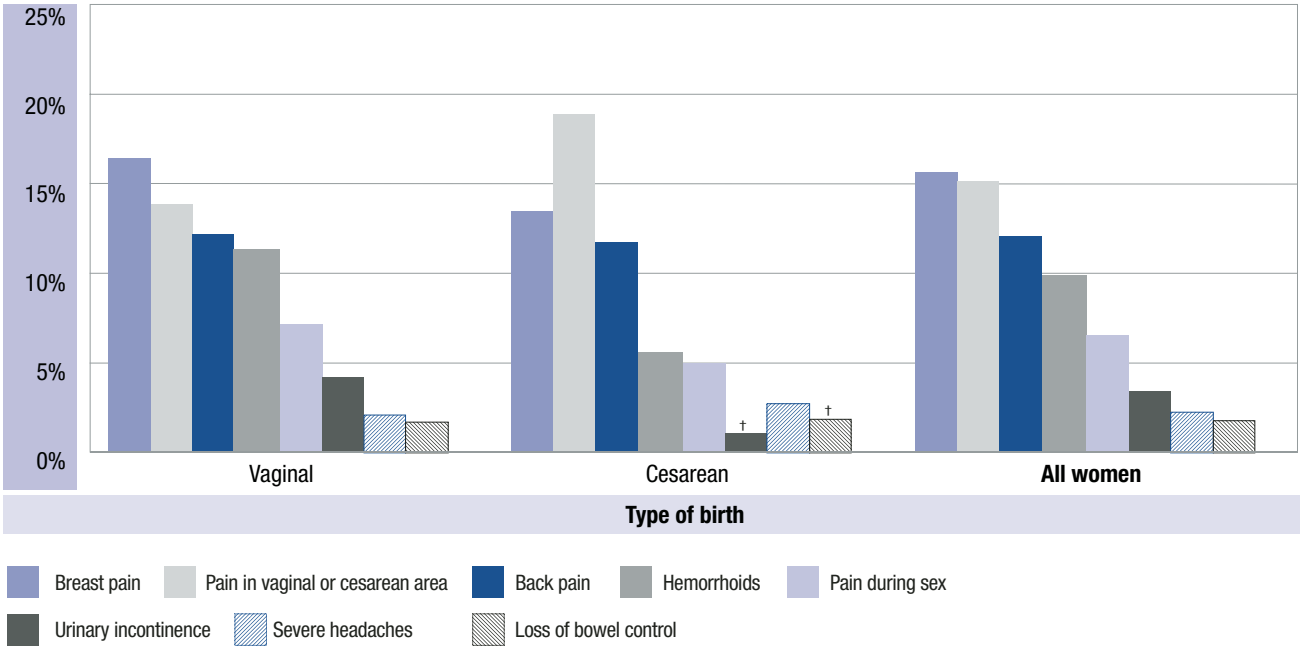
The MES asked women whether they had problems during the first three months after the birth with selected postpartum health conditions such as perineal pain and urinary incontinence. Mothers were also asked about non-routine postpartum visits to health care providers, including overnight hospital readmissions, and about their perceptions of their postpartum health.

Results

- During the first three months after the birth, 42.3% (95% CI: 41.1–43.6) of women reported "a great deal of a problem" with at least one postpartum health problem. Breast pain (15.7%, 95% CI: 14.8–16.7), pain in the vaginal area or in the area of the cesarean incision (15.2%, 95% CI: 14.3–16.2), back pain (12.1%, 95% CI: 11.3–13.0) and hemorrhoids (9.9%, 95% CI: 9.1–10.6) were most frequently mentioned (Figure 34.1). Pain in the area of the cesarean incision for women with a cesarean birth (19.0%, 95% CI: 17.1–21.0) was more of a problem than pain in the vaginal area for women with a vaginal birth (13.9%, 95% CI: 12.9–14.9). Women with a vaginal birth were more likely than those with a cesarean birth to report hemorrhoids, urinary incontinence and pain during sex as "a great deal of a problem" (Figure 34.1).
- Primiparous women were more likely than multiparous women to report pain in their vaginal or cesarean incision area, breast pain, urinary incontinence, loss of bowel control and pain during sex as "a great deal of a problem" (Figure 34.2).

- During the first three months following the birth, 2.5% (95% CI: 2.1–2.9) of women reported being readmitted to hospital. The proportions of women with a vaginal birth and women with a cesarean birth who were readmitted to hospital were 2.3% (95% CI: 1.8–2.7) and 3.0% (95% CI: 2.2–3.9), respectively.
- Since the birth, 27.9% (95% CI: 26.7–29.0) of women reported seeing a health care provider for something other than a routine check-up. Of these, 15.4% (95% CI: 13.6–17.1) reported that it was somewhat difficult or very difficult to see a health care provider. The most common reason that women found it somewhat or very difficult to see a health care provider was because a health care provider was not available (68.4%, 95% CI: 62.8–74.0). The proportion of women reporting a non-routine health care visit ranged from 35.9% (95% CI: 30.2–41.6) in Yukon to 20.1% (95% CI: 17.9–22.2) in Quebec.
- A third of women (33.6%, 95% CI: 32.4–34.7) rated their health as excellent and a further 38.9% (95% CI: 37.6–40.2) rated their health as very good. There was some variation in perceived health status across the country, ranging from 37.4% (95% CI: 32.9–41.9) of women in Nova Scotia reporting excellent health to 24.6% (95% CI: 18.6–30.6) in Nunavut (Figure 34.3).
- The proportion of women who rated their health as excellent increased with maternal age (Figure 34.4) and increasing level of education (Figure 34.5). Primiparous women were more likely to rate their health as excellent compared with multiparous women (37.1%, 95% CI: 35.3–39.0 vs. 30.7%, 95% CI: 29.1–32.3). Similarly, women living in a household above the low income cut-off were more likely to rate their health as excellent than were those at or below this level (36.1%, 95% CI: 34.7–37.5 and 23.8%, 95% CI: 21.4–26.3, respectively).

Figure 34.1 **Distribution of health problems perceived by women as "a great deal of a problem" in the first three months postpartum, by type of birth, Canada, 2006–2007**



† Coefficient of variation between 16.6% and 33.3%.

Figure 34.2 **Distribution of health problems perceived by women as "a great deal of a problem" in the first three months postpartum, by parity, Canada, 2006–2007**

