

Barrie

15 Sperling Drive
Barrie, Ontario

Phone: (705) 721-7520

Fax: (705) 721-1495

www.simcoemuskokahealth.org

EXCESS GESTATIONAL WEIGHT GAIN IN SIMCOE MUSKOKA - EXECUTIVE SUMMARY ONLY

An Examination of the Issue Using a Population
Health Perspective

Literature Review

Prepared by:

Becky Blair, RD, MSc, Public Health Nutritionist
Jennifer Hutcheson, RN, BScN
Martha Lamon, MA, BScN

Reproductive Health Program
Family Health Service

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EXECUTIVE SUMMARY

Excess gestational weight gain (GWG) is a modifiable risk factor associated with caesarean section rates, postpartum weight retention, large for gestational age (LGA), macrosomia and pre-term birth.⁽¹⁾ In light of new research, increasing rates of overweight and obesity in our society since the 1990 guidelines⁽²⁾ were released, and the contribution of excess GWG on this trend, the Institute of Medicine (IOM) released an updated report *Weight Gain During Pregnancy: Re-examining the Guidelines (2009)*.⁽¹⁾ Later in 2009, Health Canada (HC)⁽³⁾ adopted the recommendations contained in the IOM report. In this narrative review, the authors apply Canadian and local statistics and research to the findings of the IOM report.

The Canadian Community Health Survey (CCHS) indicates that in 2011, 44.8% (42.9%, 46.8%) of women 18 years and older living in Ontario were either overweight or obese and that since 2003, the rate of obesity has been increasing.⁽⁴⁾

In 2009/2010, 46.6% (37.8%, 55.5%) of Simcoe Muskoka women of reproductive age (age 15-44) self-reported that they were either overweight or obese.⁽⁵⁾ Considering the average age of first time mothers is 27 years, and the average age of all mothers is 29 years,⁽⁶⁾ it is reasonable to estimate that nearly half of all local women may now be entering pregnancy as either overweight or obese.

In addition to this, a large proportion of pregnant women gain in excess of GWG recommendations. According to the Public Health Agency of Canada, 68% of women with a Body Mass Index (BMI) classified as overweight pre-pregnancy and 60% of women with a BMI classified as obese (60%)⁽⁷⁾ were more likely to exceed their GWG recommendation. Forty-one percent (41%) of women who had a BMI classified as normal weight pre-pregnancy also gained more than is recommended.⁽⁷⁾ Women who retain the excess weight gained during pregnancy enter a subsequent pregnancy at an increased BMI which then increases their risk of pregnancy and birth complications.⁽⁸⁾ Postpartum weight retention may also contribute to the trend of women becoming heavier as they age. As a result of their increasing body mass index, their risk of developing a chronic disease may also increase.⁽⁹⁾

In Simcoe County and the District of Muskoka, the rates of several birth outcomes associated with excess GWG have changed over time. From 1986 to 2009, there has been a significant increase in the proportion of large for gestational age (LGA) infants (1986-8.9%; 2009-11.8%) while the proportion of small for gestational age (SGA) infants has significantly decreased (1986-13.3%; 2009-7.4%).^(6;10) Experts have differing opinions on why these trends are occurring and whether maternal diet is a factor. There has also been a significant increase in the proportion of pre-term births (1986-5.2%; 2009-7.4%)⁽¹¹⁾ while the Caesarean delivery rate has remained stable (2003-28.6%; 2011-29.9%).⁽¹⁰⁾

The determinants of health are the social, cultural and environmental factors or conditions that impact health outcomes, including those associated with excess GWG during pregnancy.⁽¹²⁾ For example, women living in urban areas are usually leaner than their rural counterparts; they are also more likely to eat more vegetables and fruit and be physically active, all of which are associated with healthy weights. Women who are experiencing food insecurity may preferentially choose high calorie (high fat) foods to ward off hunger⁽¹³⁾ and Aboriginal women are much more likely to be obese as well as to have a low quality diet, compared to non-Aboriginal women.⁽¹⁴⁾

Recent literature has demonstrated that women of low income and education are more likely to enter pregnancy as obese.⁽¹⁵⁾

In addition, certain characteristics of the built environment such as safe neighborhoods with walking trails, parks, sidewalks⁽¹⁶⁾, supermarkets⁽¹⁷⁾ and few fast food outlets,^(18;19) have been shown to support healthy weights overall as well as healthy GWG during pregnancy.

