

Ontario Maternity Care Expert Panel Appendix H - Collaborative Projects Outline

Babies Can't Wait - Ontario College of Family Physicians Project Summary

The Babies Can't Wait Project brings together a wide variety of major organizations that educate and support the providers of maternity care in our province.

Through this collaboration, this project is designed to identify acceptable models of interdisciplinary maternity care, identify strategies to overcome problems in implementation, and move us from research and discussion to action.

Following an extensive literature review, a variety of interdisciplinary models for delivering primary maternity care services were developed and are being tested with current providers, non-providers and future providers through surveys, key informant interviews and focus groups.

This consensus-building workshop will be used to validate the research and develop an action plan to facilitate the implementation of interdisciplinary models of primary maternity care that will help recruit and retain providers.

Integrated Maternity Care for Rural and Remote Communities – Ryerson/Rogers Project Summary

Introduction

This project addresses the current crisis in maternity care provision in rural and remote communities by facilitating the development of inter-disciplinary models which are suited to the needs of individual communities. Consumers need accessible, sustainable maternity care services in order to have healthy communities which are viable for young families. This requires local provision of maternity care services for low-risk, healthy women and their babies. To achieve this goal, care providers in rural and remote communities need to work together to develop sustainable models of maternity care provision which support the long-term personal and professional needs of the maternity care team.

Too often, rural maternity care has been precariously dependent on the goodwill and dedication of a few individuals. In order for maternity care to be viable in the long-term, sustainable models need to be developed which are founded instead on the combined talents and resources of an inter-disciplinary team. Numerous health care organizations in Canada and around the world have called for improved collaboration between health care providers as essential to improving quality and access to maternity care especially in rural and remote areas.

This project seeks to build solutions to current problems in the availability of maternity care in rural and remote communities by exploring how registered midwives could work

as part of an inter-disciplinary team with family physicians, hospital and community nurses. This process will engage members of the health professions, consumers, as well as hospital and community administrators from six Ontario communities in identifying existing needs and community-based solutions. This project has the potential to substantially benefit maternity care consumers, health care providers, and the health care system.

Objectives

The purpose of this project will be to assist in the development of inter-disciplinary models of maternity care service delivery in order to:

- 1) preserve and enhance the maternity services available to underserved populations in rural and remote communities,
- 2) strengthen local health care services and community stability,
- 3) increase job satisfaction among existing health care workers,
- 4) provide educational opportunities for nursing, midwifery and medical students in rural communities, and
- 5) encourage career development among local people as future health care providers.

While the purpose of the project is clearly agreed prior to the start, the process of achieving the goals will be varied according to the identified needs of each community.

Fundamental hypotheses to be tested in this research project are:

- 1) Change to inter-disciplinary models of maternity care can be facilitated by a participatory process.
- 2) Inter-disciplinary models have the potential to strengthen the sustainability of maternity services in rural communities.

Project Activities

Project objectives will be achieved through facilitating the process of developing inter-disciplinary models in six rural and remote communities in Ontario where midwifery is either not established or exists in solo or small practice models. Based on a participatory action model, local working groups in these communities are engaging in the process of developing collaborative models of maternity care provision which will include midwives, physicians, hospital and community nurses. The research team will assist in identifying existing issues through anonymous questionnaires, interviews and focus groups. Links will be established between the six communities so that they can identify strategies, resources, strengths and barriers which may be common to some or all of the participants. Participants will be able to share information about their successes and challenges at an invitational conference with stakeholder organizations in Year 2. Common strategies will be developed to address common problems.

Community Partners

The partner communities—three located in northern Ontario, three in southern Ontario—were selected because they have expressed an interest in integrating midwifery into their

maternity care services. Community partners represent some of the variation seen in rural areas of Ontario from very remote northern communities accessible only by air and sea, to more easily accessible rural communities and those that lie just outside the orbit of larger urban centres.

All participating communities have identified an interest in:

- 1) recognizing the importance of a team approach to maternity care which values the contributions of nurses, physicians and midwives in providing effective and sustainable maternity care,
- 2) integrating midwifery into the existing maternity care service,
- 3) working within a multidisciplinary group to develop a common evidence-based approach to care,
- 4) recognizing the unique strengths of each profession's contributions to the care team as well as the limitations and the areas of overlap,
- 5) identifying the existing barriers to inter-disciplinary collaboration in rural maternity care, and
- 6) developing a model for sustainable maternity care that includes community input.

Outcomes

The projected outcomes of this project are manifold. Foremost, this project will provide an opportunity for facilitation of local inter-disciplinary collaborative efforts arising out of locally identified barriers and opportunities for collaboration. Additionally, factors that support and inhibit the development of collaborative models will be identified and recommendations will be formulated for stakeholder organizations. In concert with other efforts such as the Babies Can't Wait initiative, these outcomes have the potential to make a significant contribution to the development of collaborative maternity care in Canada.

Funding

This project received funding from the Primary Health Care Transition Fund of the Ontario Ministry of Health and Long-Term Care and Ryerson University Faculty of Community Services. Participating communities also provided generous in-kind support.

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Multidisciplinary Collaborative Primary Maternity Care Project (MCP²) Project Summary

In May 2004, Health Canada funded the Multidisciplinary Collaborative Primary Maternity Care Project through the Primary Health Care Transition Funds Program. The project was proposed to overcome health human resource shortages and improve access to primary maternity care.

Partner organizations in the project include:

- Association of Women's Health, Obstetric and Neonatal Nurses (Canada),
- Canadian Association of Midwives,
- Canadian Nurses Association,
- College of Family Physicians of Canada,
- Society of Obstetricians and Gynaecologists of Canada, and
- Society of Rural Physicians of Canada.

The overarching goal of this project is to reduce barriers and facilitate the implementation of national multidisciplinary collaborative primary maternity care strategies as a means of increasing the availability and quality of maternity services for all Canadian women.

MCP 2 aims to foster a greater understanding of potential collaborative care models and improve confidence of health care providers and the public in the benefits of collaborative services.

The legacy objective for the project is the development of a National Primary Maternity Care Committee that currently includes representatives from each of the partner associations, provincial government representatives and consumers.

The members of the national committee are also involved in one of five working groups established to focus on the topics of model development, harmonization/legal, communication, public policy, and research/evaluation.

The first meeting of the national committee was on January 12, 2005 in Ottawa, with subsequent meetings in June and September 2005 and January and May 2006.

The project has seven main objectives, listed on the project overview, which are addressed by the working groups and consultants contracted to facilitate information gathering and development of implementation strategies including:

- Model Development Working Group: Kathy Herschderfer, International Confederation of Midwives, lead the team that produced a document that includes descriptions of maternity service provision and collaborative models in the UK, the Netherlands, Germany, France, Sweden and Australia. With feedback from the working group, Dr. Malcolm Anderson facilitated the completion of guidelines for development of multidisciplinary collaborative maternity care models in February 2006. This group will also be involved in developing knowledge transfer tools to assist with implementation of collaborative models. These reports are available on the website.
- Harmonization/Legal Working Group: This working group has drafted a list of fundamental elements for a womancentred, communitybased model of multidisciplinary collaborative care. This list will serve a basis from which to identify the regulatory and/or legislative changes that may be necessary to facilitate collaborative models of maternity care. The group is also collecting documents that could be barriers to multidisciplinary collaborative primary maternity care. In September 2005, the national

meeting included a panel discussion on liability issues in collaborative practice. A summary of the panel discussion is available on the website.

- Communications Working Group: Communication strategies for the project have focused on developing key messages for the project and the dissemination of information on the benefits of collaborative practice to health care providers, consumers, governments and other stakeholders. Information inserts describing the benefits of collaborative practice appeared in the fall issues of the professional journals of the partner organizations. An advertisement will appear in Chatelaine Magazine in March to inform consumers of the benefits of collaborative practice.

- Public Policy Working Group: This working group is involved in garnering support of governments and key stakeholders in moving the project recommendations forward. Project representatives will meet with 5 provincial government representatives in March and April 2006 and seek ongoing support for the implementation of new multidisciplinary collaborative maternity care teams using the guidelines developed by the project.

- Research/Evaluation Working Group: Dr. Barbara Davies and Dr. Jennifer Medves are leading the evaluation portion of the project, and in particular they will be assessing the impact of the project on the knowledge, attitudes and beliefs of health care providers about collaboration. This group has completed interviews with key stakeholders, focus groups at national meetings and web based surveys of 800 health care providers. They will repeat the surveys in March 2006 to measure any change in knowledge, attitudes and beliefs. Copies of all reports and updates of the progress of the project will be posted on the website at www.mcp2.ca. We thank you for your interest and ongoing participation with this valuable project.

Ontario Maternity Care Expert Panel

Appendix I – Maternity Care Surveillance Report

1. Introduction and Overview

Key indicators of maternal and newborn health in Ontario are presented below. These data are presented because they provide important information about maternal and newborn health in Ontario, information that has been used to guide the development of the Panel's recommendations.

A comprehensive perinatal surveillance report was beyond the scope of the work of this Panel. In order to ensure that this important work be done, in a regular and ongoing way, the Panel has recommended that a Maternity Care Information System be developed in parallel with the structures to coordinate and manage maternity care in Ontario.

In 2005, the Ontario Ministry of Health and Long Term Care adopted new regional boundaries – the Local Health Integration Networks (LHIN). Wherever possible, data are presented by LHIN. Maps showing Ontario's LHINs appear on the next two pages.

The data for this Report were provided by Health Information Products & Services Units, Knowledge Management and Reporting, Ontario Ministry of Health and Long Term Care, using the following sources:

Hospital Discharge Abstract Database (FY 1996 to FY 2003)	Canadian Institute for Health Information
Population by Local Health Integration Network (CY 1996 to CY 2003)	Demography Division, Statistics Canada
Vital Statistics (CY 1996 to CY 2001)	Registrar General of Ontario/Statistics Canada
OHIP Claims for Medical Services (FY 2001 to FY 2003)	Ontario Ministry of Health and Long-Term Care
Birth Tables (CY 2002 and CY 2003)	Statistics Canada
Claims Database Prototype (FY 1998 to FY 2003)	Ontario Ministry of Health and Long-Term Care
Hospital Survey 2004-05	Ontario Maternal Care Expert Panel
Daily Census Summary (FY 2003)	Financial and Information Management Branch, Ontario Ministry of Health and Long-Term Care

Notes:

1. CY= calendar year; FY = fiscal year
2. All population estimates and vital statistics from Statistics Canada are based on calendar year.
3. Analyses performed at the Health Information Products & Services Unit in June-October, 2005.

The data presented below include areas where the health of Ontario mothers and babies is comparable to, or better than, those of others in Canada, and areas where we in Ontario lag behind other provinces and territories. It is also noteworthy the rates of certain interventions in birth (including induction of labour and Caesarean sections and assisted vaginal births - the use of forceps or vacuum extraction) suggest higher rates of interventions in Ontario than in other parts of Canada.

Positive trends noted in Ontario include:

- lower rates of teenage pregnancy than in other Canadian provinces and territories;
- rates of maternal hospital readmission lower than the Canadian average;
- rates of neonatal hospital readmission lower than the Canadian average.

Areas where Ontario data needs further exploration to understand differences in Ontario data as compared to other jurisdictions:

- a labour induction rate about twice that of the Canadian average;
- a Caesarean section rate about 25% higher than the Canadian average;
- decreasing numbers of women having spontaneous labour and spontaneous vaginal births, that is women giving birth without having their labour induced, having an assisted vaginal birth (without the use of either forceps or vacuum extraction) or giving birth by Caesarean section. In 1999/2000 34.6% of women giving birth in Ontario hospitals fit this description. This rate has decreased steadily. In 2003/04, the rate had decreased to 31.5%.