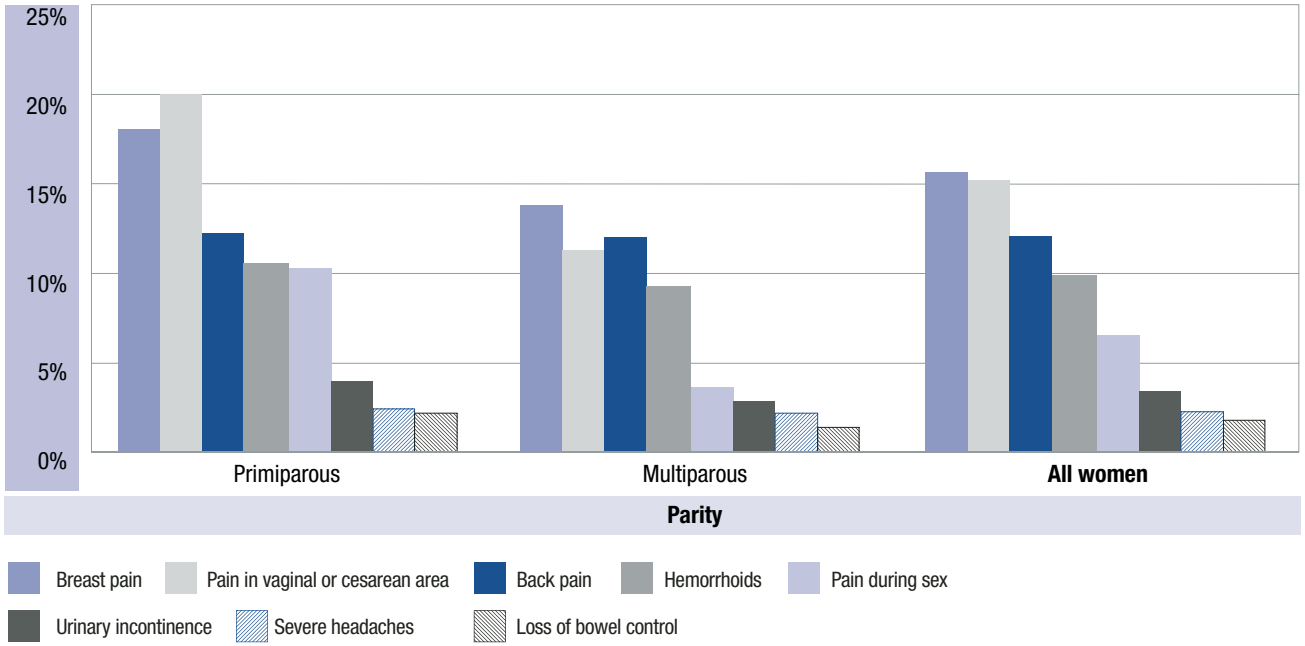
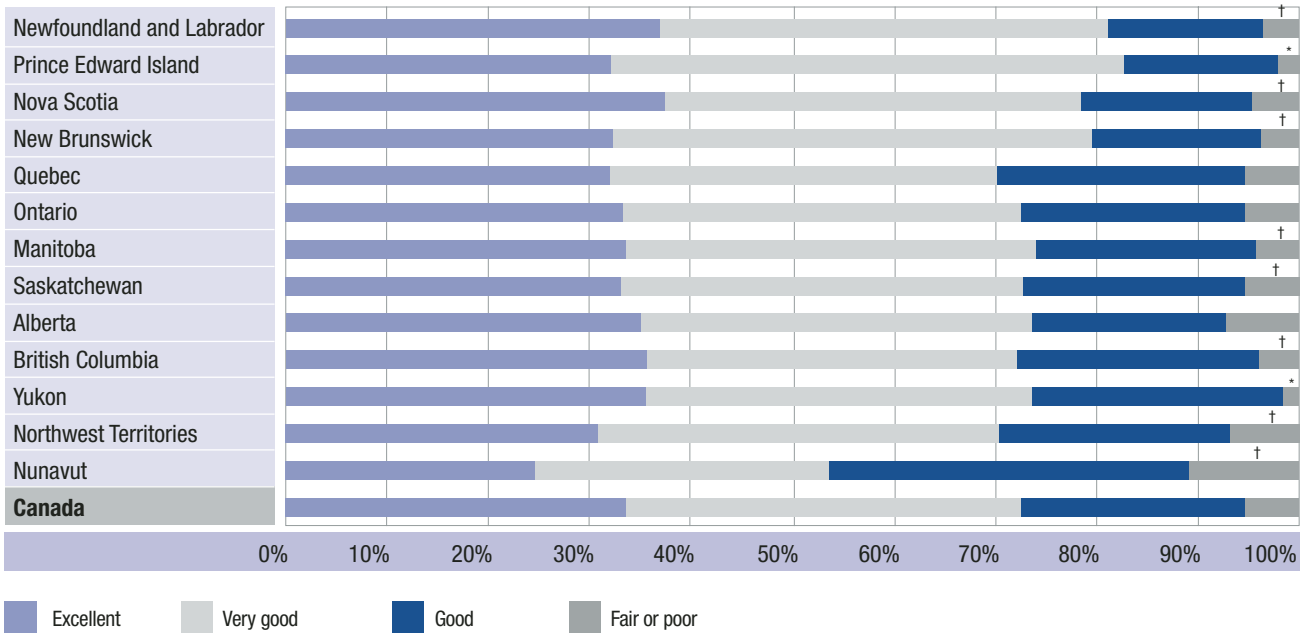
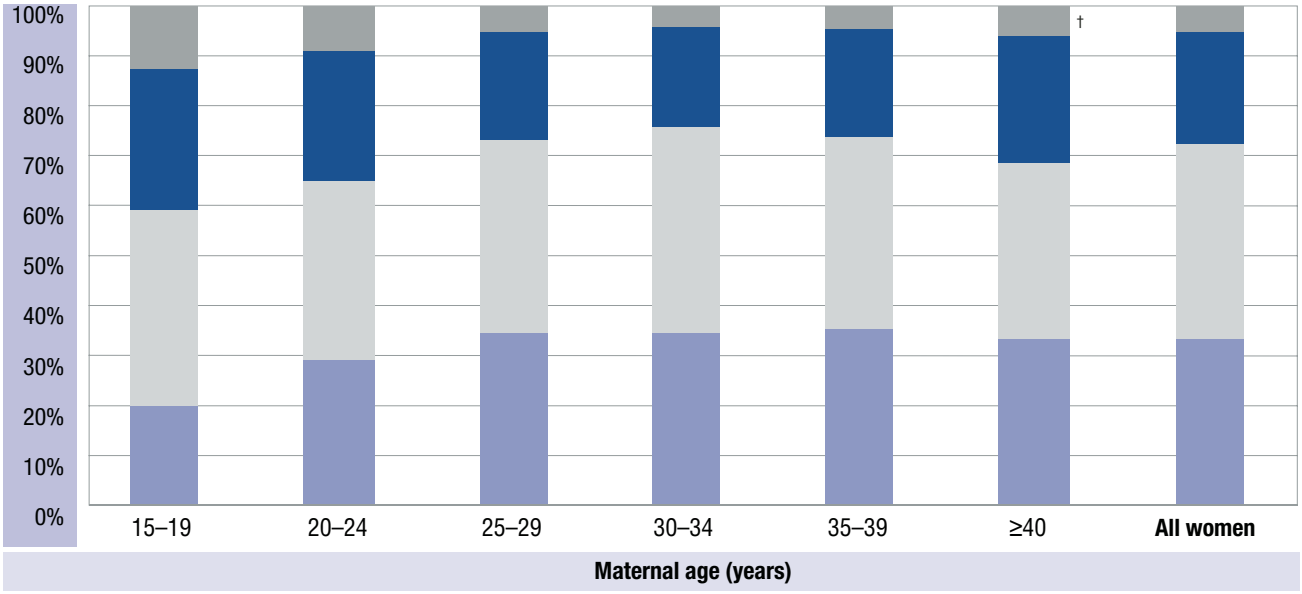


Figure 34.3 **Distribution of women's perceptions of their postpartum health, by province/territory, Canada, 2006–2007**



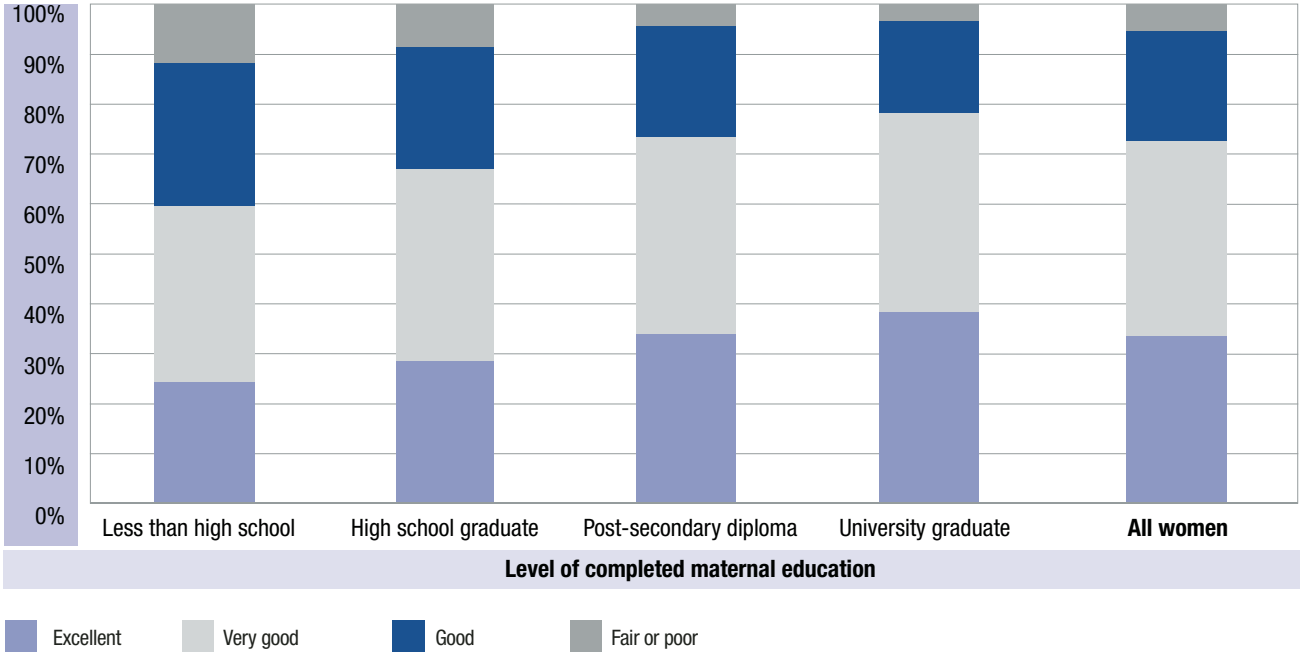
* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%

Figure 34.4 **Distribution of women's perceptions of their postpartum health, by maternal age, Canada, 2006–2007**



† Coefficient of variation between 16.6% and 33.3%.

Figure 34.5 **Distribution of women's perceptions of their postpartum health, by maternal education, Canada, 2006–2007**



Summary

Although 42.3% of all women reported having "a great deal of a problem" with at least one postpartum health issue during the first three months after the birth, most women (72.5%) reported their health as either excellent (33.6%) or very good (38.9%) at the time of the interview. Less than 3% (2.5%) of women were readmitted to hospital during the first three months following the birth. Just over a quarter (27.9%) of women reported a non-routine postpartum health care visit.

Limitations

The MES did not ask women the reasons for their postpartum hospital admission or visits to a health care provider. The timing of women's interviews (ranging from five to 14 months postpartum) may have influenced their rating of self-reported health and affected the likelihood of reporting a non-routine visit.

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Question numbers: MH_Q03–Q04, MH_Q05A–Q05B, MH_Q06–Q13, MH_Q22, MHD23, MH_Q25

35 Postpartum Depression, Previous Depression and Support

Beverley Chalmers, Cathy Kimak

Introduction

After giving birth, women may experience adverse emotional symptoms that vary in severity. Three major categories of postpartum emotional conditions have been identified: the postpartum blues (or baby blues), postpartum depression and postpartum psychosis. The postpartum blues occur in up to 80% of women and usually resolve within two weeks. Postpartum depression occurs in 10% to 20% of women, has its onset in the first year after birth and can last months or even years. Postpartum psychosis is rare, occurring in about 0.2% of women, but requires immediate medical care.[1–4]

The strongest predictors of postpartum depression are depression or anxiety during pregnancy, recent stressful life events, poor social support and a history of depression.[4] Additional factors that might contribute to postpartum depression include hormonal changes, birth experiences, lack of experience with babies, marital stress, number of other children and demographic characteristics such as maternal age.[2]

Untreated postpartum depression carries risks to maternal and child health.[4] Supportive treatments include self-help groups, respite care, home and child care assistance, counselling and psychotherapy. Depression may also require pharmacological treatment.

