Pregnancy and Postpartum are common times for weight gain in women that can have lasting impacts on health. Promoting healthy weight gain during pregnancy is important not only for the development of a healthy baby, but for the health of the mother as well. Excess weight gained during pregnancy can be very hard to lose and permanently keep off. This module includes strategies to help mothers-to-be to stay on track, to assess weight gain based on BMI, and to assist patients in addressing drivers and barriers to maintaining a healthy weight during pregnancy.

This session’s speaker is Dr. Rhonda Bell, a professor at the University of Alberta. She currently works for ENRICH which is aimed at improving maternal health during pregnancy and postpartum using innovative strategies that meet the needs of diverse groups of women across Alberta.

The 5As of pregnancy is available as a tool kit on the Obesity Canada website http://www.obesitynetwork.ca/pregnancy

This module contains:

- A link to the video on pregnancy, postpartum, and obesity
  - http://www.youtube.com/watch?v=19SwtFBsV_c

- A PowerPoint presentation (page 2-11) that covers the following topics:
  - The long term effects of maternal nutrition during pregnancy on both mother and child
  - Historical perspectives on weight during pregnancy
  - Facts on gestational weight gain guidelines, adherence to those guidelines, and consequences of excess weight gain.
  - A review of dietary recommendations

- A discussion guide for further reflection (page 12)
- A resource list for additional information (page 13-14)
PROMOTING HEALTH WEIGHTS IN PREGNANCY THROUGH HEALTHY EATING: IMPLEMENTING RECOMMENDATIONS

Rhonda Bell, PhD
Professor
Dept of Agricultural, Food and Nut Science
University of Alberta

Learning Objectives

- Understand that excess gestational weight gain is an independent and modifiable risk factor for adverse outcomes in pregnancy
- Summarize Health Canada recommendations for weight gain and dietary intake in pregnancy
  - Adherence is both are problematic
- Identify key features of programs that support women eating well in pregnancy
  - Weight gain is an outcome, not a behavior
- Discuss practical strategies for women and HCP that promote healthy eating and appropriate weight gain

Discussion Questions

- What practical advice, strategies or other supports help women achieve a healthy weight and healthy diet in pregnancy?
- Who are the health professionals to best support women in choosing a healthy diet in pregnancy and how can this be done?
- What supports do health professionals need in order to accomplish this?
- What about the postpartum period?
  - How could healthy weights and healthy eating be promoted for women?
GESTATIONAL WEIGHT GAIN AND PREGNANCY OUTCOMES

Maternal Nutrition in Pregnancy: Effects on Long-term Mother and Child Health

Body Weight is Widely Used as an Indicator of a Healthy Pregnancy

Historical Perspective of Weight Gain Recommendations in Pregnancy
- Before 1990
  - Gain ≥12 kg (≥26 lbs) – similar recommendation for all women.

- 1990 – 2010
  - Avoid low weight gain
  - Prevent low birth weight and small-for-gestational age
  - Weight gain recommendations guided by pre-pregnancy BMI
  - Current BMI classifications had not been determined

- After 2010
  - Gain weight within a recommended range
  - Range depends on currently defined BMI classifications
  - Gain weight at a recommended rate

Health Canada
Gestational Weight Gain Guidelines

<table>
<thead>
<tr>
<th>Pre-pregnancy BMI</th>
<th>Total Weight Gain (kg)</th>
<th>Weekly Weight Gain during 2nd and 3rd trimester (kg/wk)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>12.5 - 18</td>
<td>0.44 - 0.58</td>
</tr>
<tr>
<td>Normal</td>
<td>11.5 - 16</td>
<td>0.36 - 0.50</td>
</tr>
<tr>
<td>Overweight</td>
<td>7 - 11.5</td>
<td>0.23 - 0.33</td>
</tr>
<tr>
<td>Obese</td>
<td>5 - 9</td>
<td>0.17 - 0.27</td>
</tr>
</tbody>
</table>

Adapted from Health Canada. Gestational Weight Gain Recommendations 2010

Adherence to Weight Gain Guidelines by Women Participating in APRoN

Prevalence %

- Underweight
- Normal
- Overweight
- Obese
- Total

Pre-pregnancy BMI (kg/m2)
- Below
- Met
- Above

Regan et al 2012
Consequences of Gaining Excess Weight in Pregnancy

Additional Consequences of Excess Gestational Weight Gain
- Pre-eclampsia
- Impaired fetal development
- Emergency c-section
- Postpartum Weight retention