1 Erie St. Clair / Erié St. Clair

2 South West / Sud-Ouest

3 Waterloo Wellington

4 Hamilton Niagara Haldimand Brant

5 Central West / Centre-Ouest

6 Mississauga Halton

7 Toronto Central / Toronto-Centre

8 Central / Centre

9 Dentral East / Centre-Est

10 South East / Sud-Est

11 Champlain

12 North Simcoe Muskoka / Simcoe-Nord Muskoka

13 North-East / Nord-Est

14 North West / Nord-Ouest



1 Erie St. Clair / Erie St. Clair	8 Central/Centre
2 South West / Sud-Ouest	9 Central East / Centro-Est
3 Waterloo Wellington	10 South East / Sud-Est
4 Hamilton Niagara Haldimand Brant	11 Champlain
5 Central West / Centro-Ouest	12 North Simcoe Muskoka / Simcoe-Nord Muskoka
6 Mississauga Halton	13 North-East / Nord-Est
7 Toronto Central / Toronto-Centre	14 North-West / Nord-Ouest

2. Live Births

During the six years from 1997 to 2002, the number of live births in Ontario declined from 134,791 per year to 129,752. The birth rate (expressed as the number of live births per 1,000 girls and women aged 15 to 49 years of age) also decreased from 43.9/1,000 to 41.4/1,000 during that time. There were increases in both the number of births (133,546) and the birth rate (42.2) in 2003.

In 2003, women living in Central West LHIN were most likely to give birth (52.6/1,000), while women living in the North East LHIN were least likely to give birth (36.9/1,000).

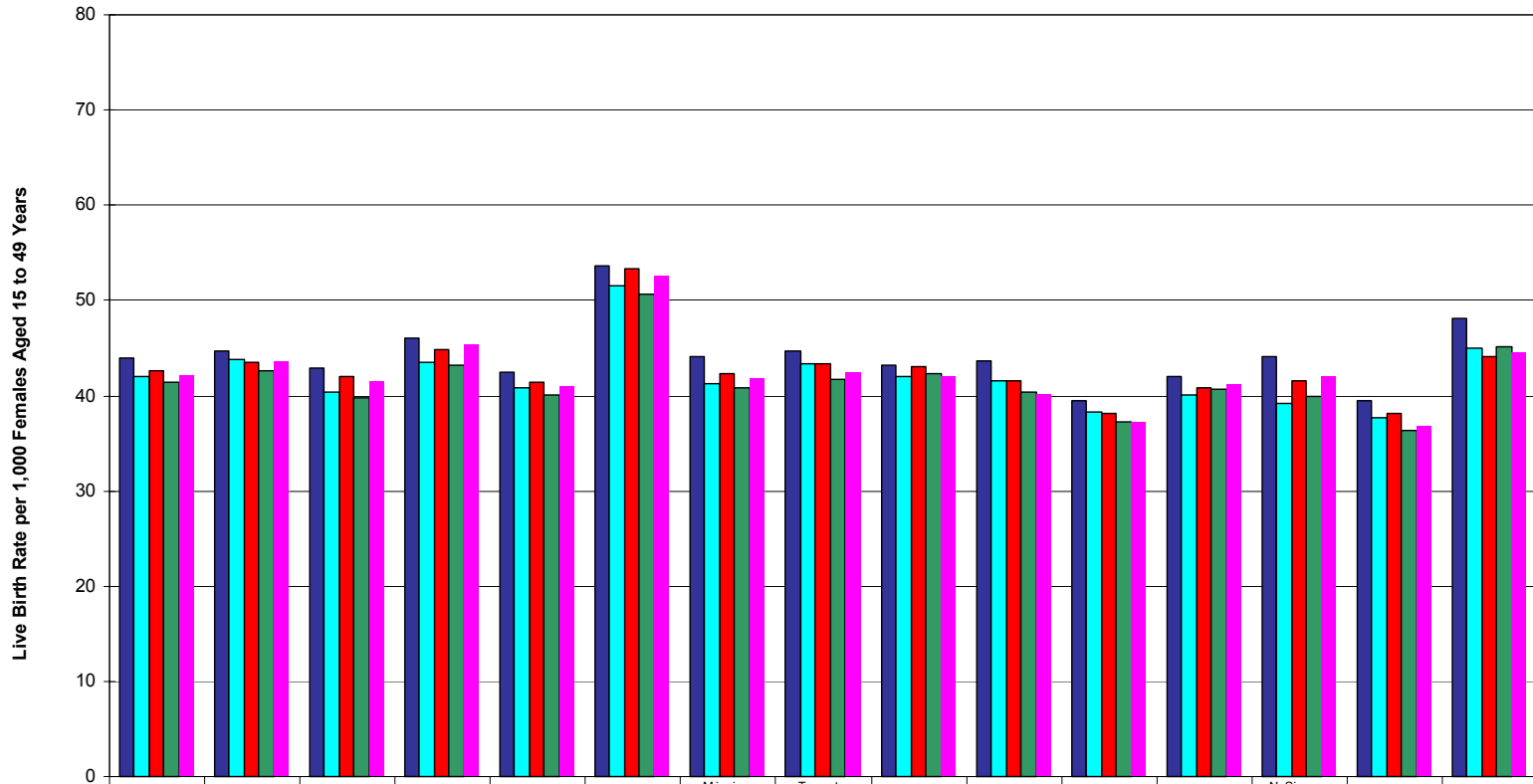
In 2003, women in Ontario were about as likely to give birth as were women in Canada as a whole. The crude birth rate (expressed as live births per 1,000 population) was 10.7 for Ontario and 10.6 for Canada¹.

Women in Ontario, like other Canadian women, are delaying childbirth². The average age of a woman giving birth in Ontario in 2003 was 29.8; for all Canadian women, the average age was 29.1¹.

Teenage pregnancies have been associated with adverse outcomes for both mothers and babies² and with long term social and economic consequences for young mothers and their babies. It is therefore noteworthy that Ontario teens were less likely to give birth than were other Canadian teens². (See chart below.)

Older mothers and their babies are also at increased risk adverse outcomes. Recent evidence suggests that these can be reduced with prudent health behaviours and good quality health care during pregnancy². In 2003, 20% of Ontario births, compared to 17% of all Canadian births, were to women aged 35 years of age and older. In that same year, 3.4% of Ontario births, and 2.7% of all Canadian births, were to women aged 40 years and older.

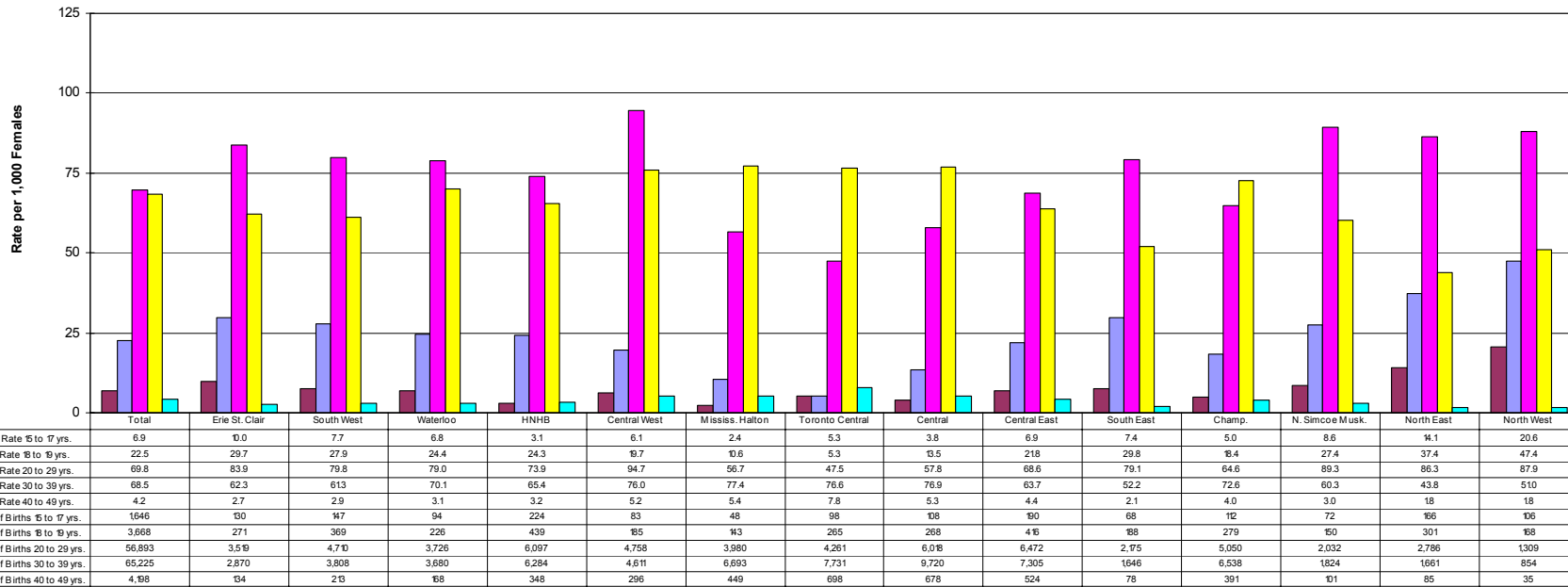
**Live Births and Live Birth Rates - Ontario and LHINs (of Maternal Residence)
1999/2000 to 2003/04**



	Total	Erie St. Clair	South West	Waterloo	HNNB	Central West	Mississ. Halton	Toronto Central	Central	Central East	South East	Champ.	N. Simcoe Musk.	North East	North West
■ Rate 1999	43.9	44.7	42.9	46.0	42.5	53.7	44.1	44.6	43.2	43.7	39.5	42.0	44.1	39.4	48.1
■ Rate 2000	42.0	43.8	40.4	43.6	40.8	51.6	41.3	43.4	42.0	41.5	38.3	40.1	39.2	37.7	45.0
■ Rate 2001	42.7	43.6	42.1	44.8	41.4	53.4	42.4	43.3	43.1	41.5	38.2	40.8	41.6	38.1	44.1
■ Rate 2002	41.4	42.6	39.8	43.1	40.0	50.7	40.8	41.7	42.3	40.3	37.2	40.7	39.9	36.3	45.2
■ Rate 2003	42.2	43.7	41.5	45.4	41.0	52.6	41.9	42.5	41.9	40.2	37.3	41.3	42.0	36.9	44.6
Births 1999	13,170	6,978	9,576	7,684	13,651	9,129	10,667	13,570	15,570	15,672	4,389	12,231	4,041	5,768	2,784
Births 2000	12,470	6,888	9,057	7,423	13,256	8,975	10,234	13,245	15,594	15,066	4,266	11,850	3,698	5,410	2,508
Births 2001	13,196	6,913	9,463	7,752	13,540	9,574	10,795	13,473	16,539	15,296	4,259	12,239	4,007	5,388	2,458
Births 2002	12,752	6,815	9,002	7,570	13,188	9,427	10,798	13,083	16,832	15,025	4,183	12,312	3,929	5,065	2,523
Births 2003	13,546	7,014	9,398	8,032	13,595	10,064	11,460	13,254	17,086	15,111	4,185	12,547	4,223	5,082	2,485

Notes: Births to women with unknown postal codes have been excluded.
Births to North West Ontario women, taking place in Manitoba have been included.