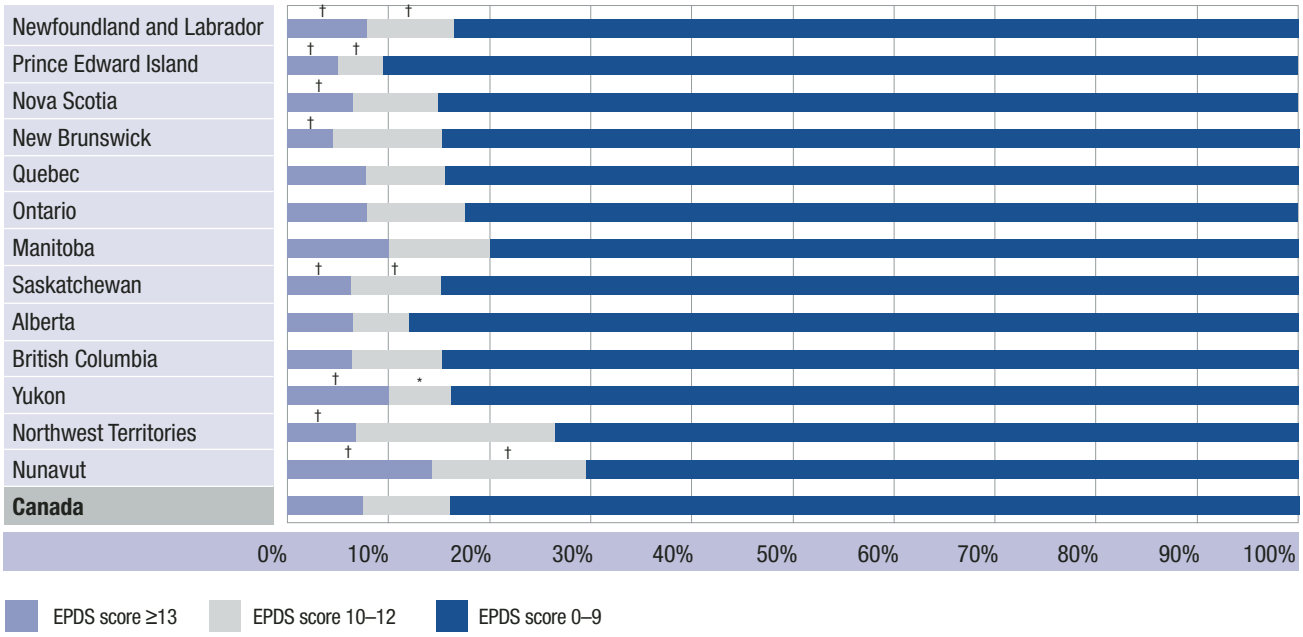
The MES assessed women using the Edinburgh Postnatal Depression Scale (EPDS), a 10-item screening tool to identify postpartum depression at the time of its administration.[5] A score of 13 or higher on the EPDS is considered indicative of postpartum depression and a score of 10 to 12 is indicative of being at risk for postpartum depression. The MES asked women whether they had ever been prescribed antidepressants or been diagnosed with depression prior to their pregnancy. Women were also asked whether they had received enough information on postpartum depression during their pregnancy and whether they had support available to them when they needed it since their baby was born.

Results

- Overall, 7.5% (95% CI: 6.8–8.2) of women scored 13 or higher on the EPDS. A further 8.6% (95% CI: 7.9–9.3) scored 10 to 12.
- The proportion of women with an EPDS score of 13 or higher in the postpartum period ranged from 14.3%† (95% CI: 8.9–19.7) in Nunavut and 10.0% in Yukon and Manitoba (10.0%†, 95% CI: 6.4–13.5 and 10.0%, 95% CI: 7.2–12.7, respectively) to 5.0%† (95% CI: 3.2–6.8) in Prince Edward Island and 4.5%† (95% CI: 2.4–6.5) in New Brunswick (Figure 35.1). An EPDS score of 13 or higher occurred more frequently in younger women (15–19 years) (14.0%, 95% CI: 9.9–18.2) (Figure 35.2), women with less than a high school education (13.5%, 95% CI: 10.3–16.7) (Figure 35.3), and women living in households at or below the low income cut-off (13.7%, 95% CI: 11.5–15.8).
- At some time before their pregnancy, 15.5% (95% CI: 14.5–16.4) of women had been prescribed antidepressants or been diagnosed with depression, with variation from 23.8% (95% CI: 19.6–27.9) in Nova Scotia and 20.1% (95% CI: 16.2–24.0) in New Brunswick to 9.6%† (95% CI: 5.3–13.9) in Nunavut (Figure 35.4). Young mothers—17.0% (95% CI: 12.2–21.7) of those aged 15–19 years and 20.3% (95% CI: 17.5–23.1) of those aged 20–24 years—and women with lower education levels were more likely to have been prescribed antidepressants or been diagnosed with depression prior to their pregnancy. A higher proportion of women with a household income at or below the low income cut-off had been prescribed antidepressants or been diagnosed with depression before pregnancy than were women in a household above the low income cut-off (18.2%, 95% CI: 16.0–20.4, vs. 14.9%, 95% CI: 13.9–16.0).
- Most women (91.8%, 95% CI: 91.1–92.5) reported having enough information about postpartum depression during pregnancy.
- The majority of women (84.0%, 95% CI: 83.0–84.9) reported having support in the postpartum period all or most of the time and 10.3% (95% CI: 9.5–11.1) reported that support was available some of the time. The proportion of women reporting little or no support in the postpartum period was 5.7% (95% CI: 5.1–6.3) overall. By jurisdiction, it ranged from 13.4%† (95% CI: 8.6–18.2) in Nunavut and 9.8% (95% CI: 8.2–11.4) in Quebec to 2.4%† (95% CI: 0.9–3.8) in Nova Scotia and 1.8%† (95% CI: 0.5–3.0) in Newfoundland and Labrador (Figure 35.5).

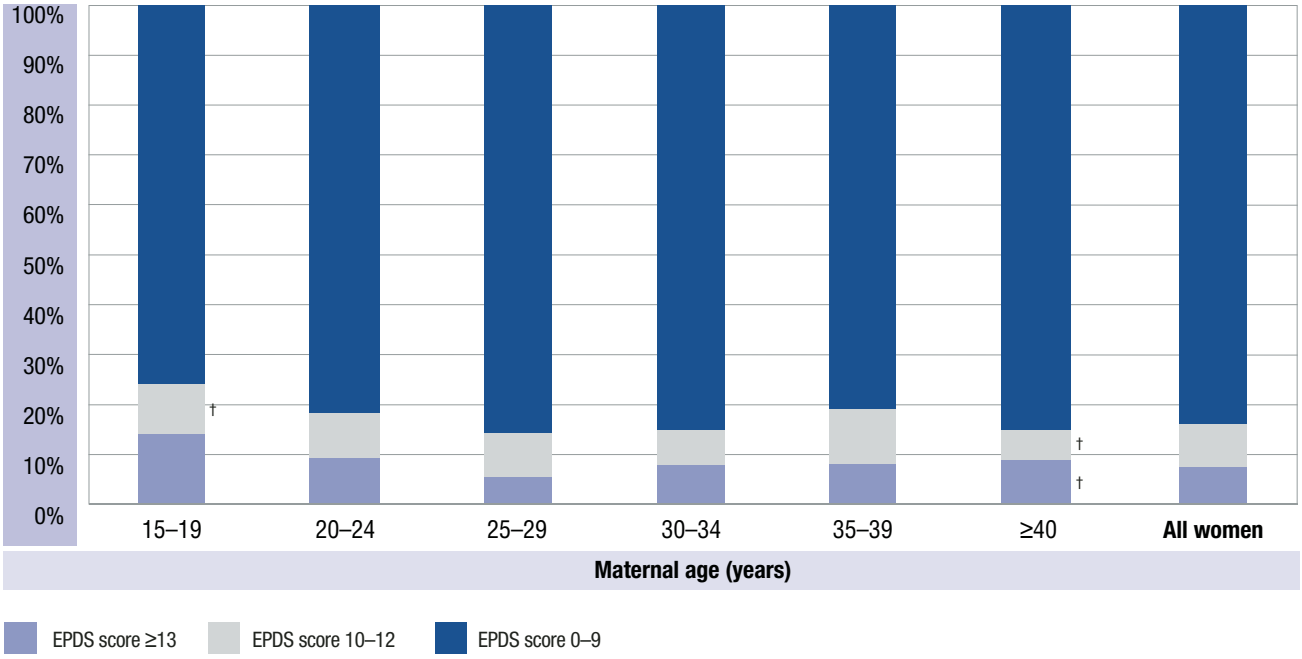
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.

Figure 35.1 Distribution of postpartum Edinburgh Postnatal Depression Scale (EPDS) score, by province/territory, Canada, 2006–2007



* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.

Figure 35.2 Distribution of postpartum Edinburgh Postnatal Depression Scale (EPDS) score, by maternal age, Canada, 2006–2007



† Coefficient of variation between 16.6% and 33.3%.