Postpartum Weight Retention by Women in APrON Study

<table>
<thead>
<tr>
<th>Gestational Weight Gain</th>
<th>n (%)</th>
<th>Kilograms (mean ± SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below</td>
<td>57 (12.1)</td>
<td>0.7 ± 2.6*</td>
</tr>
<tr>
<td>Met</td>
<td>148 (31.5)</td>
<td>3.3 ± 3.3</td>
</tr>
<tr>
<td>Above</td>
<td>265 (56.4)</td>
<td>5.9 ± 5.1*</td>
</tr>
</tbody>
</table>

*p<0.01, different from ideal 12 weeks postpartum

"Reproduction" is an independent risk factor for obesity-related chronic diseases in females

Begum et al. 2012
DIETARY RECOMMENDATIONS AND WOMEN'S INTAKE IN PREGNANCY

Canada’s Food Guide/Public Health Agency of Canada: Recommendations for Pregnancy

- Extra 2 - 3 Food Guide servings from any food group
  - Threaddles 2 and 3 only
  - Fruit and vegetables, grains, milk and alternatives, meat and alternatives
  - E.g. 1 piece of fruit + 1/8 c of yogurt; 1 piece of toast + 1 cup of milk
- Continued intake of cooked fish (150 g/week)
- Consume adequate calcium and vitamin D
- Increase iron and folate acid intake
  - Supplements are often recommended
- Limit caffeine to <300 mg/day
- Eliminate alcohol intake
- Avoid eating foods associated with food-borne illnesses
  - Undercooked or raw fish and meat; raw eggs; raw sprouts; unpasteurized products

Proportion of Women Meeting Dietary Recommendations with Food

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Meeting Before Pregnancy (%)</th>
<th>Meeting During Pregnancy (%)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada's Food Guide</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vegetables and Fruit (7-01)</td>
<td>12</td>
<td>21</td>
<td>0.001</td>
</tr>
<tr>
<td>Milk and Alternates (202)</td>
<td>23</td>
<td>48</td>
<td>0.001</td>
</tr>
<tr>
<td>Meat and Alternates (292)</td>
<td>16</td>
<td>21</td>
<td>0.182</td>
</tr>
<tr>
<td>Cooked Fish</td>
<td>15</td>
<td>11</td>
<td>0.001</td>
</tr>
<tr>
<td>Iron</td>
<td>61</td>
<td>33</td>
<td>0.001</td>
</tr>
<tr>
<td>Folic acid</td>
<td>60</td>
<td>45</td>
<td>0.001</td>
</tr>
<tr>
<td>Limit caffeine</td>
<td>72</td>
<td>76</td>
<td>0.162</td>
</tr>
<tr>
<td>Avoid alcohol</td>
<td>N/A</td>
<td>60</td>
<td>N/A</td>
</tr>
</tbody>
</table>

N=276, No change in gain intake. 15% did not consume alcohol before pregnancy.
Recommendations: iron 15 mg/17 mg; folic acid 400 µg/600 µg

Graham et al, submitted, 2013
Poor Dietary Intake in Pregnancy Reflects Adjustments to Many Aspects of Life

Dietary changes to meet nutritional recommendations
- Physical symptoms of pregnancy
- Lifestyle adjustments
- Socio-cultural norms

ENRICH
Promoting Healthy Weights in Pregnancy and Postpartum through Healthy Dietary Intake

ENRICH
- To develop and evaluate universal and selected strategies that will help women achieve a healthy weight and healthy diet in pregnancy and postpartum
  - Universal Strategies
    - All women in Alberta
  - Selected Strategies
    - Diverse groups of vulnerable women in Alberta
Environmental Scan of Program "Elements" Supporting Appropriate Gestational Weight Gain

- Nutrition, physical activity, behaviour change strategies
  - Adapted for stage of pregnancy
- Begin early in pregnancy, <16 weeks gestation if possible
- Maternal motivation and ongoing support are essential
  - Continuity of care (same HCP) builds trust and rapport
- Healthy Weight Advisor/Health Mentor less intimidating titles
- Loss to follow up is a problem
  - Many interventions are too time consuming for busy lives

5As of Healthy Pregnancy Weight Gain

Adapted from the 5As of obesity management
Key Principles
- Discuss gestational weight gain with every woman who is pregnant or planning a pregnancy.
- Achieving healthy gestational weight gain is about improving mother AND baby's health and well-being.
- Early action means addressing root causes, barriers and emphasizing facilitators.
- Health beliefs about pregnancy-related can be powerful; understand cultural context.
- Goals are healthy behaviours (eating well, remaining physically active); weight gain is an outcome.