**Birth Rates by Age
Ontario and LHINs 2003-04**



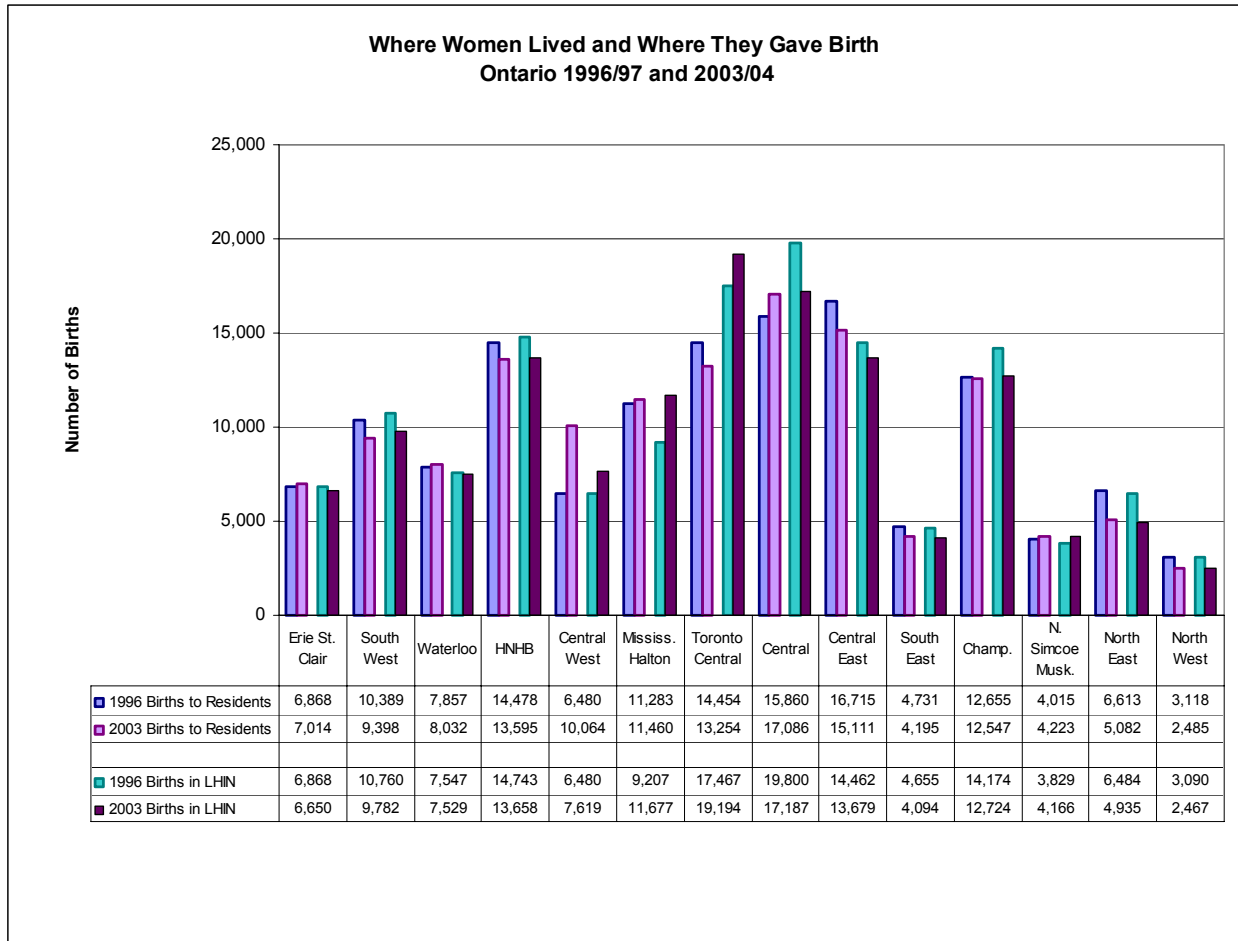
Notes:

This chart includes only Ontario women who gave birth in Ontario. In 2003, there were 202 women from North West Ont. who gave birth in Manitoba. This chart excludes women whose postal codes were not known, girls who gave birth at less than 15 years of age (n=26) and women over 49 years of age (n=1).

3. Traveling to Give Birth

Some birthing women leave their LHINs (whether by choice or by necessity) to give birth. The chart below shows the number of birthing women in each LHIN, and the number of births that took place in that LHIN, for the two years 1996/97 and 2003/04.

Over 19,000 births (14% of all Ontario births) took place in the Toronto Central LHIN, which was home to only 10% of birthing women.



Notes:

Only births to Ontario mothers are included.

Women whose postal codes were not known have been excluded from "Births to Residents".

Women in certain regions of Ontario are more likely to have traveled far distances in order to give birth. For some this was a matter of choice. For others, it reflects a lack of services near their home communities.

For the purposes of this Report, we have defined “reasonable” distances for travel to give birth as 30 km for women living in LHINS 1 through 12 and 80 km for women living in LHINS 13 and 14 (North-West and North-East Ontario). The table below shows the percentage of women living in each LHIN who gave birth within a “reasonable distance” from their home. It also shows the average distance traveled by women in each LHIN.

Women in the North-West and South East LHINS were most likely to have traveled more than a reasonable distance in order to give birth. Women in the North-West LHIN traveled the furthest to give birth, on average 83 kilometres.

Maternal LHIN		% Within Reasonable Distance	Mean Distance Traveled (km)
1	ERIE ST. CLAIR	86.4%	15.7
2	SOUTH WEST	79.1%	18.8
3	WATERLOO WELLINGTON	91.1%	11.5
4	HAMILTON NIAGARA HALDIMAND BRANT (HNHB)	92.7%	11.2
5	CENTRAL WEST	93.0%	11.9
6	MISSISSAUGA HALTON	95.5%	9.9
7	TORONTO CENTRAL	99.5%	6.0
8	CENTRAL	95.8%	11.8
9	CENTRAL EAST	90.3%	12.8
10	SOUTH EAST	74.0%	24.0
11	CHAMPLAIN	85.3%	15.9
12	NORTH SIMCOE MUSKOKA	85.6%	16.6
13	NORTH-EAST	89.6%	35.7
14	NORTH-WEST	75.1%	83.3
	TOTAL	90.4%	15.0

4. Health Services

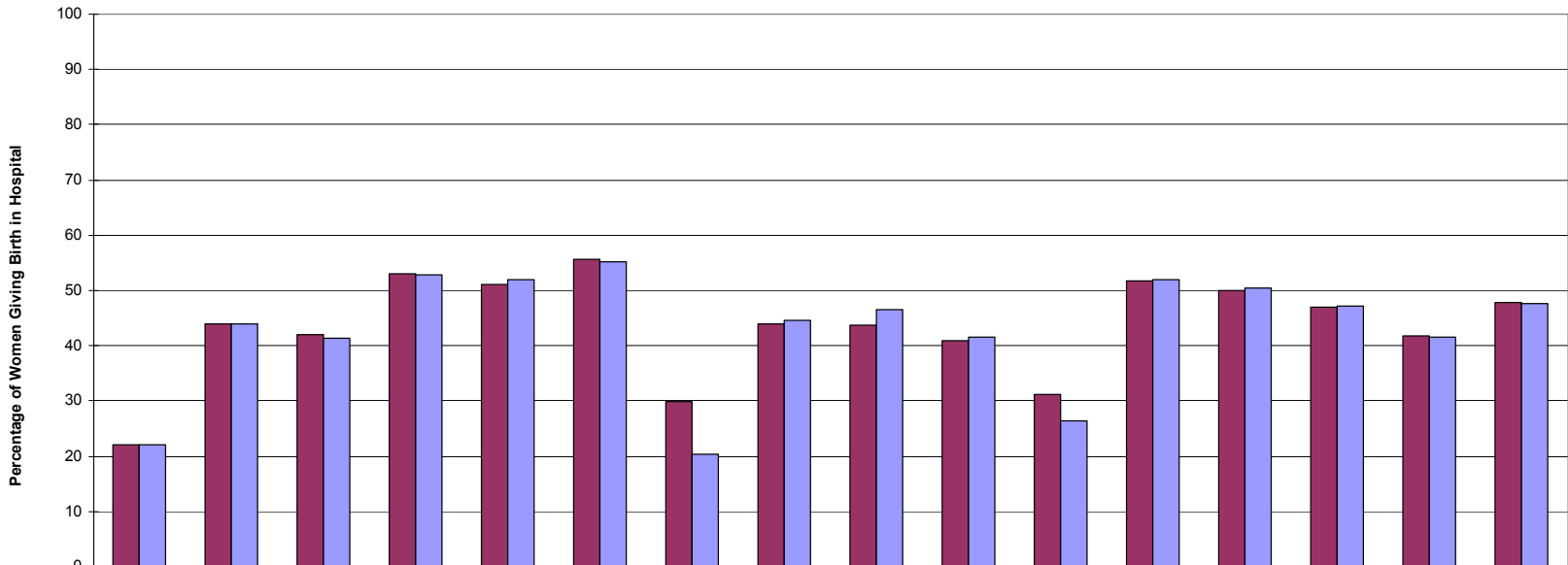
Labour Induction

Induction of labour includes both medical induction and surgical induction (artificial rupture of membranes – AROM). Induction of labour has increased markedly in Ontario, Canada and the US since 1990. In 2000/01 22% of Canadian women (excluding those in Nova Scotia, Manitoba and Québec) had their labours induced, up from 16.5% in 1991/92².

Induction of labour is an obstetric intervention associated with increased complications compared with spontaneous labour. These include an increased incidence of chorioamnionitis and an increased rate of Caesarean delivery. In certain situations, the risks of continuing pregnancy for either mother or fetus will outweigh the risks associated with induction. Indications for labour induction include pre-labour rupture of membranes, maternal hypertension, non-reassuring fetal status and post-term gestation. (Canadian Perinatal Health Report 2003, p 29)

The most recent data for Ontario, from 2003/04 show an induction rate of 44% among women who gave birth in hospital, about twice the Canadian average. There were large regional variations in the rate of inductions. Women in Hamilton Niagara Haldimand Brant LHIN (HNHB) were most likely to have had their labour induced (55.3%); women in Central West LHIN were least likely (20.3%).

**Medical and Surgical Inductions of Labour
Ontario- Maternal and Institutional LHINs 2003- 04**



Notes:

Inductions include those that resulted in birth by Caesarean section, by assisted vaginal birth and by spontaneous vaginal birth. "Maternal LHIN" refers to the mother's place of residence. Women from out-of-province or whose postal code was not known were excluded. Therefore, there are fewer women in this group than in the "institutional LHIN" group. "Institutional LHIN" refers to the location of the birth. Canada 2000 data are from Health Canada (2003), *Canadian Perinatal Health Report* and exclude Nova Scotia, Québec and Manitoba.

Caesarean Birth

Across Canada and in the U.S., Caesarean section rates have more than quadrupled, from about 5% in the late 1960s to about 20% in the 1980s. In 2000/01, 21.2% of Canadian women gave birth by Caesarean section. In 2000/01, the primary Caesarean section rate (women giving birth by Caesarean section for the first time) was 15.6%; the repeat rate (Caesarean sections among women who had previously had a Caesarean birth) was 70.1%². The World Health Organization has recommended a range of 5 to 15% of Caesarean Births as appropriate³.

The factors that contributed to the increased caesarean delivery rate during the last decades are not completely understood. While the seemingly high rates continue to be of concern because of the potentially increased risks to the mother and baby and the additional costs due to longer length of hospital stay associated with cesarean delivery, the rate remained at a level of 18% to 19% for approximately 10 years, and increased in more recent years in spite of efforts to lower it. 1-4 The main strategies to lower the cesarean delivery rate in Canada have been the establishment of clinical guidelines for cesarean delivery and efforts to encourage women who have had a previous cesarean delivery to attempt a vaginal delivery (or VBAC, vaginal birth after cesarean) (Canadian Perinatal Health Report 2003, p 32)

In 2003/04, 26% of Ontario women who gave birth in hospital, had Caesarean sections. Those in Toronto Central LHIN were most likely to have a Caesarean birth (30%); those in South West LHIN were least likely (22.2%).

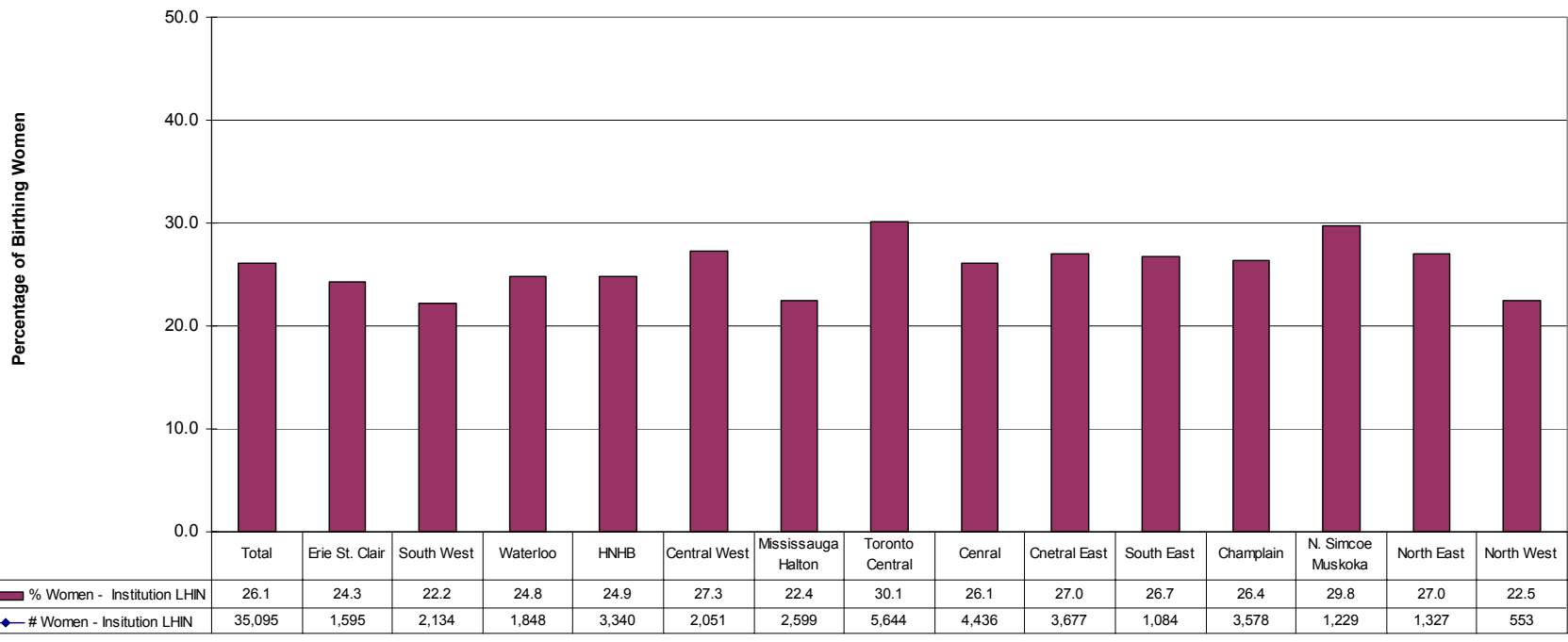
Ontario's increasing Caesarean section rate was the subject of a review by the Ontario Women's Health Council⁴, which concluded that:

...it is possible for maternal/newborn programs in Ontario to maintain a low caesarean section rate over time — regardless of their size, location, the level of care they provide or the population they serve...Hospital with a low caesarean section rate have been able to achieve this goal in large part because they embrace the belief that supportive labour care and the least intervention possible create the best opportunity for a good birth experience. They have also been diligent in their efforts to set targets for caesarean section rates, monitor their progress, and assess and adjust their practices to achieve their targets.