Figure 35.3 **Distribution of postpartum Edinburgh Postnatal Depression Scale (EPDS) score, by maternal education, Canada, 2006–2007**

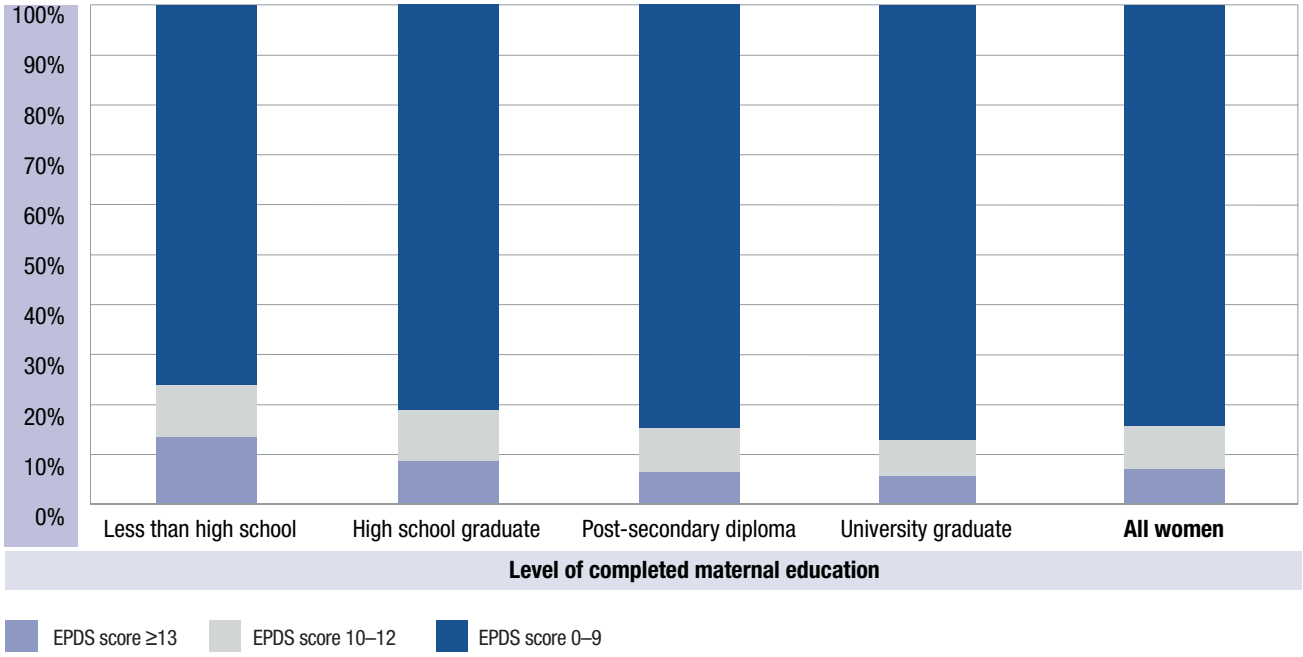
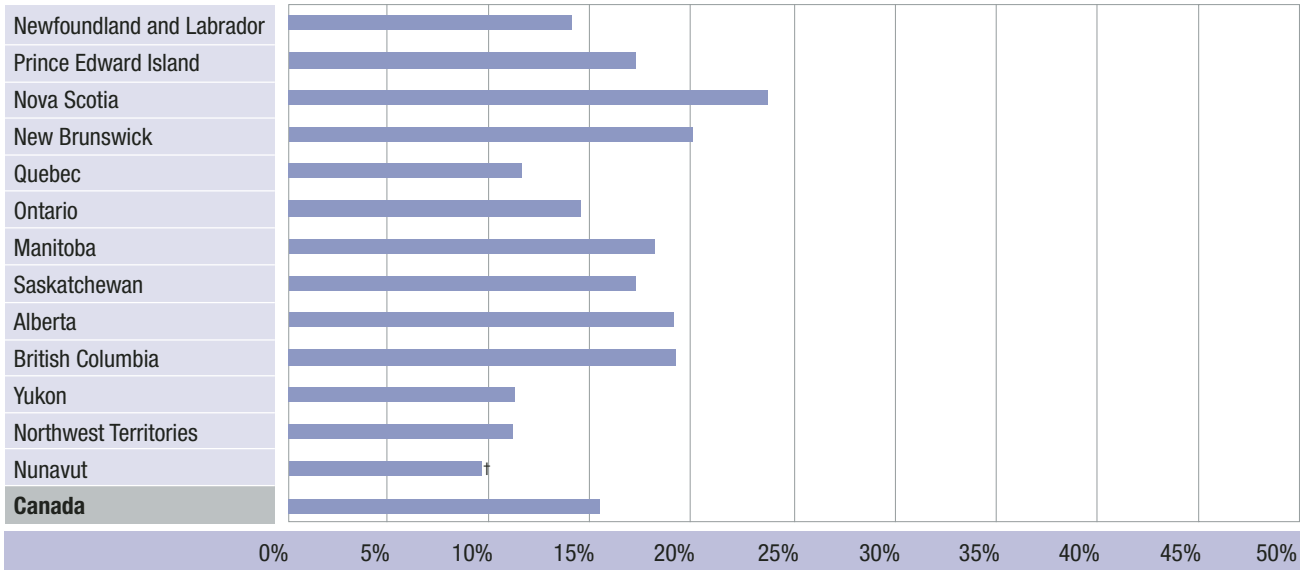
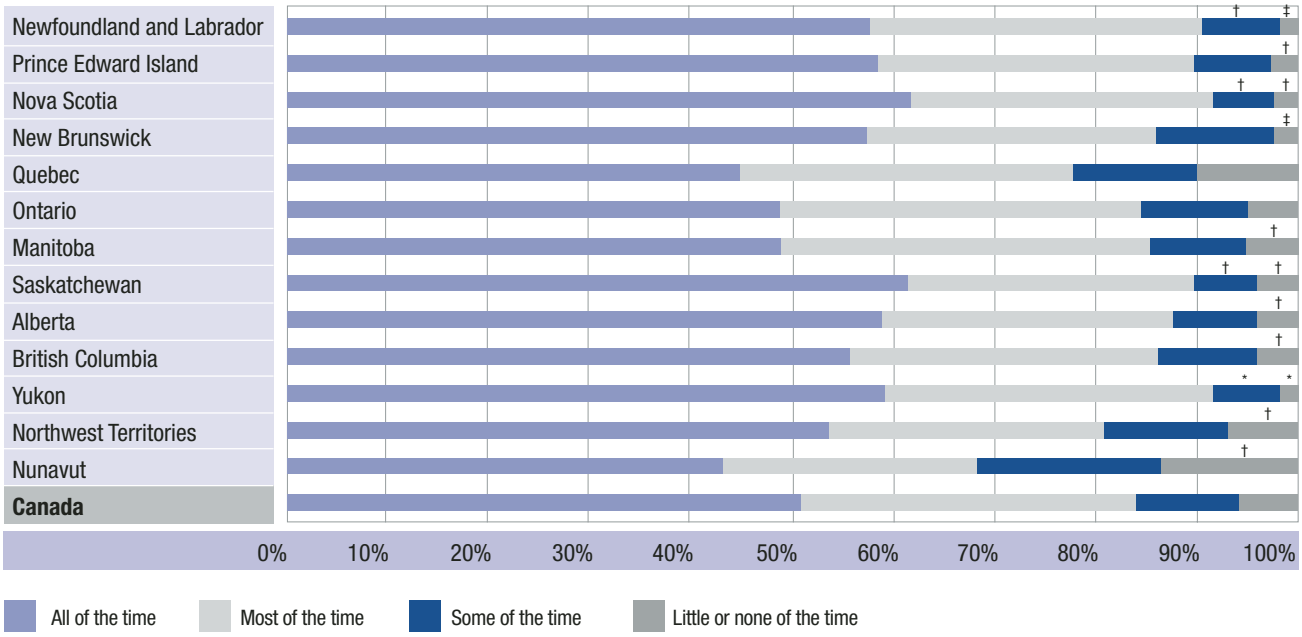


Figure 35.4 **Proportion of women who had been prescribed anti-depressants or been diagnosed with depression prior to their pregnancy, by province/territory, Canada, 2006–2007**



† Coefficient of variation between 16.6% and 33.3%.

Figure 35.5 **Distribution of availability of postpartum support, by province/territory, Canada, 2006–2007**



* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.

Summary

Using the Edinburgh Postnatal Depression Scale (EPDS), 7.5% of women scored 13 or higher, suggesting depression at the time of the MES interview. Higher proportions of EPDS scores of 13 or higher were observed in women aged 15–19 years (14.0%), women living in a household at or below the low income cut-off (13.7%), and women with less than a high school education (13.5%). The proportion of women who had been prescribed anti-depressants or been diagnosed with depression prior to their pregnancy was 15.5%. Most women (84.0%) reported having support in the postpartum period either all (51.1%) or most (32.9%) of the time.

Limitations

The MES did not ask about the factors related to women's previous diagnosis of depression, its duration or timing of occurrence, or the nature of the treatment(s) received. The EPDS was administered at the time of the MES interview, at five to 14 months postpartum. The impact of the variable timing of administration of the EPDS on the scores is uncertain. The reliability of the EPDS for some of the cultural subgroups in the MES is unknown.

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Question numbers: ES_Q01–Q11, PI_Q06, MH_Q26

36 Infant Health

Janet Smylie, Reg Sauve, Susie Dzakpasu

Introduction

The desired outcome of pregnancy is a healthy baby and a healthy mother.[1] Mothers' perceptions of the health of their babies are important contributors to maternity experiences. One of the major determinants of neonatal mortality, morbidity and resource utilization is preterm birth (births that occur at less than 37 completed weeks of gestation). Although more than 90% of births occur at term, preterm births have increased from 7.0% of live births in 1995 to 8.2% in 2004.[2] Infants who are born between 34 and 36 completed weeks of gestation (late preterm birth) comprise a growing population of particular current interest to clinicians and researchers. Indirect measures of infant morbidity include admission to a neonatal intensive care unit or special care nursery in the immediate period following birth.[3] Some of these admissions are related to preterm birth, but many happen for other reasons such as difficulty during the birth process.

After the baby's initial discharge from the hospital of birth, readmission to hospital and the need for non-routine care by physicians serve as additional indirect indicators of infant morbidity. Neonatal readmission rates have been associated with short length of newborn hospital stay, socio-economic disadvantage, remote geographic location of residence, young maternal age, cesarean birth and less than optimal breastfeeding.[4–6] In 2004–2005, about 3.4% of newborns were readmitted to hospital within the first month following birth.[2] Morbidity in young infants most often leads to non-routine health care provider visits rather than rehospitalizations; therefore, use of and access to non-routine care are also important measures.