Factors that may contribute to excess GWG are evident for Canadian women. Sixty percent of women aged 19-30 and 55% women aged 31-50 ate fewer than the 5 servings per day of vegetables and fruit recommended by Eating Well with Canada's Food Guide (2007), and 28% of women 31-50 years eat more fat per day than recommended.⁽²⁰⁾ Overweight and obese women tend to have lower quality diets than women of normal weight. A history of dieting may also increase the risk of gaining more weight than is recommended.⁽²¹⁻²³⁾

The physical fitness level of women of reproductive age is also of concern. The recent Canadian Health Measures Survey identified that 55% of women 20-39 years had trouble reaching their toes from a sitting position and one third of women in the same age group could not do one partial curl-up.⁽²⁴⁾

Canadian Gestational Weight Gain Recommendations ⁽³⁾

Pre-pregnancy BMI	Mean Weight Gain Rate in the 2 nd and 3 rd trimester		Total Weight Gain		Twin Pregnancy
	Rate in kg	Rate in lbs	Range in kg	Range in lbs	Recommended Weight Gain Ranges
underweight <18.5	0.5	1.0	12.5-18	28-40	Insufficient data
normal weight 18.5-24.9	0.4	1.0	11.5-16	25-35	17-25kg/37-54 lbs
overweight 25.0-29.9	0.3	0.6	7-11.5	15-25	14-23 kg/31-50 lbs
obese ≥30.0	0.2	0.5	5-9	11-20	11-19 kg/25-42 lbs

*Calculations assume a 0.5-2 kg (1.1-4.4 lbs) weight gain in the first trimester³

These guidelines now include a recommended *rate* of weight gain by pre-pregnancy BMI, a specific recommended *range* of weight gain for those with a BMI ≥ 30, and a recommendation for women carrying twins. Caesarean section rates, pre-term births, LGA, macrosomia and postpartum weight retention are all moderately or strongly associated with excess GWG. Pre-pregnancy BMI was highly correlated with all of these outcomes except post-partum weight retention, which was independently associated with GWG.

Evidence related to the role of excess GWG in the development of childhood obesity is emerging. Recent research has shown an association between excess GWG and increased adiposity and BMI in the offspring that lasts into adulthood.⁽²⁵⁾

Given that a large proportion of women enter pregnancy as either overweight or obese⁽²⁾ and many Ontario women go on to gain in excess of their recommended weight gain range during pregnancy⁽⁷⁾ a radical change in prenatal care is proposed (IOM, 2009).⁽¹⁾ Information provided by health professionals can influence the actual amount of weight women gain during pregnancy⁽²⁶⁻²⁹⁾, and therefore the IOM recommends preconception counseling for overweight and obese women, and prenatal and postnatal counseling for *all* women, to encourage healthy GWG and appropriate postpartum weight loss.⁽¹⁾

Furthermore, in addition to implementing the new GWG recommendations, the determinants of health impacting GWG must be addressed in order to improve health outcomes for women and their children. Unfortunately, barriers such as low literacy and the urgency of more pressing medical or psychosocial issues that disproportionately affect “at risk” populations may interfere with the capacity of practitioners to address the issue of weight gain during pregnancy.

There are conflicting results regarding the effectiveness of dietary and physical activity interventions in decreasing GWG. Nevertheless, antenatal care providers need to be supported to inform pregnant women of their recommended GWG range and rate as well as about healthy eating and active living during pregnancy to enable women to gain within their recommended GWG range. Training in motivational interviewing⁽³⁰⁾ may be especially beneficial to prenatal health care providers. The use of GWG plotting tools to track women’s patterns of weight gain during pregnancy is considered by the IOM a key element in supportive discussions between health care providers and pregnant women.⁽¹⁾ Other than the opinion of the IOM committee and Health Canada⁽³¹⁾, there is currently no evidence that weight gain plotting is effective in promoting healthy weights during pregnancy.

Clearly, more evidence is needed to determine the effectiveness of population-level intervention programs promoting healthy GWG. Therefore, any intervention strategy developed to address excess GWG should be rigorously evaluated.

For references, please refer to full report.