Ontario Women's Health Council, *Attaining and Maintaining Best Practices in the Use of Caesarean Sections*, page 2

The Canadian Institute for Health Information has concluded that the average cost of a Caesarean birth in Canada is \$4,600, compared to a cost of \$2,700 for a vaginal birth without complicating diagnoses⁵

**Percentage of Women Giving Birth By Caesarean Section
Ontario and Institutional LHINs 2003**



Notes:

"Maternal LHIN" refers to the mother's place of residence. Women from out-of-province or whose postal code was not known were excluded. Therefore, there are fewer women in this group than in the "institutional LHIN" group.

"Institutional LHIN" refers to the location of the birth.

Canada 2001/02 data are from CIHI (2004) Giving Birth in Canada: A Regional Profile

Assisted Vaginal Births

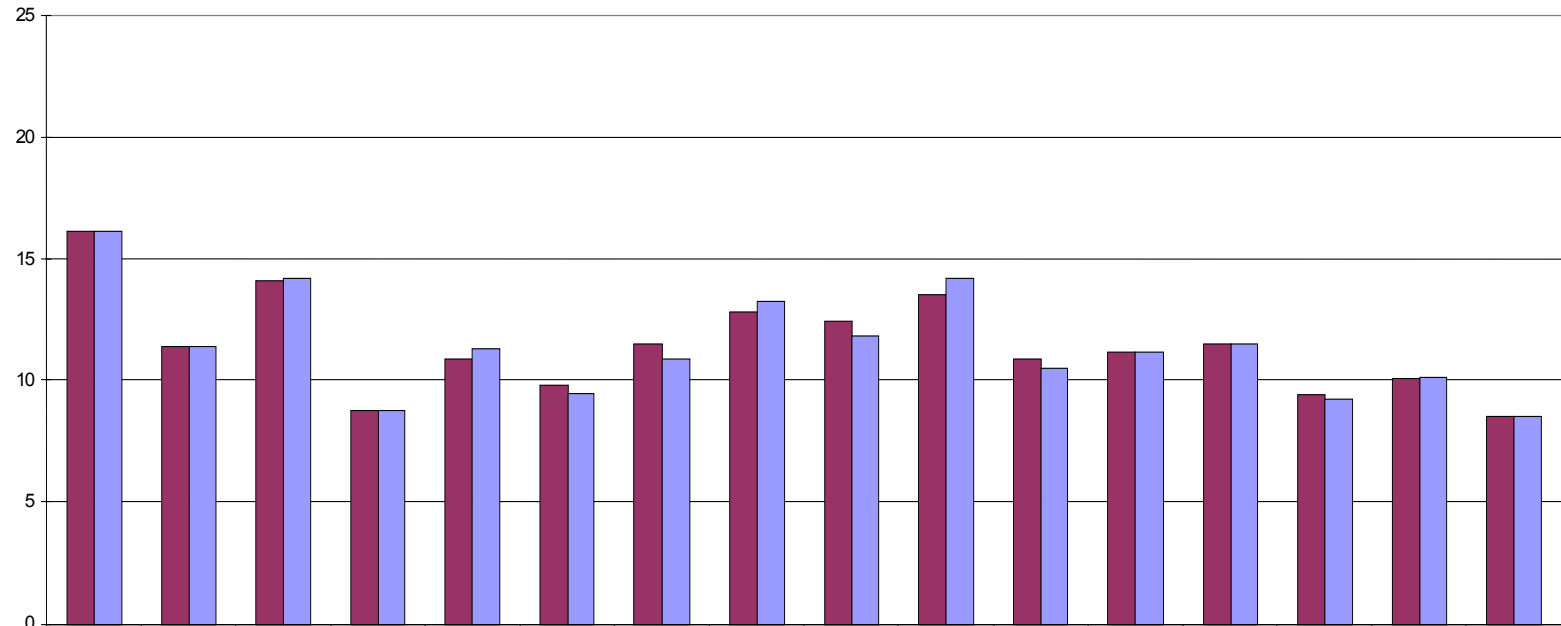
Assisted vaginal births are births where either forceps and/or vacuum extraction were used to aid in the delivery. Reasons for the use of either forceps or vacuum extraction include the failure of labour to progress, fetal compromise, maternal heart failure or cerebral vascular malformations³.

In Canada, in 2000–2001, forceps and/or vacuum extraction were used in 16% of hospital vaginal deliveries, down slightly from 17% in 1991–1992. During this time, forceps-assisted deliveries decreased by 45%, while vacuum extraction increased by 56%. There were large variations among health regions in the use of forceps and vacuum extraction. Regional rates varied more than eleven-fold—from 2.5 per 100 vaginal deliveries in Nunavut to 28.2 in Newfoundland and Labrador’s Eastern Region³.

In 2003/04, 11.4% of women giving birth in Ontario hospitals had assisted vaginal births. Women in the Erie St. Clair LHIN were most likely to have assisted vaginal births (14.2%); women in the North West LHIN were least likely (8.5%).

**Assisted Vaginal Births (Forceps and Vacuum Extractions)
Ontario- Maternal and Institutional LHINs 2003 - 04**

Percentage of Women Giving Birth in Hospital



% Women - Maternal	16	11	14	8.7	10	9.8	11	12	12	13	10	11	11	9.4	10	8.5
% Women - Institution	16	11	14	8.8	11	9.5	10	13	11	14	10	11	11	9.3	10	8.5
# Women - Maternal		15,26	974	809	868	1,31	1,14	1,44	1,62	2,27	1,62	465	1,42	395	503	21
# Women - Institution		15,39	935	843	842	1,27	81	1,53	2,21	2,41	1,42	453	1,55	382	498	21

Notes: "Maternal LHIN" refers to the mother's place of residence. Women from out-of-province or whose postal code was not known were excluded. Therefore, there are fewer women in this group than in the "institutional LHIN" group.

"Institutional LHIN" refers to the location of the hospital where the birth took place.

Canada 2001/02 data are from CIHI (2004) *Giving Birth in Canada: A Regional Profile*.

Anaesthesia During Birth

Use of anaesthesia during childbirth has increased markedly. Epidural anaesthesia is the most common. In 2001/02, 43.1% of birthing women (45.1% of those giving birth vaginally) had epidural anaesthesia. The rates varied widely across Canada, ranging from a low of 4.0% of all vaginal deliveries in the Northwest Territories to a high of 60.2% in Quebec³.

While epidural use does not increase the rate of caesarean delivery, it may lengthen the first and second stages of labour and increase the rate of assisted delivery, fetal malposition, and oxytocin use to speed up labour. As well, epidural use may be associated with drug side effects in both mothers and babies. Uninterrupted labour support from a professional or non-professional caregiver is associated with significant reductions in caesarean section delivery, assisted delivery, and use of pain medication³.

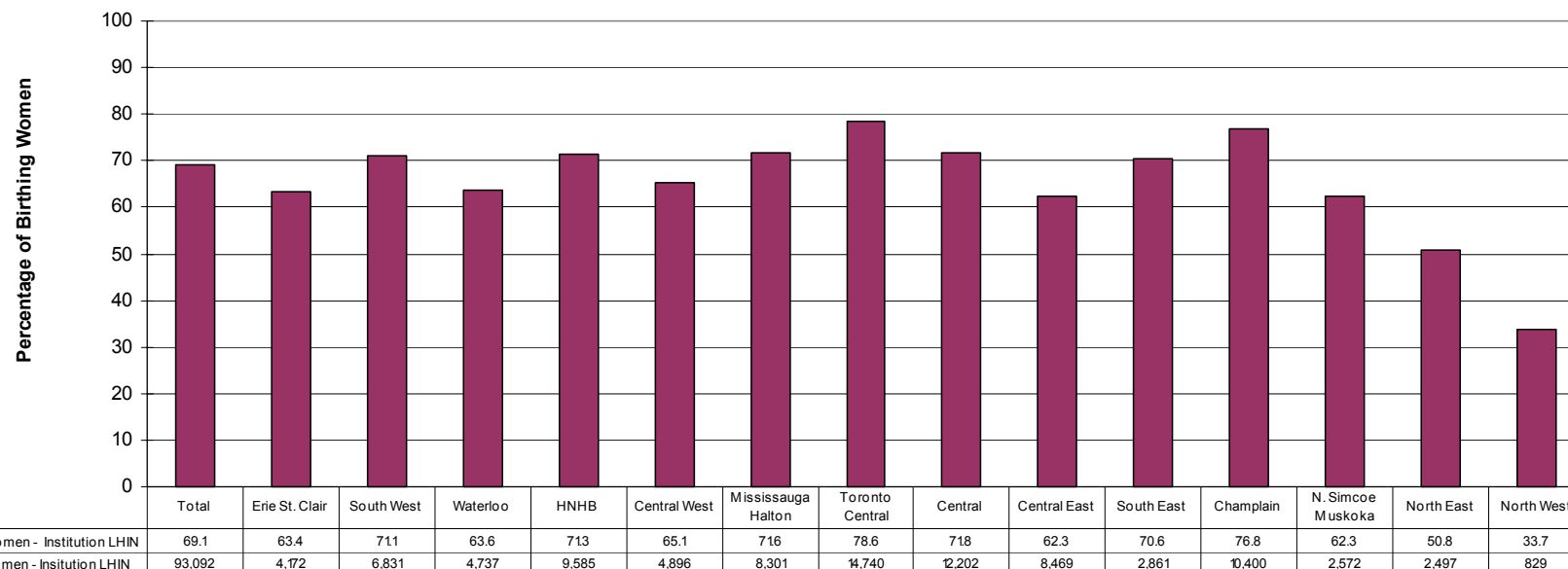
In 2003/04, 69% of women giving birth in Ontario hospitals had anaesthesia excluding local anaesthesia). Women giving birth in Toronto Central LHIN were most likely to have had anaesthesia during birth (78.6%); women in the North West LHIN were least likely (33.7%).

CIHI has noted that:

A number of factors explain regional variation in rates, many of which are not well understood. Some physicians, for example, may be more likely to recommend using an epidural than others. As well, women who are giving birth for the first time, are at a later stage in life, or are Caucasian may be more likely to request an epidural. In addition, the availability of staff and resources may play a role. Because epidural service requires the skills of an anaesthesiologist (or anaesthetist), as well as resuscitation equipment and drugs, not all rural or small community hospitals offer the service. This may help to explain why in eastern and southeastern Ontario in 2003 epidurals were used in 23.6% of vaginal births in small community hospitals, but teaching and large community hospitals had rates of 65.0% and 58.7% respectively. These hospitals are more likely to have anaesthesiologists available "in house" or on call 24 hours a day.