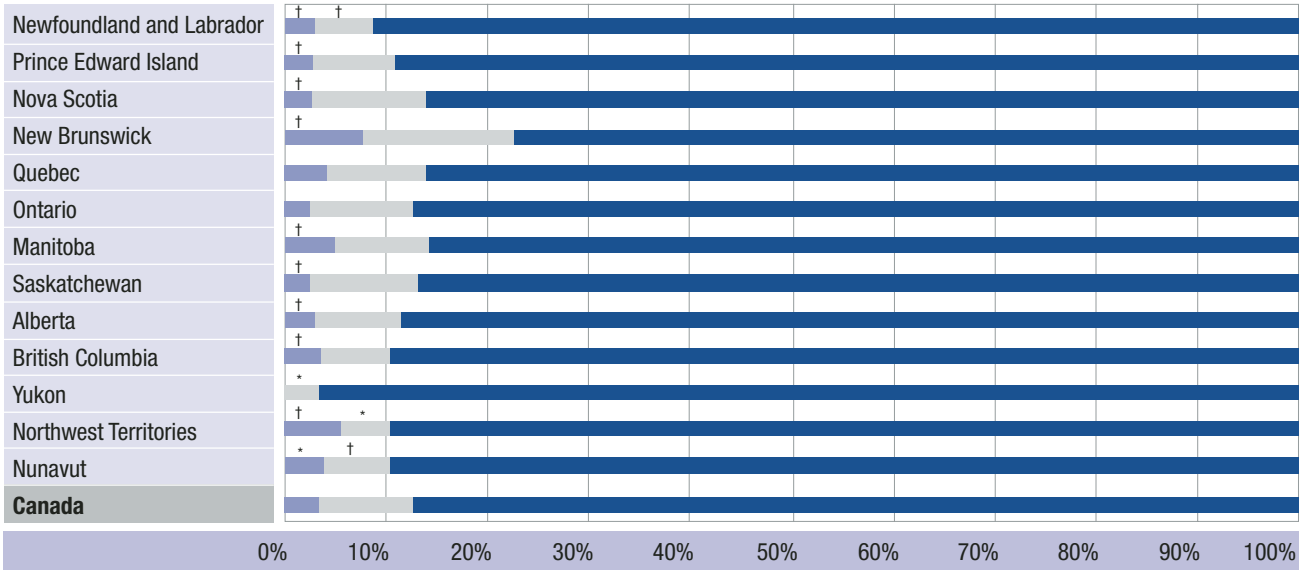
The MES asked mothers about their due date and date of delivery (used to determine gestational age at birth), the duration of the hospital stay after birth (including whether their baby had been admitted to an intensive care or special care unit following birth and for how long), whether the baby had been readmitted to hospital since birth, and whether the baby had been seen by a health care provider for non-routine care. Mothers were also asked to rate their baby's health.

Note: The population of infants in the MES was restricted to singleton live births living with their birth mothers at the time of the interview.

Results

- Overall, the proportion of MES infants born at less than 37 completed weeks of gestation (preterm birth) was 6.2% (95% CI: 5.6–6.8), with 5.0% (95% CI: 4.4–5.6) born between 34 and 36 weeks' gestation (late preterm birth). Preterm birth was more common among infants born by cesarean compared with infants born vaginally (8.0%, 95% CI: 6.6–9.5 vs. 5.5%, 95% CI: 4.9–6.2).
- Almost 13% (12.7%, 95% CI: 11.9–13.6) of infants were admitted to an intensive care or special care unit after birth, with 9.3% (95% CI: 8.6–10.1) staying for 12 hours or more. There was substantial regional variation in intensive care or special care unit admission, from 22.7% (95% CI: 18.4–26.9) in New Brunswick to 8.6% (95% CI: 5.9–11.3) in Newfoundland and Labrador (Figure 36.1).
- A higher proportion of infants born by cesarean were admitted to an intensive care or special care unit (19.1%, 95% CI: 17.1–21.1) compared with infants born vaginally (10.5%, 95% CI: 9.6–11.4). Infants of primiparous women were more likely to be admitted to an intensive care or special care unit compared with those of multiparous women (16.0%, 95% CI: 14.6–17.4 vs. 10.1%, 95% CI: 9.1–11.2).
- Few (3.6%, 95% CI: 3.1–4.1) infants were readmitted to hospital within one month after birth and 6.7% (95% CI: 6.1–7.4) were readmitted within five months.
- Just under half (48.8%, 95% CI: 47.5–50.1) of infants saw a doctor or other health care provider for non-routine care. This varied by province and territory, from 66.6% (95% CI: 61.8–71.5) in Newfoundland and Labrador and 63.6% (95% CI: 57.6–69.6) in Yukon to 46.0% (95% CI: 43.8–48.2) in Ontario (Figure 36.2).
- Women with a household income above the low income cut-off were more likely to see a health care provider for non-routine care of their infant compared with women at or below the low income cut-off (51.0%, 95% CI: 49.5–52.5 vs. 42.3%, 95% CI: 39.4–45.3).
- Among women whose baby had a non-routine care visit, 13.1% (95% CI: 11.8–14.3) indicated that it had been difficult to see a health care provider; this number varied by region (Figure 36.3). Among these women, 74.8% (95% CI: 70.5–79.1) said it was difficult because the doctor or health care provider was unavailable.
- Seventy-one percent (70.8%, 95% CI: 69.6–71.9) of women reported that their infant was in excellent health and a further 22.0% (95% CI: 20.9–23.0) reported that their infant was in very good health. The proportion of women who reported their baby was in excellent health varied from 74.5% (95% CI: 71.3–77.6) in Alberta to 48.7% (95% CI: 41.2–56.1) in Nunavut (Figure 36.4).
- Women with a household income at or below the low income cut-off (63.3%, 95% CI: 60.4–66.2), women with less than high school education (60.3%, 95% CI: 55.7–64.9) and younger women (15–19 years) (56.3%, 95% CI: 50.4–62.1) were less likely to report that their baby was in excellent health.

Figure 36.1 Proportion of women whose baby was admitted to an intensive care or special care unit following birth and length of baby's stay, by province/territory, Canada, 2006–2007



* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.

Figure 36.2 Proportion of women whose baby had a non-routine health care visit, by province/territory, Canada, 2006–2007

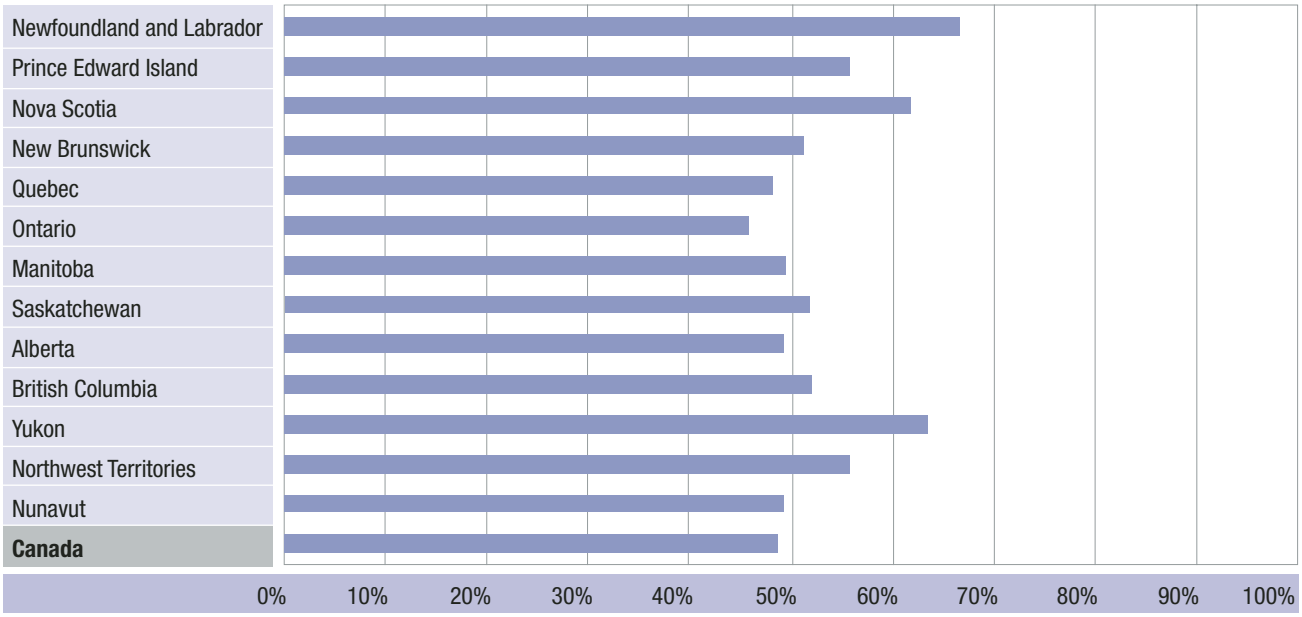
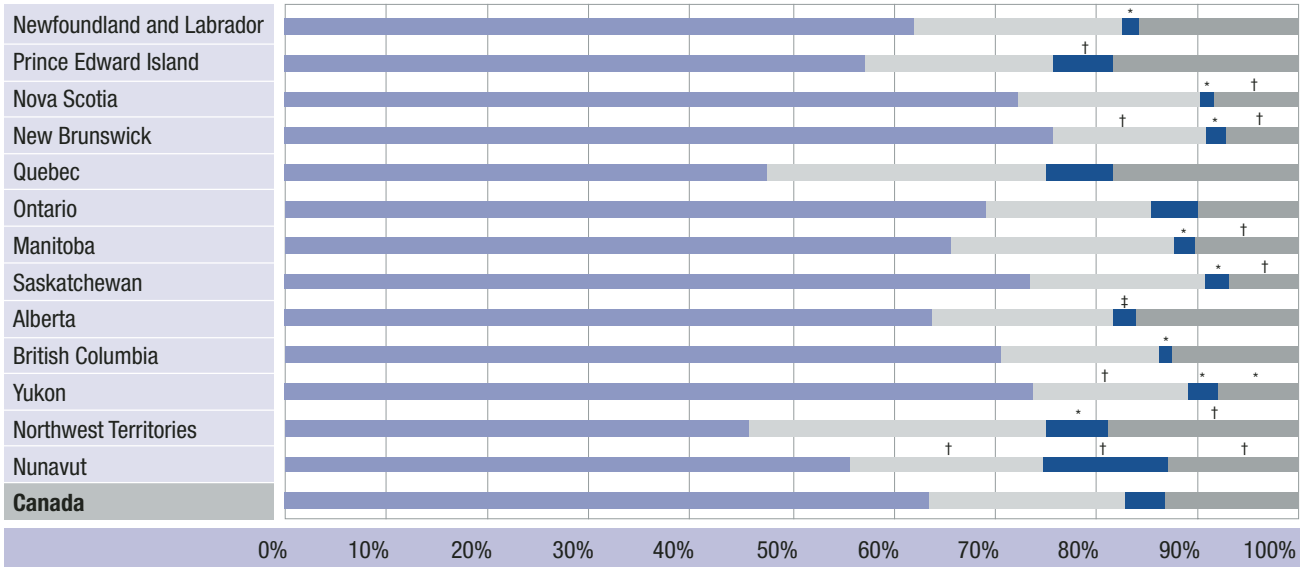
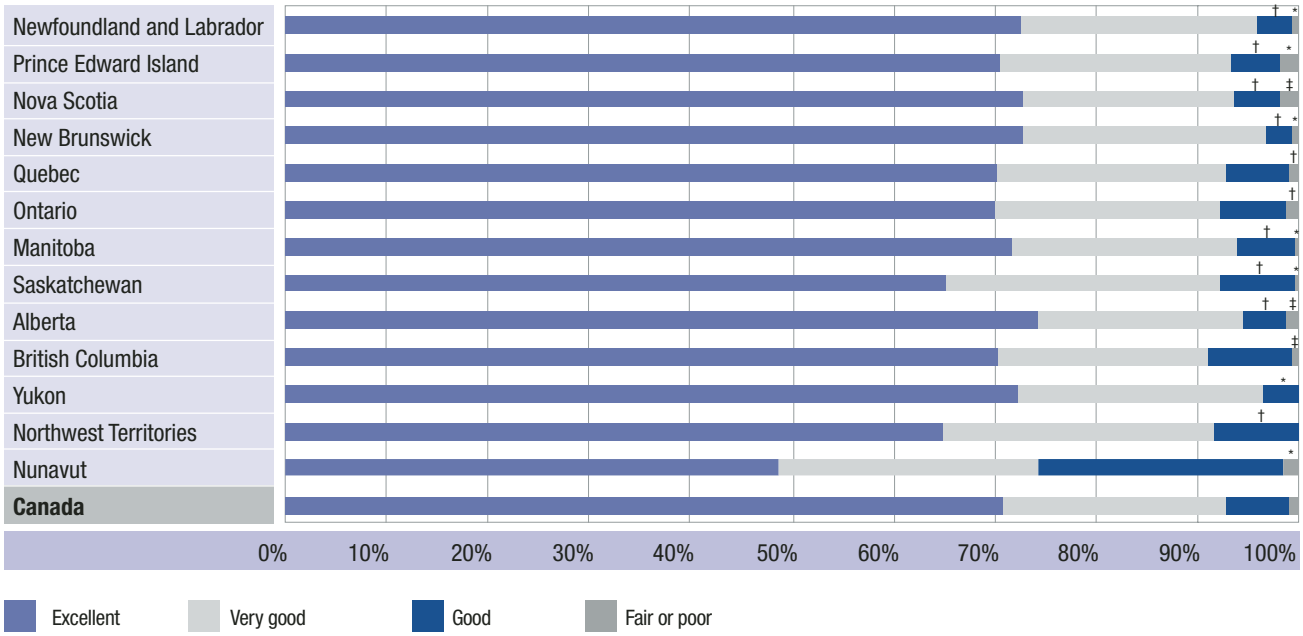


Figure 36.3 **Distribution of women's rating of level of difficulty in seeing a health care provider for a non-routine health care visit among women whose baby had a non-routine health care visit, by province/territory, Canada, 2006–2007**



* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.

Figure 36.4 **Distribution of women's ratings of their baby's health, by province/territory, Canada, 2006–2007**



* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.

Summary

Most (93.8%) infants were born at a gestational age of 37 weeks or more, and few were readmitted to hospital within one month (3.6%) or within five months (6.7%) of birth. The majority (92.8%) of women reported that their infant was either in excellent (70.8%) or very good (22.0%) health at the time of the MES interview, when the infant was between five and 14 months of age. Women living in a household at or below the low income cut-off (63.3%), women with less than a high school education (60.3%) and younger mothers aged 15–19 years (56.3%) were less likely to report that their baby was in excellent health.

Limitations

The MES excluded mothers whose infant had died prior to the survey, mothers who had a multiple birth (e.g., twins, triplets) and First Nations mothers living on reserves. This may affect reported rates of intensive care or special care unit admission, preterm birth, infant rehospitalization and non-routine health care provider visits. The MES did not ask about reasons for intensive care or special care unit admission, infant rehospitalization or non-routine health care visits. The timing of women's interviews (ranging from five to 14 months postpartum) may have affected the likelihood of reporting a non-routine visit for their baby. There may be variation in how mothers and hospitals understand and use the terms intensive care or special care units.

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Question numbers: PP_Q02–Q03, BH_Q01–Q05, BH_Q08

37 Infant Sleep Position

Janet Smylie, Reg Sauve

Introduction

Numerous studies have shown that the infant back sleeping position is associated with a decreased risk of sudden infant death syndrome (SIDS),[1] which is defined as the sudden, unexplained death of an infant under the age of one year. The rate of SIDS has steadily decreased over the past 20 years in Canada.[1] Data from more recent years show a decrease in deaths attributed to SIDS, from 144 deaths in the post-neonatal period (26% of all post-neonatal deaths) in 1999 to 76 deaths in the post-neonatal period (18% of all post-neonatal deaths) in 2004.[2,3] Educational campaigns promoting the placement of infants on their back for sleep have been linked to large reductions in prone sleep position and concomitant reductions in SIDS rates in the United States, Europe and Australia.[1,4] Indigenous populations in Canada, the United States, Australia and New Zealand experience rates of SIDS that are two to three times those of non-indigenous groups.[3–7]

The risk of SIDS is greatest for infants between two and four months old; most SIDS deaths occur before six months of age.[8] In addition to sleep position, epidemiologic studies have linked SIDS to other infant risk factors, such as fetal growth restriction, preterm birth, male sex, recent febrile illness and overheating.[8] Links have also been made to maternal and antenatal risk factors, such as maternal smoking, environmental tobacco smoke, young maternal age, inadequate prenatal care, low socio-economic status, lower educational level, single marital status, increased parity, antenatal alcohol exposure, maternal opiate use, intrauterine hypoxia and short interval between pregnancies; and to environmental factors, including colder season, soft sleep surfaces and bedding, infants sleeping in their own room rather than in their parents' room, and bed sharing.[8] Several specific genotypes have recently been linked to SIDS.[8]

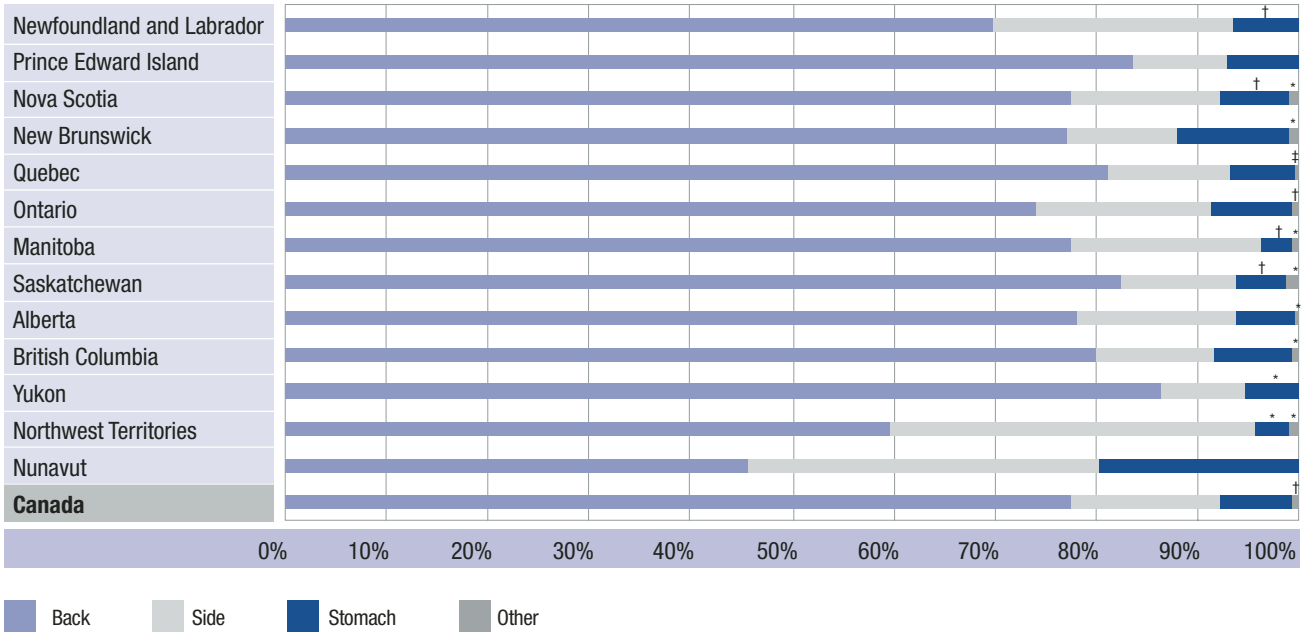
Public health responses to SIDS have focused on educating parents to place their infant on their back to sleep; to use firm, flat bedding; to avoid exposing their infant to second-hand smoke; and to breastfeed their baby.[9]

The MES asked women in which position they usually put their baby down to sleep during the first four months. Women were also asked whether they had enough information about SIDS.