CIHI (2004) Giving Birth in Canada: A Regional Profile page 22

**Anaesthesia During Labour - By Location of Hospital
Ontario and LHINs - 2003-04**



Notes:

Women from out-of-province or whose postal code was not known were excluded.
Women who received local anaesthesia only were excluded.

Women Having Spontaneous Labour and Unassisted Vaginal Births

Given the high rates of interventions described above, it was decided to examine those women who gave birth “naturally”, that is, who had spontaneous labour (not induced), and who gave birth vaginally, without the use of forceps or vacuum extraction. Women who had any of the following procedures during labour were excluded from this group:

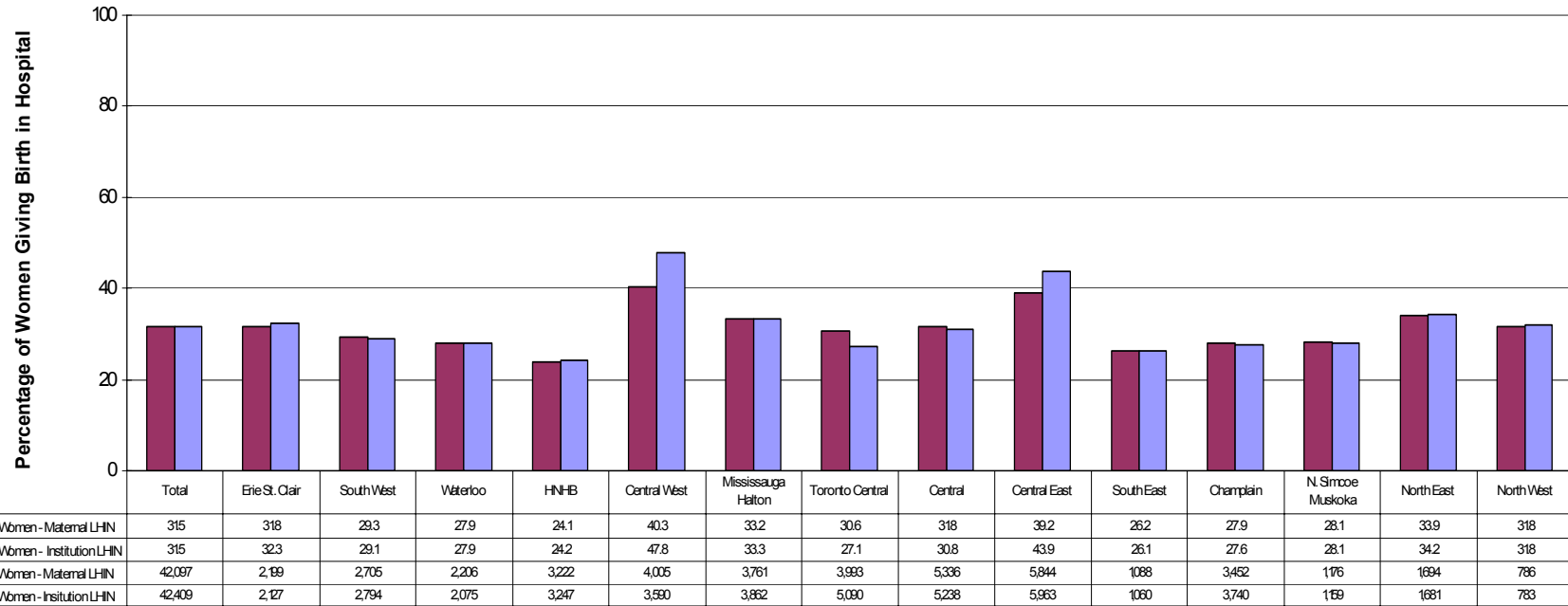
- Caesarean section
- Surgical induction of labour
- Medical induction of labour
- Assisted Vaginal birth

Note that women who had anaesthesia during labour were not excluded from this group.

In 1999/2000 34.6% of women giving birth in Ontario hospitals had a spontaneous labour and unassisted vaginal birth. This rate has decreased steadily. In 2003/04, the rate had decreased to 31.5%.

There were wide regional variations. Women giving birth in Central West LHIN were most likely to have had spontaneous labour and unassisted vaginal births (47.8%); women in the Hamilton Niagara Haldimand Brant LHIN (HNHB) were least likely (24.2%).

**Women Having Spontaneous Labour and Unassisted Vaginal Births
Ontario- Maternal and Institutional LHINs 2003/04**



Notes:

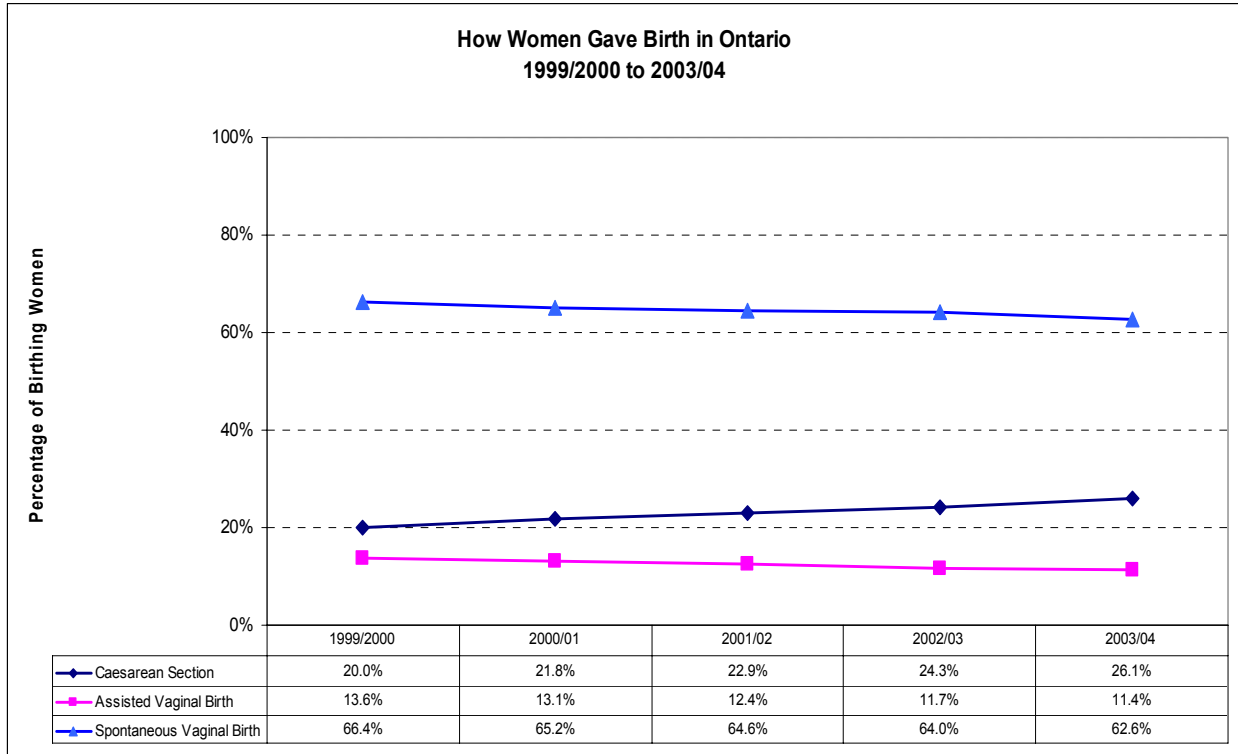
Includes women whose labours were not induced and who had an unassisted vaginal birth.

"Maternal LHIN" refers to the mother's place of residence. Women from out-of-province or whose postal code was not known were excluded. Therefore, there are fewer women in this group than in the "institutional LHIN" group.

"Institutional LHIN" refers to the location of the birth.

How Women Gave Birth in Ontario – Five Year Trends

Analysis of data about how Ontario women gave birth over the five year period from 1999/2000 to 2003/04 shows increasing rates of Caesarean sections, decreasing rates of both assisted vaginal births and spontaneous vaginal births (vaginal births without the use of either forceps or vacuum extraction).



4. Maternal, Fetal and Infant Health Outcomes

Maternal Readmission after Discharge Following Childbirth

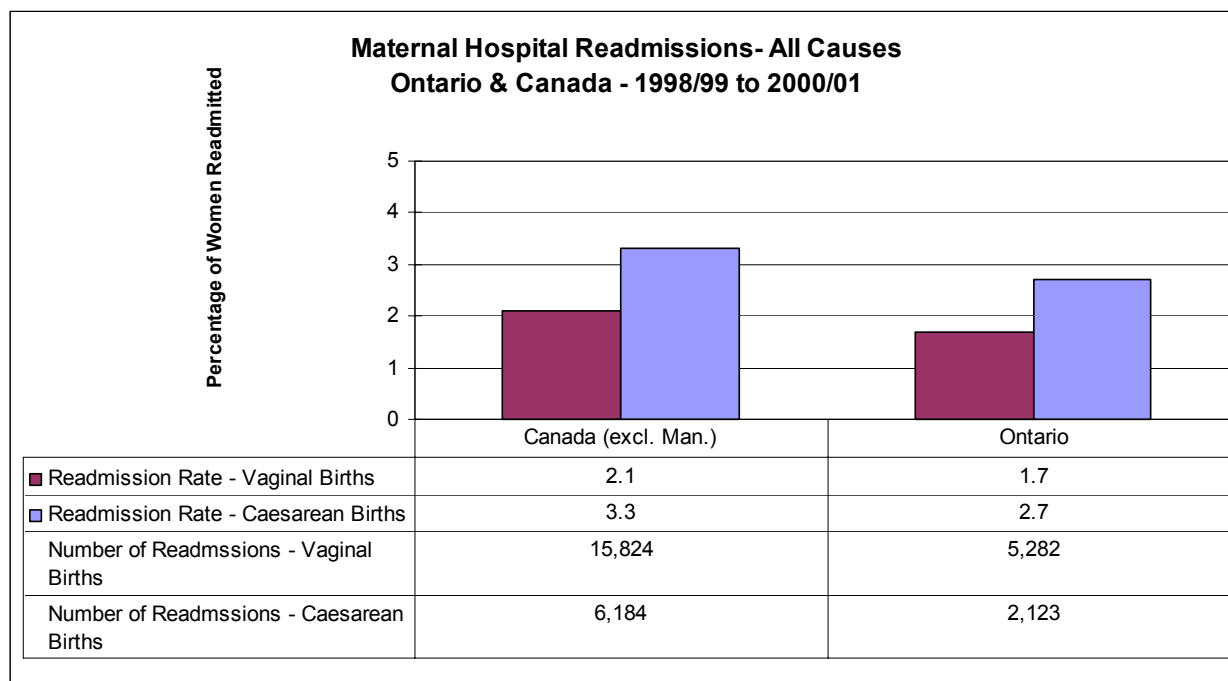
Maternal hospital readmissions include all women, who gave birth in hospital, and were then readmitted to hospital within three months of discharge following childbirth.

During the 10 year period from 1991/92 to 2000/01, Canadian maternal readmission rates following vaginal birth remained fairly stable, ranging from 2.0% to 2.3%. During this same 10 year period, readmissions following Caesarean births increased from 2.6% to 3.4%.

Maternal readmission is an indicator of severe postpartum maternal morbidity. The maternal readmission rate can serve as a proxy for complications related to childbirth. Many factors influence maternal readmission rates, including the severity of illness, availability of hospital resources, distance to hospital, hospital admission policies and accessibility of outpatient services... Recent studies indicate that a short length of hospital stay following a Caesarean or assisted vaginal delivery increases the risk of maternal readmission.

Health Canada, *Canadian Perinatal Health Report, 2003*, p 67.

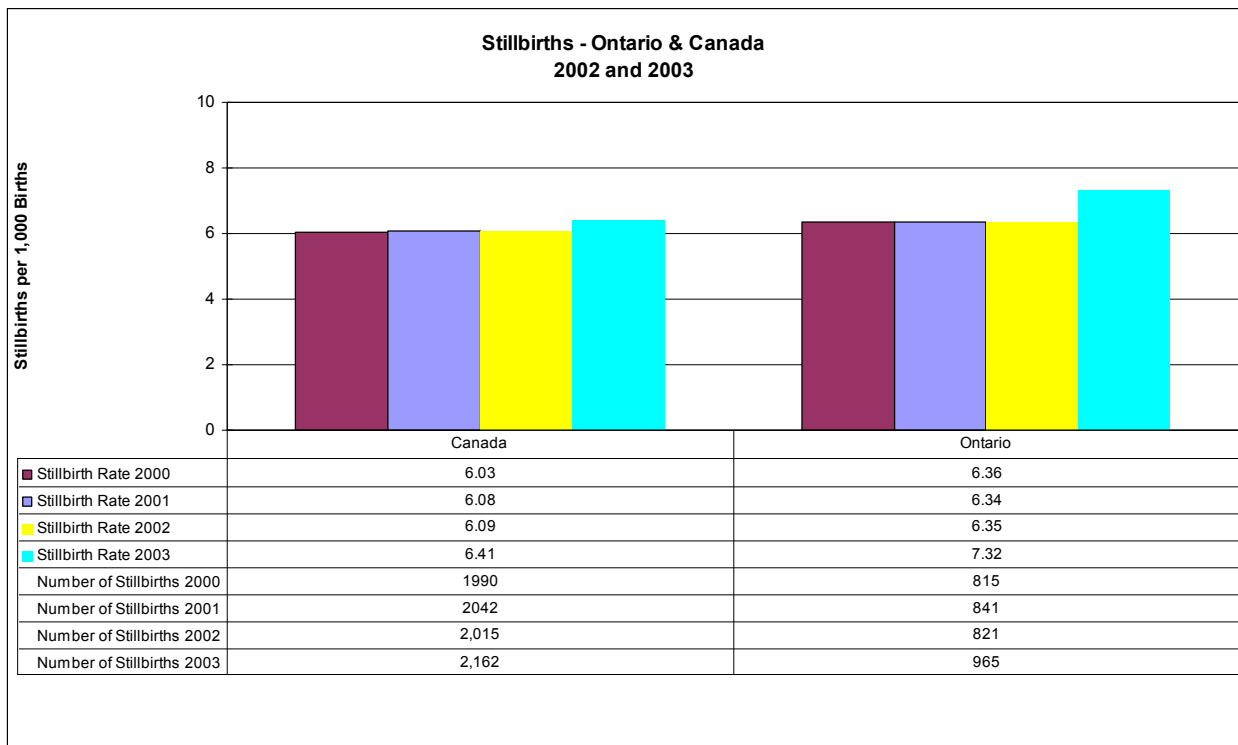
Data about maternal hospital readmissions were not available by LHIN. The data in the following chart are drawn Health Canada's *Canadian Perinatal Health Report 2003*².



Stillbirth (Fetal Deaths)

Stillbirths are defined as infants dead at birth, with a birth weight of 500 grams or more **or** a gestational age of at least 20 weeks.¹

From 2000 to 2003, Ontario's stillbirth rate was slightly higher than the rate for all of Canada. In a substantial number of cases, the cause of a stillbirth is unknown. Identified causes include congenital anomalies, prenatal infections and fetal growth restriction, pregnancy-related disorders such as gestational diabetes and pre-eclampsia. Known risk factors include advanced maternal age, primiparity, maternal smoking during pregnancy and high pre-pregnancy weight. Canadian fetal death rates are low compared to other countries, partly because of the increased use of obstetric intervention².



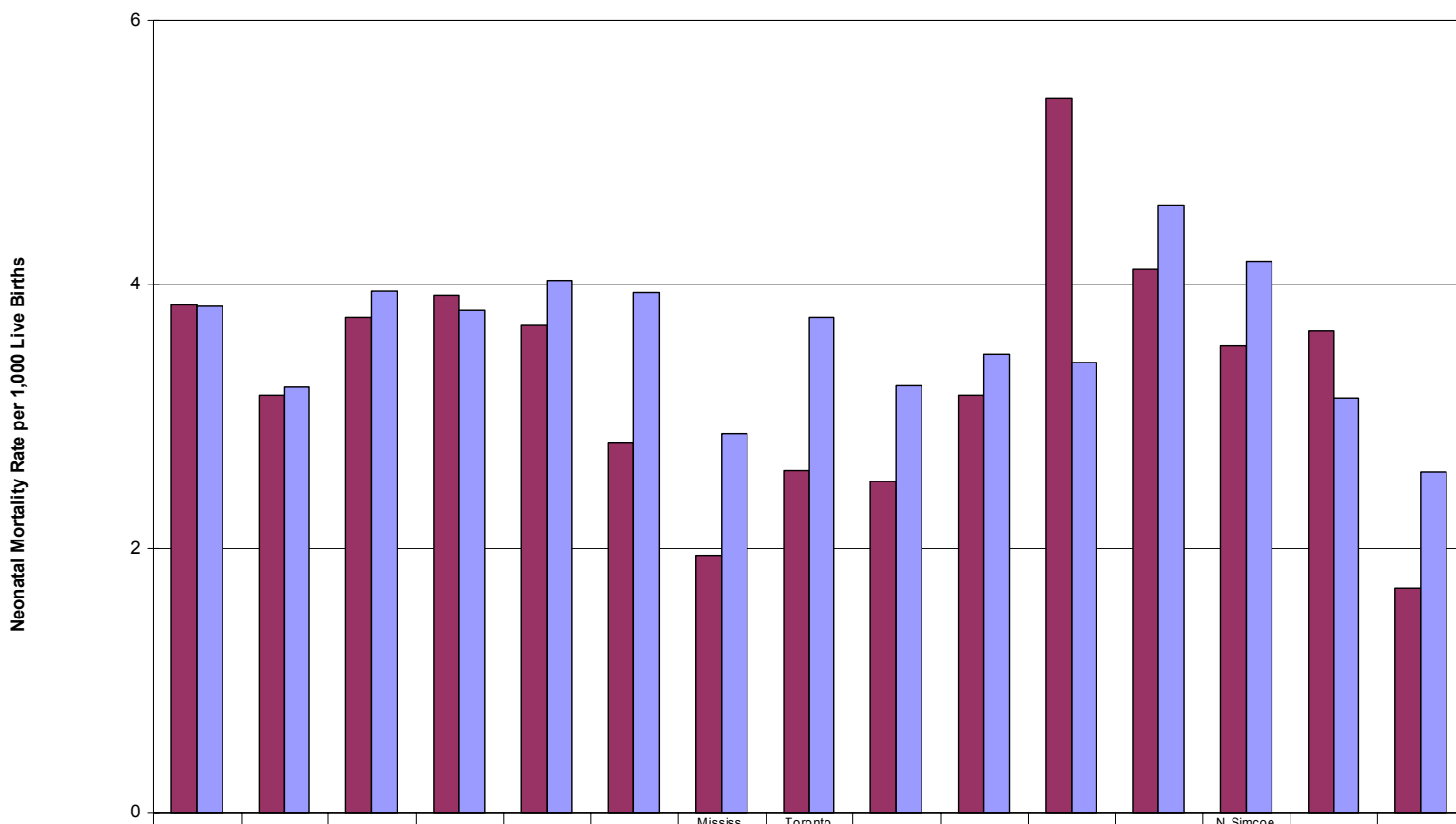
Infant Deaths

Infant mortality includes deaths of live born babies in the first year after birth. Neonatal deaths are those that occur in the first 28 days of life. Post neonatal deaths occur from 29 to 364 days of life.

From 1996 to 2001, there were fewer than 4 neonatal deaths per 1,000 live births. Ontario's rate of neonatal death was about the same as the Canadian average, which was 3.9/1,000 in 2002⁶. From 1999 to 2001, the highest rate of neonatal mortality occurred among infants born to mothers in Champlain LHIN (4.6/1,000); the lowest rate occurred among infants born to mothers in the North West LHIN (2.6/1,000).

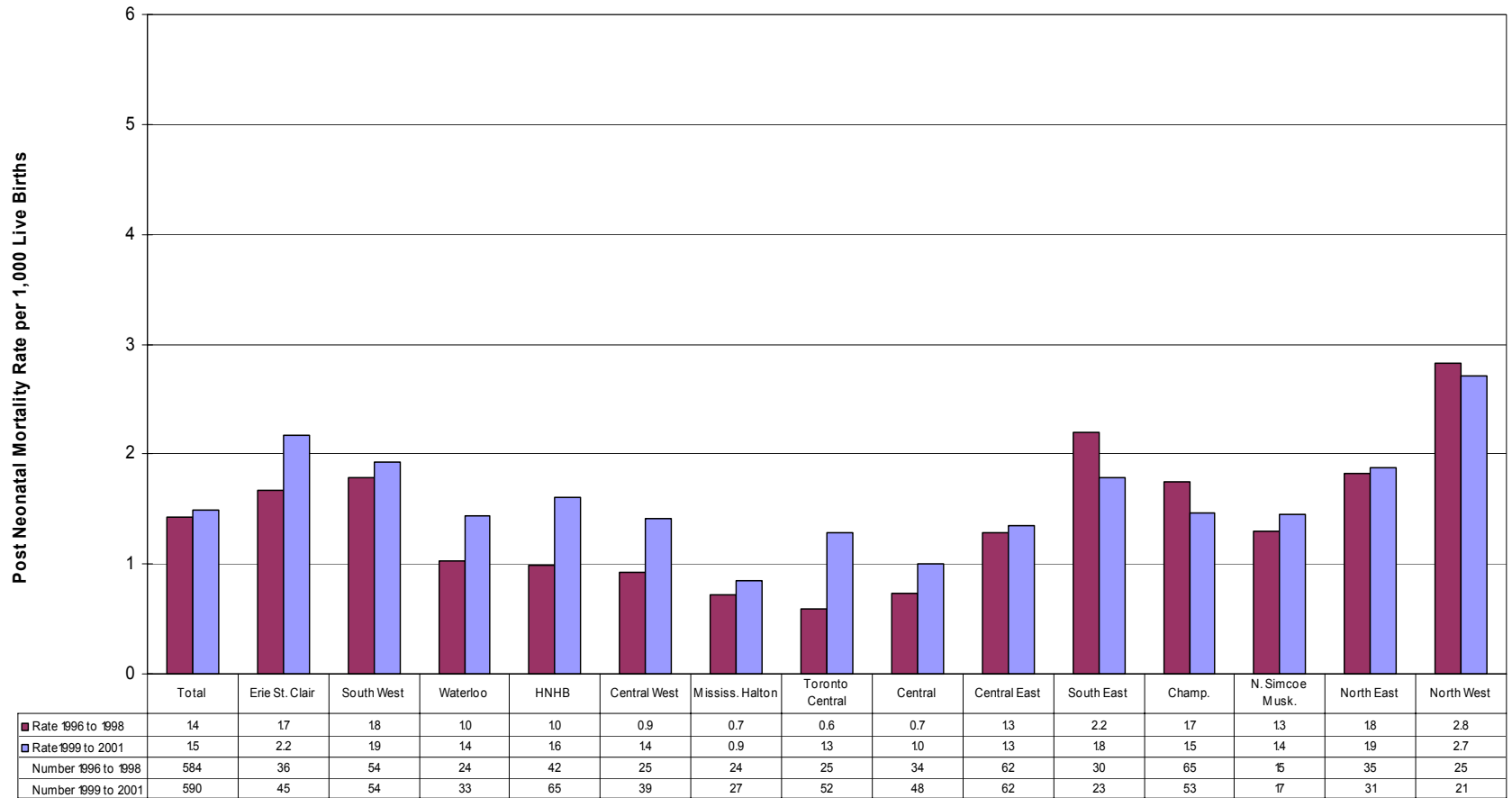
From 1999 to 2001, there were 1.5 post neonatal deaths per 1,000 live births. Ontario's rate was the same as that for Canada as a whole⁵. The highest rate of post neonatal deaths occurred among infants born to mothers in North West LHIN (2.7/1,000); the lowest rate occurred among infants born to mothers in the Mississauga Halton LHIN (0.9/1,000).

**Neonatal Deaths 1996 to 1998 and 1999 to 2001
Ontario and LHINs**



Note: Infants born to mothers from out-of-province were excluded

**Post Neonatal Deaths 1996 to 1998 and 1999 to 2001
Ontario and LHINs**



Note: Infants born to mothers from out-of-province were excluded.