Results

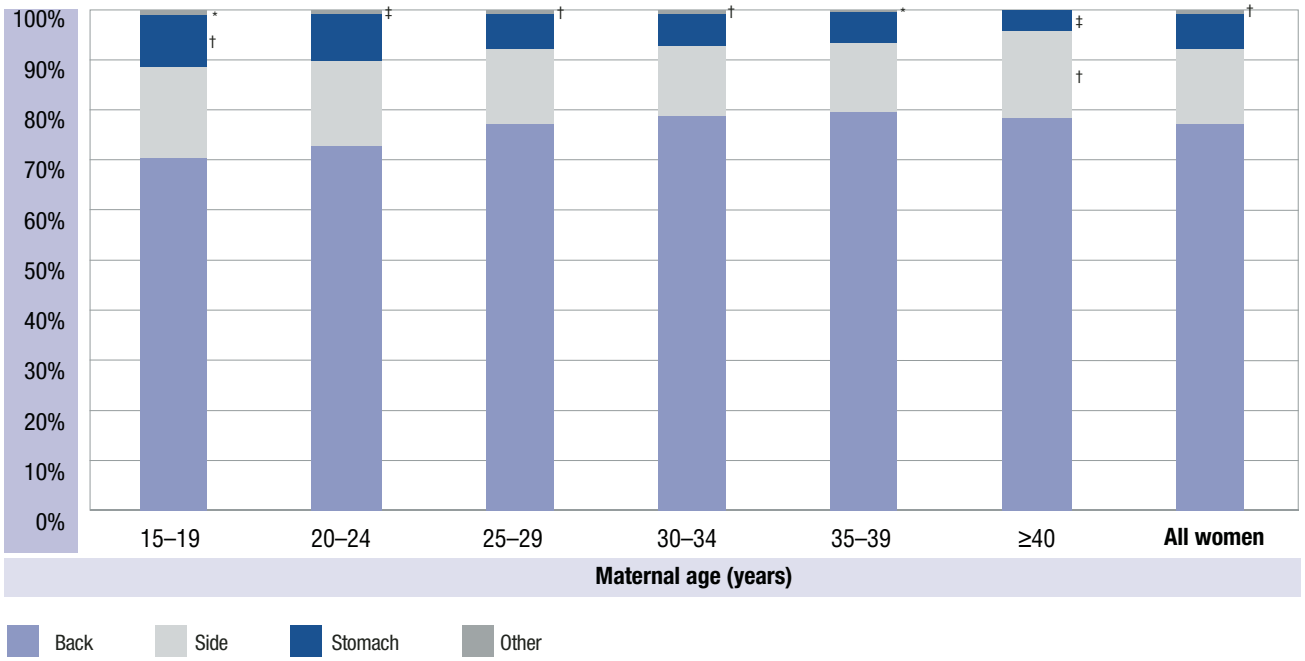
- Overall, 77.4% (95% CI: 76.3–78.5) of women reported putting their baby down on their back to sleep during the first four months. This varied regionally from 86.5% (95% CI: 82.3–90.7) of women living in Yukon and 83.7% (95% CI: 80.6–86.7) of women in Prince Edward Island to 59.6% (95% CI: 54.2–65.0) of women in the Northwest Territories and 45.8% (95% CI: 38.7–52.9) of women in Nunavut (Figure 37.1).
- The proportion of women putting their baby down to sleep on their back increased with maternal age and increasing level of maternal education (Figures 37.2 and 37.3).
- Primiparous mothers were more likely to use a back sleeping position compared with multiparous mothers (81.1%, 95% CI: 79.6–82.6 vs. 74.5%, 95% CI: 73.0–76.1). Women with a household income above the low income cut-off were also more likely to put their baby down to sleep on their back compared with women at or below the low income cut-off (80.8%, 95% CI: 79.6–82.0 vs. 68.5%, 95% CI: 65.7–71.3).
- The majority (90.2%, 95% CI: 89.4–91.0) of women reported that they had enough information about SIDS. There was substantial regional variation in the reported adequacy of SIDS information from 95.2% (95% CI: 93.1–97.4) in Saskatchewan to 79.0% (95% CI: 74.3–83.7) in the Northwest Territories and 77.1% (95% CI: 70.6–83.7) in Nunavut (Figure 37.4).
- Women with a household income at or below the low income cut-off were less likely to have enough information about SIDS compared with women above the low income cut-off (84.9%, 95% CI: 82.7–87.1 vs. 92.2%, 95% CI: 91.4–93.1). The likelihood of receiving enough information about SIDS increased with increasing maternal education.

Figure 37.1 Distribution of infant sleep position, by province/territory, Canada, 2006–2007



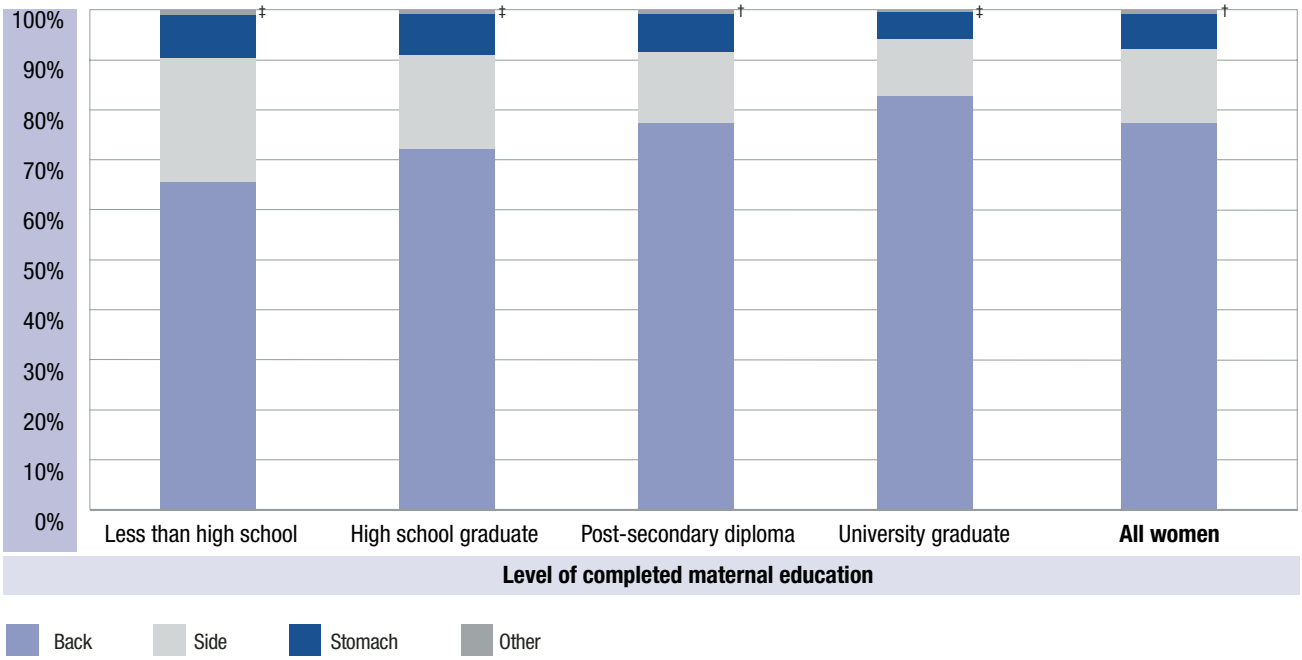
* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.

Figure 37.2 Distribution of infant sleep position, by maternal age, Canada, 2006–2007



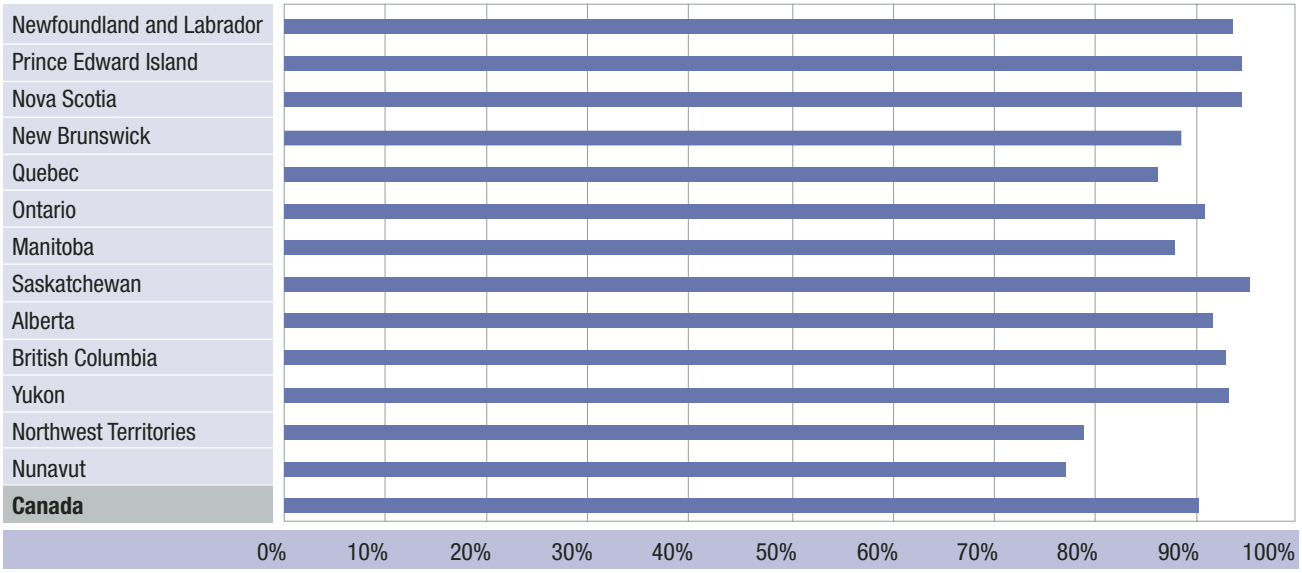
* Estimate based on unweighted numerator between 1 and 4, with coefficient of variation ≥16.6%.
† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.