Neonatal Hospital Readmissions

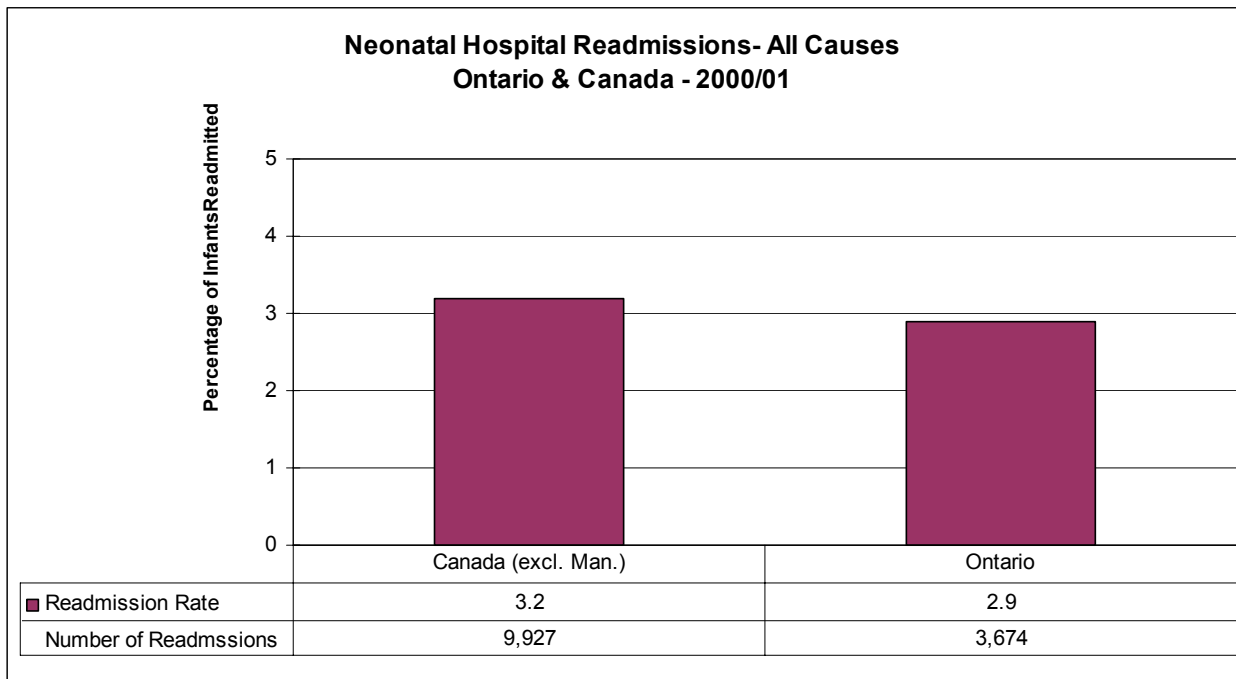
Neonatal hospital readmissions are defined as the number of newborns readmitted to hospital within 28 days of birth. The rate of neonatal hospital readmissions increased in Canada from 1991/92 to 2000/01. Health Canada has concluded that, while many factors contribute to neonatal readmission, the practice of early discharge of newborns without adequate application of guidelines may be responsible for these increases².

Newborn readmission rates have been used as an outcome to evaluate the quality of perinatal health care. They are related to the length of hospital stay following birth, and they are one measure of the impact of hospital maternal and infant discharge policies. In addition, they may reflect hospital, practitioner and community approaches to monitoring and treating neonatal jaundice, and initiation and support of infant feeding.

Health Canada, *Canadian Perinatal Health Report, 2003*, p 104.

In 2000/01, Ontario's rate of neonatal hospital readmissions (2.9/1,000) was slightly lower than that for Canada as a whole (excluding Manitoba 3.2/1,000).

Data about neonatal hospital readmissions were not available by LHIN. The data in the following chart are drawn Health Canada's *Canadian Perinatal Health Report 2003*².



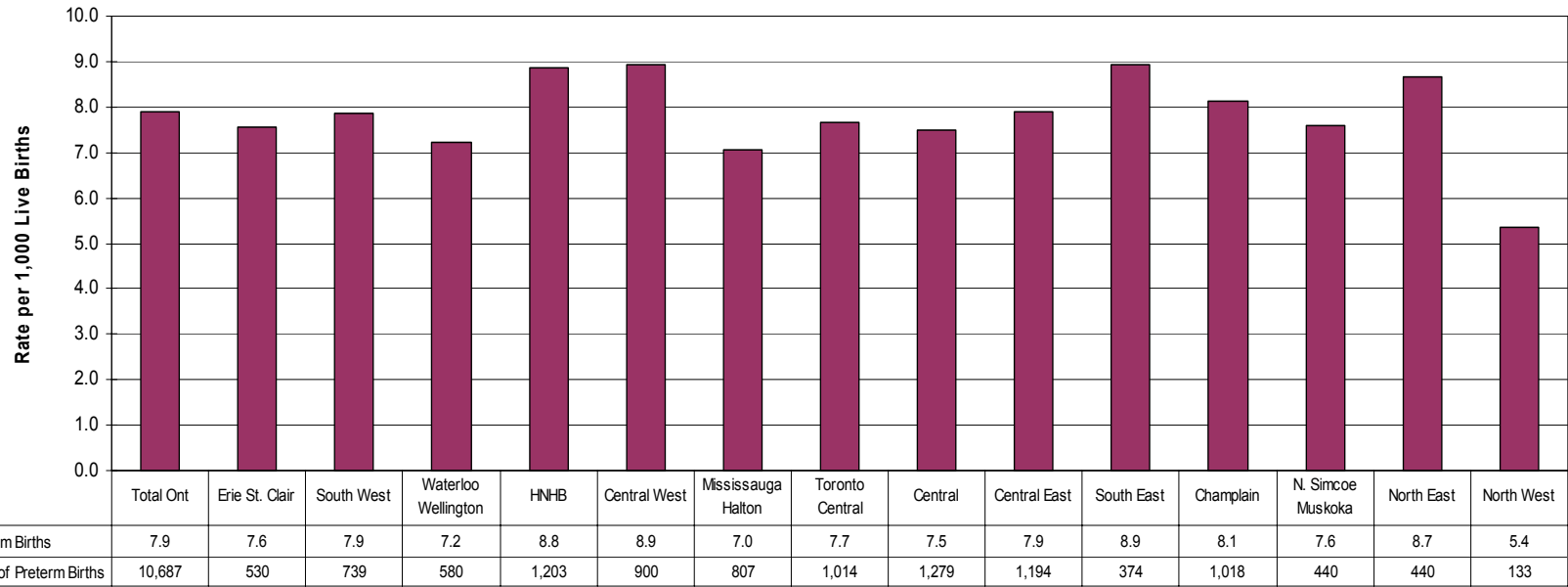
Preterm Births

Preterm birth (live birth at less than 37 weeks' gestation) is the single most important cause of perinatal mortality and morbidity in industrialized countries. The deaths of 60% to 80% of infants without congenital anomalies are related to preterm birth².

From 1991 to 2000, the rate of preterm births in Canada (excluding Ontario) increased from 6.6% of live births to 7.6%. During this same time Ontario's preterm birth rate increased from 6.7% to 7.3%. Some of the potential reasons for this increase include increases in obstetric intervention, changes in the frequency and gestational age of multiple births, greater likelihood of extremely early-gestation births (20-27 weeks) being registered as live births, and increases in the use of ultrasound-based estimates of gestational age².

In 2003/04, Ontario's preterm birth rate was 7.9%. Infants born to women living in North West LHIN were least likely to be born preterm (5.4%); those living in Central West and South East LHINs were most likely (8.9%).

**Preterm Births (Gestational Age Less Than 37 Weeks)
Ontario & LHINs (of Maternal Residence) 2003**



Infants born to women whose postal codes were not known have been excluded.

Infants Born Small for Gestational Age and Large for Gestational Age

Infants born small for gestational age (SGA) are those whose birth weight is below the standard 10th percentile of birth weight for gestational age expressed as a proportion of all live births (in a given place and time). This replaces the older measure “low birthweight”.

Infants born large for gestational age (LGA) are those whose birth weight is above the standard 90th percentile of birth weight for gestational age expressed as a proportion of all live births (in a given place and time). This replaces the older measure “high birthweight”.

Both SGA and LGA are associated with increased infant morbidity and mortality. LGA is also associated with increased maternal morbidity.

From 1991 to 2000, the SGA rate for live singleton births in Canada (excluding Ontario) decreased from 10.7% to 7.9%. Ontario’s rate decreased from 11.5% to 8.5%.

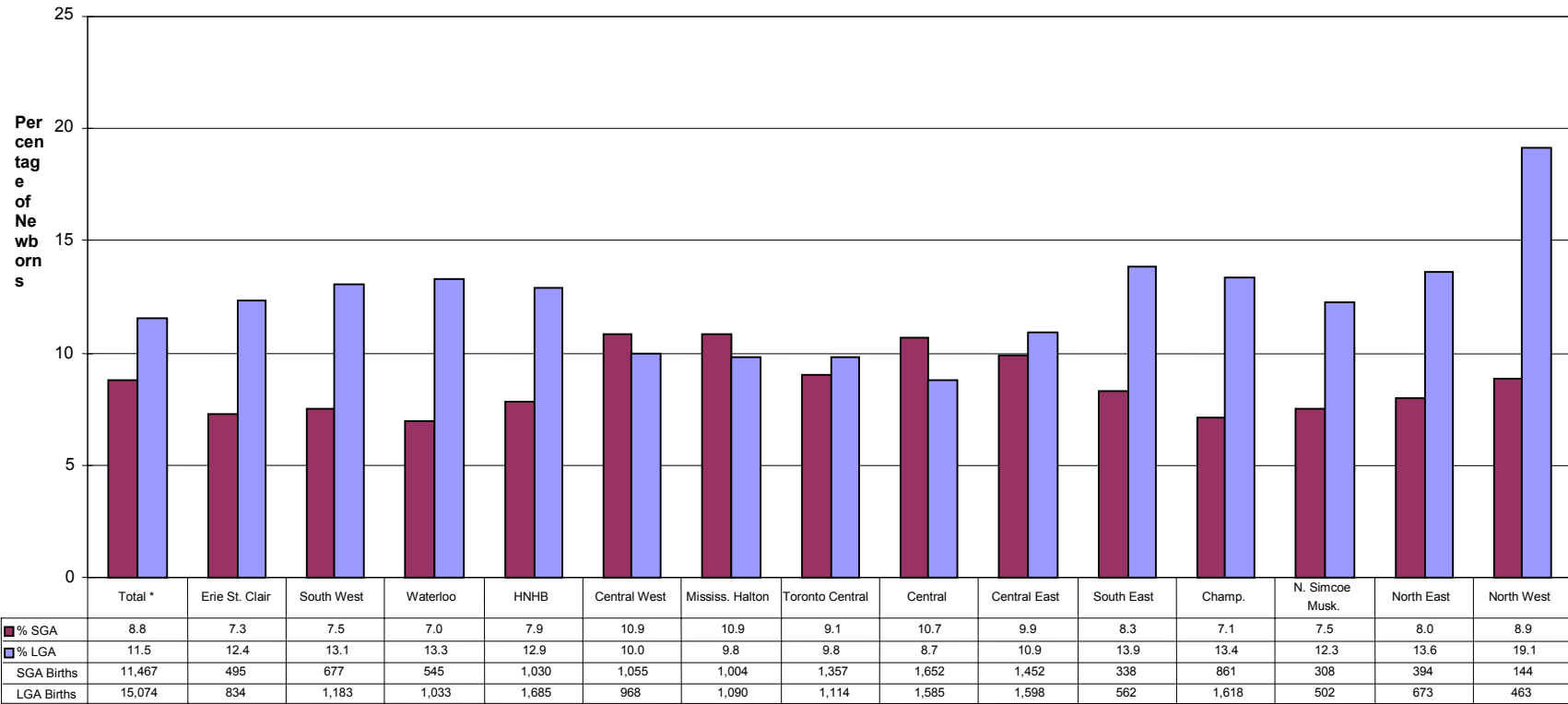
From 1991 to 2000, the LGA rate for live singleton births in Canada (excluding Ontario) increased from 9.5% to 12.0%. Ontario’s rate increased from 10.1% to 12.7%.

In 2003/04, 8.8% of infants were born SGA. Infants born to mothers living in Central West and Mississauga Halton LHINs were most likely to be born SGA (10.9%); those born to mothers in Waterloo LHIN were least likely to be born SGA (7.0%).

In 2003/04, 11.5% of infants were born LGA. Infants born to mothers living in North West LHIN were most likely to be born LGA (19.1%); those born to mothers living in Central LHIN were least likely to be born LGA (8.7%).

In the following chart, those newborns who were from out of province and those whose postal codes were not known were excluded from this table. Only singleton live births were included. Cases in which sex, gestational age or weight were unknown or gestational age < 22 weeks or > 43 weeks were excluded

**Small for Gestational Age (SGA) and Large for Gestational Age (LGA) Births
Ontario and LHINs - 2003**



Notes:

Total births include 178 SGA newborns and 150 LGA newborns who could not be assigned to a LHIN because of missing information.

Records in which gestational age, sex or weight were missing were excluded.

This includes in-province births only. In 2003-04, 202 North Western Ontario women gave birth in Manitoba.

Intrapartum Care Providers

In 2003/04, of the women who gave birth in hospital, 82% were cared for by Obstetricians, 14% by Family Physicians and 3% by Midwives. Note that where care was transferred (for example, from a midwife to an Obstetrician), then the person to whom care was transferred is counted as the responsible provider.

Ontario data, consistent with those from other provinces, show that fewer Family Physicians now provide intrapartum care. In 2001/02, 812 of 10,385 (7.8%) Ontario Family Physicians billed OHIP for attending more than one birth. By 2003/04, although the number of Family Physicians had increased to 10,615, only 731 (6.9%) billed OHIP for attending more than one birth.

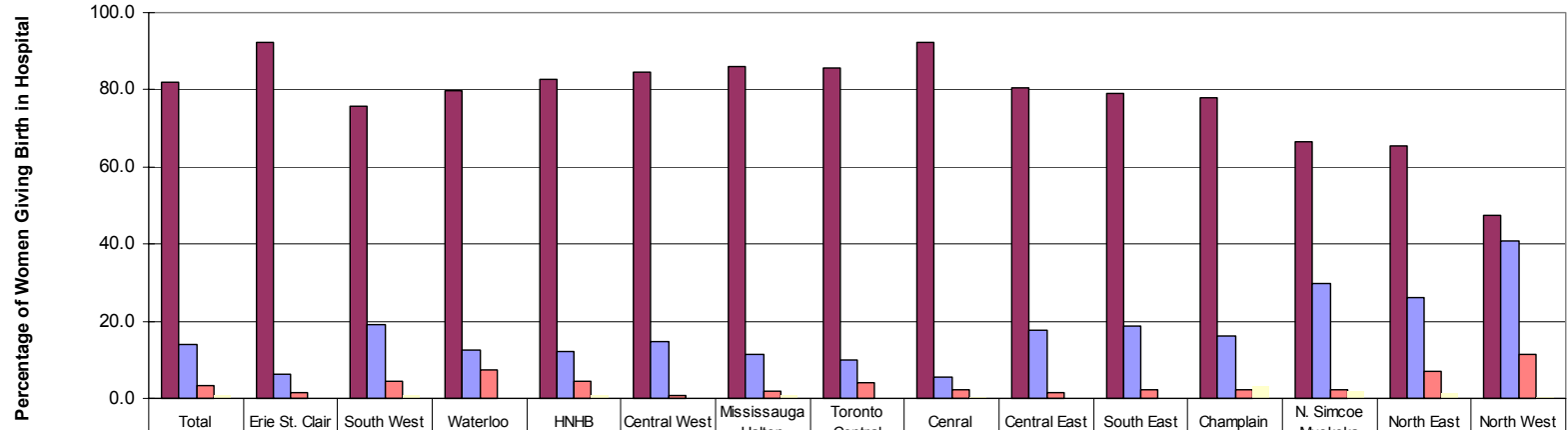
Percentage of Family Physicians Providing Intrapartum Care			
	2001/02	2002/03	2003/04
Total	7.8	7.4	6.9
Erie St. Clair	6.0	4.2	3.9
South West	13.8	12.4	11.0
Waterloo Wellington	7.6	7.1	6.5
HBHB	8.6	7.8	7.2
Central West	12.2	10.6	10.0
Mississauga Halton	4.6	4.0	4.0
Toronto Central	4.7	4.6	4.7
Central	3.6	3.3	2.9
Central East	8.1	7.5	6.6
South East	6.2	6.3	5.9
Champlain	5.2	5.3	4.9
N. Simcoe Muskoka	19.6	20.1	17.7
North East	11.7	11.2	10.9
North West	20.5	21.3	22.8

From 2001/02 to 2003/04, the percentage of Obstetrician/Gynaecologists who provided intrapartum care increased from 71.5% to 73.1%. The number of Obstetrician/Gynaecologists in Ontario also increased during this time, from 662 to 676.

Percentage of Obstetrician/Gynaecologists Providing
Intrapartum Care

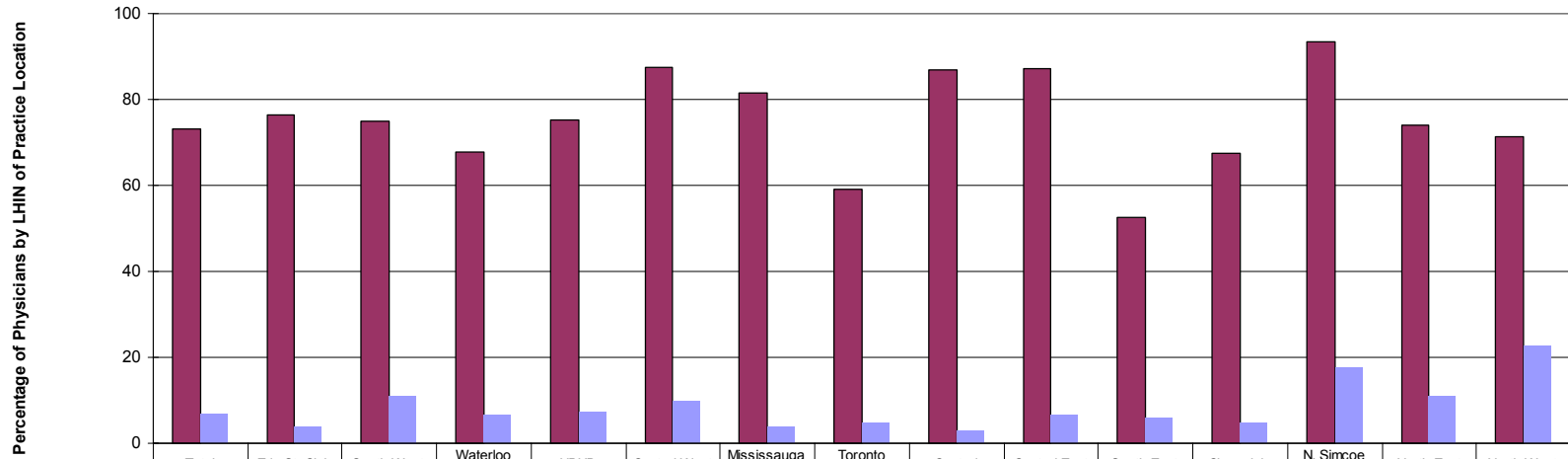
	2001/02	2002/03	2003/04
Total	71.5%	72.9%	73.1%
Erie St. Clair	75.9%	80.6%	76.5%
South West	73.9%	76.1%	75.0%
Waterloo Wellington	65.6%	63.6%	67.6%
HBHB	72.6%	73.9%	75.4%
Central West	87.0%	83.3%	87.5%
Mississauga Halton	80.6%	85.3%	81.6%
Toronto Central	56.6%	54.4%	59.2%
Central	86.8%	84.7%	86.8%
Central East	90.6%	88.9%	87.3%
South East	58.8%	64.7%	52.6%
Champlain	61.4%	69.8%	67.4%
N. Simcoe Muskoka	92.3%	92.9%	93.3%
North East	70.8%	78.3%	73.9%
North West	66.7%	75.0%	71.4%

**Who Attended Women Giving Birth in Hospitals
Ontario and LHINs 2003/04**



# Women - Obs.	110,285	6,070	7,265	5,947	11,092	6,357	9,966	16,087	15,653	10,961	3,202	10,561	2,744	3,215	1,165
# Women - FPs	18,978	418	1,850	935	1,648	1,108	1,315	1,871	930	2,408	765	2,216	1,222	1,287	1,005
# Women - Midwives	4,428	87	426	560	601	50	222	786	371	213	85	321	88	335	283
# Women - Other	937	1	67	6	97	3	89	13	36	16	3	452	72	75	7

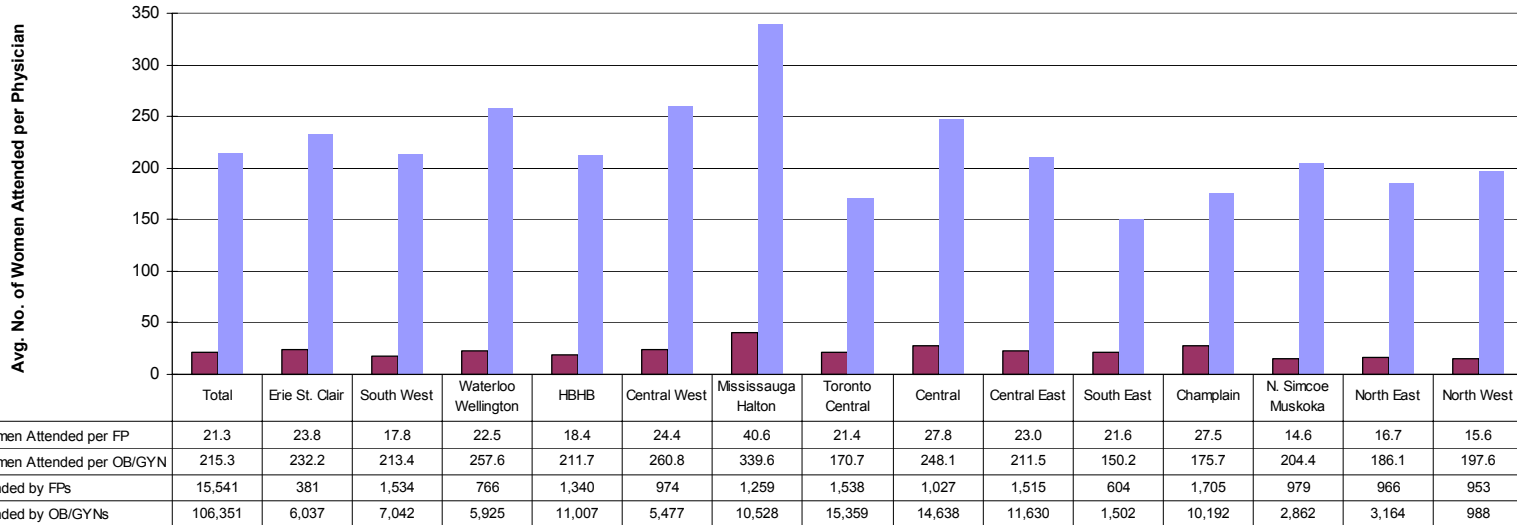
**Ontario Obstetricians/Gynaecologists & Family Physicians Billing for Intrapartum Care*
Ontario & LHINs 2003**



	Total	Erie St. Clair	South West	Waterloo Wellington	HBHB	Central West	Mississauga Halton	Toronto Central	Central	Central East	South East	Champlain	N. Simcoe Muskoka	North East	North West
# OB/GYN Intrapartum Care	494	26	33	23	52	21	31	90	59	55	10	58	14	17	5
# FP/GP Intrapartum Care	731	16	86	34	73	40	31	72	37	66	28	62	67	58	61

Note: Only physicians who billed for more than one delivery are included.

**Ontario Obstetricians/Gynaecologists & Family Physicians
Average & Total Numbers of Birthing Women Attended
Ontario & LHINs 2003/04**



Note: Only physicians who billed for more than one delivery are included

Endnotes

¹ Statistics Canada (2005). *Births 2003*. Catalogue No. 84F0210.

² Health Canada (2003) *Canadian Perinatal Health Report, 2003*.
Ottawa: Minister of Public Works and Government Services Canada, 2003.

³ Canadian Institute for Health Information (2004). *Giving Birth in Canada: A Regional Profile*

⁴ Ontario Women's Health Council (2000). *Attaining and Maintaining Best Practices in the Use of Caesarean Sections: An Analysis of Four Ontario Hospitals*

⁵ Canadian Institute for Health Information (2006) *Giving Birth in Canada – The Costs*

⁶ Statistics Canada (2004). *Deaths 2002* Catalogue No. 84F0211 Vol. 2002 No. 0