Figure 37.3 **Distribution of infant sleep position, by maternal education, Canada, 2006–2007**



† Coefficient of variation between 16.6% and 33.3%.
‡ Coefficient of variation >33.3%.

Figure 37.4 **Proportion of women who received enough information about sudden infant death syndrome, by province/territory, Canada, 2006–2007**



Summary

The majority (90.2%) of women reported receiving enough information regarding SIDS, with variation by province and territory, household income and maternal education. Overall, three-quarters (77.4%) of women followed the current recommendations for SIDS risk reduction by putting their baby to sleep on their back. Younger women, multiparous women, women living in a household at or below the low income cut-off and women with lower levels of education were less likely to report using the infant back sleeping position.

Limitations

The MES did not gather information about the sleep position of babies who may have died and did not ask women about other infant sleep practices such as room sharing or bed sharing.

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Question numbers: BH_Q07, PI_Q03

38 Male Circumcision

Reg Sauve, Catherine Royle

Introduction

Circumcision of male infants is one of the oldest recorded operative procedures and, at the same time, one of the most controversial. Circumcisions are performed for a number of reasons including religion, custom, health and hygiene. Medical reasons suggested for circumcision include the possible prevention of urinary tract infections[1] and a reduction in the spread of sexually transmitted infections.[2] Recent randomized controlled trials in Kenya and Uganda demonstrated lower HIV transmission rates in circumcised males than in uncircumcised males.[3–5]

Reported complications of circumcisions performed in hospital or elsewhere are relatively uncommon but could range from relatively minor to more serious problems. Circumcision is painful, and several reports have been devoted to the recognition and management of pain in the newborn undergoing this procedure.[6]

In 1996, the Canadian Paediatric Society reported that the benefits and harms of neonatal circumcision balance each other. The Society's position to not perform circumcisions routinely in the neonatal period is currently under review.[7] Similarly, the American Academy of Pediatrics acknowledged potential benefits to the procedure, but noted that existing scientific evidence was not sufficient to recommend routine circumcision.[8]

In 1970, the estimated rate of circumcision in Canada was 48%,[9] although circumcision rates are thought to be decreasing. In some parts of Canada, circumcision has been removed from provincial physician billing schedules, but the impact of this change is unclear.

The MES asked women who had a male baby whether he was circumcised, the main reason for the circumcision and whether they had enough information about circumcision.

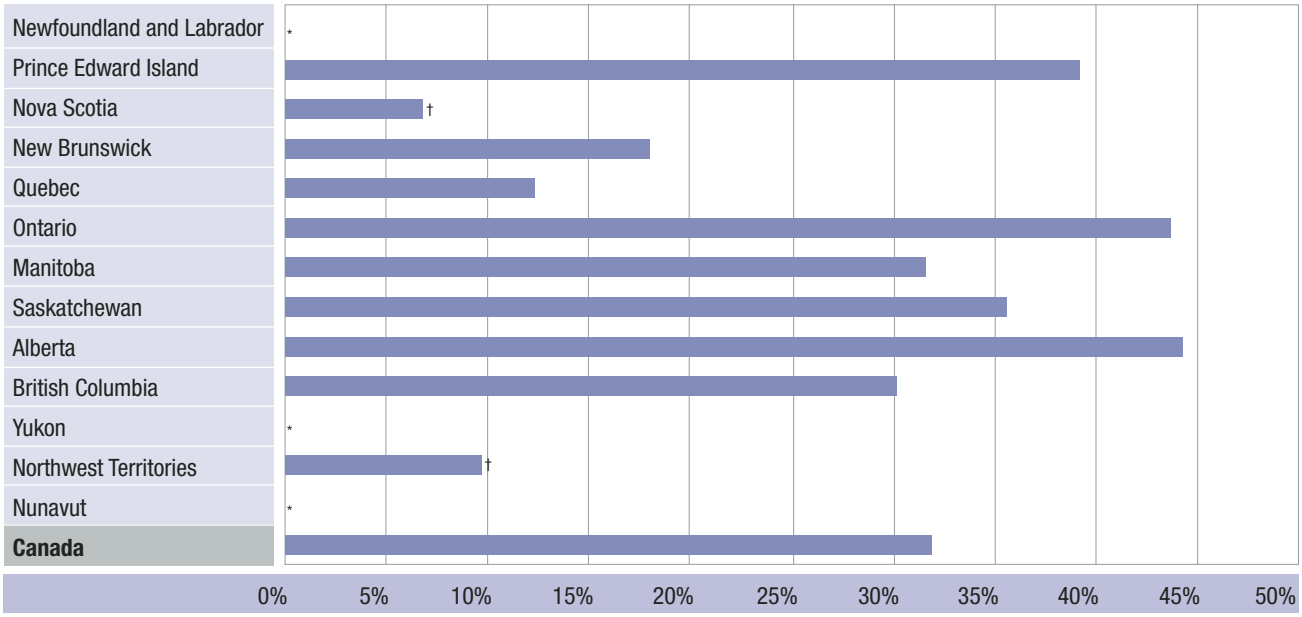
Results

- Among women with a male baby, 31.9% (95% CI: 30.3–33.6) reported circumcising their baby. There was marked regional variation in circumcision. In the 10 jurisdictions in which at least five circumcisions were reported, the proportion of women who reported having their male baby circumcised ranged from 44.3% (95% CI: 39.2–49.4) in Alberta and 43.7% (95% CI: 40.6–46.8) in Ontario to 9.7%† (95% CI: 5.2–14.2) in the Northwest Territories and 6.8%† (95% CI: 3.6–10.0) in Nova Scotia (Figure 38.1).

- The main reasons given for the decision to circumcise were health or hygiene (44.4%, 95% CI: 41.1–47.7), to be like the father, siblings or peers (35.6%, 95% CI: 32.5–38.7), and religion (17.3%, 95% CI: 14.8–19.9).
- Of all women with male babies, 69.9% (95% CI: 68.4–71.5) reported having received enough information about circumcision. This ranged from 86.7% (95% CI: 82.3–91.1) in Saskatchewan to 40.2% (95% CI: 36.4–43.9) in Quebec (Figure 38.2).

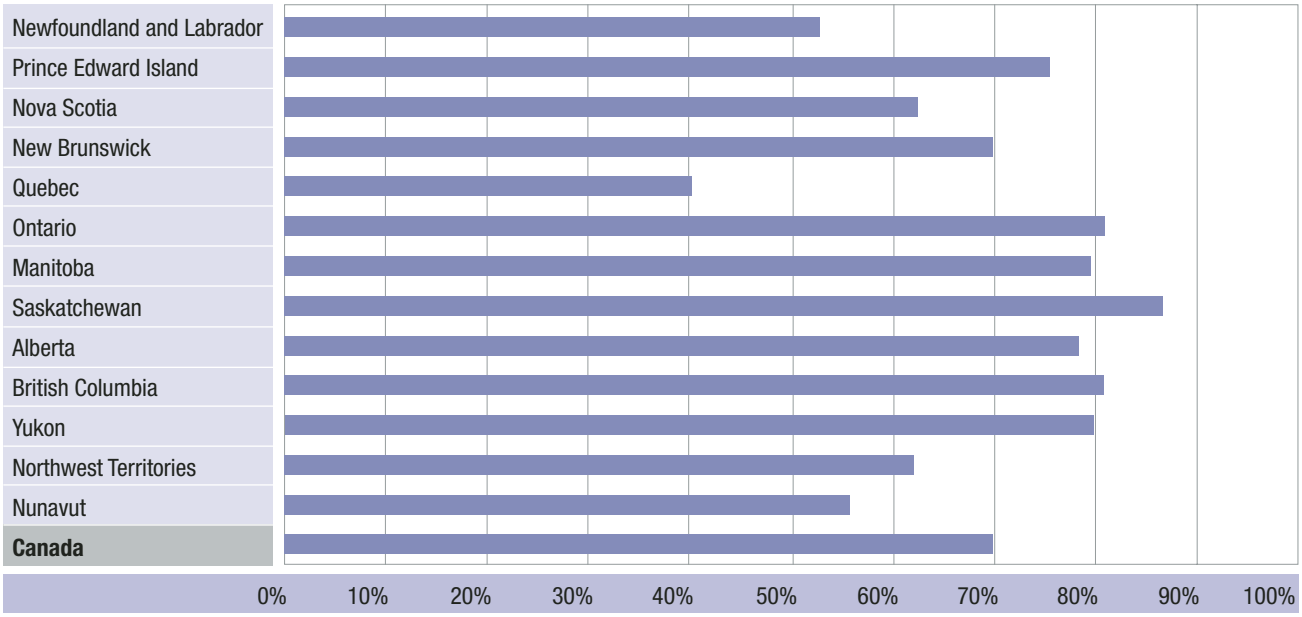
† Coefficient of variation between 16.6% and 33.3%.

Figure 38.1 **Proportion of male babies who were circumcised, by province/territory, Canada, 2006–2007**



* Estimate not shown because unweighted numerator was less than 5.
† Coefficient of variation between 16.6% and 33.3%

Figure 38.2 **Proportion of women with a male baby who received enough information about male circumcision, by province/territory, Canada, 2006–2007**



Summary

About one-third (31.9%) of women reported having their male baby circumcised. The proportion of male babies circumcised varied widely among provinces and territories.

Limitations

The MES did not ask about the timing of circumcision, where it was done (e.g., hospital or elsewhere) or who performed it. Women reported only their main reason for circumcising their baby, but more than one factor may have influenced this decision. The MES did not ask for information on procedural complication rates or analgesia for circumcision.

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Question numbers: PP_Q16–Q18