5As of Healthy Pregnancy Weight Gain
- ASK for permission to discuss weight.
  - Weight gain is healthy and expected in pregnancy.
  - Provide education about recommended amounts of weight gain.
- ASSESS potential root causes of guideline-discordant weight gain.
  - Weigh woman at every visit.
  - Use 4 Ms (mental, mechanical, metabolic, milieu) to assess drivers and barriers to guideline discordant weight gain.
- ADVISE on excess pregnancy weight gain risks and management options.
  - Behavioural strategies must be feasible, sustainable, influence mother and baby.

5As of Healthy Pregnancy Weight Gain
- AGREE on a realistic SMART plan to achieve health behaviour outcomes.
  - Focus on behavioural changes rather than weight targets.
  - If exceeded recommendations, meeting the recommended rates of weekly weight gain may be best goal.
- ASSIST in addressing drivers and barriers, offer education and resources, refer to provider and arrange follow-up.
  - Help women identify and seek out credible information and resources.
5As of Healthy Pregnancy Weight Gain

Project Goal:
To develop and test a resources that will help HCPs promote healthy weight gain and healthy eating in pregnant women.

Project Objectives:
1. Adapt 5As to promote healthy weight gain and healthy eating in pregnancy.
2. Evaluate how well the Pregnancy-Adapted 5As work for HCP and pregnant women.
3. Ask what HCPs and women think are the strengths, limitations, effectiveness and acceptability.

Methods
- Feedback from HCP
- RCT to examine the effects of the Pregnancy-Adapted 5As on women's body weight, dietary intake and diet quality vs. standard care.
- Interviews, focus groups, e-surveys with women and HCPs

Areas to Explore
- Identifying the workforce
  - Who best to assess and assist women (based on HCP feedback)
- Current strategies used to promote healthy weight gain and healthy eating
  - Challenges helping women achieve goals
  - Resources HCPs believe would help women enhance diet quality
- Self-efficacy in promoting healthy eating
  - Needs for screening, assessment, and feedback tools
- How and when HCPs would like access assessment tools
  - Need for feedback from assessments that could guide advice
- Perceived needs, gaps and opportunities to promote appropriate weight gain and healthy diets during pregnancy
Discussion Questions

- What practical advice, strategies or other supports help women achieve a healthy weight and healthy diet in pregnancy?
- How can health professionals best support women in choosing a healthy diet in pregnancy?
- What supports or strategies do health professionals need in order to accomplish this?
- What about the postpartum period? How could healthy weights and healthy eating be promoted for women?

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- ENRICH
- Linda McCargar, Paula Risten, Marie Mayeh, Ellen Taitt, Ann Marie McIntosh, other investigators
- APOIN
- Linda McCargar, Catherine Field, Berna Kaplan, Nicole Lebouma, other investigators

Questions?
Discussion guide

This is a guide for questions and topics to consider after viewing Dr. Bell’s video and slide show on the topic of Pregnancy and post-partum obesity.

1. Please take a moment on your own and consider what are the key messages you took from the speaker today (tips, messages, tools)?
   - Of those tools and tips – how do you see yourself applying it in your practice?
   - What practical advice, strategies or supports do you feel help women achieve a healthy weight and healthy diet in pregnancy?
   - How can health professionals best support women in choosing a healthy diet in pregnancy?
   - What supports or strategies do health professionals need in order to accomplish this?
   - What about the postpartum period? How could healthy weights and healthy eating be promoted for women?
   - Is there anything you found surprising during the talk?
   - Is there anything you would like to learn more about on this topic?
   - Do you know of any resources (written, websites, community programs) on this topic that would be helpful to other providers?

2. Goal Setting
   - Take a few moments of quiet time to come up with your own goal concerning a change you feel you can implement in your practice regarding pregnancy, post-partum and obesity.
   - Can you anticipate difficulties with achieving this goal?
   - Are you confident you can reach your goals?
Resources for patients

Nutrition

- Dietitians of Canada
  Reviews supplements and Canada Food Guidelines

- Health Canada
  Website dedicated to pregnancy information. This page provides overview of healthy weight gain guidelines, what foods to avoid and what to eat

Nutrition & Physical Activity

- SOGC: Healthy Eating, Exercise and Weight Gain before and during pregnancy
  Touches on calculating BMI, recommending weight gain, obesity during pregnancy, meeting energy needs and tips on staying active during pregnancy

- H.E.A.L. for Pregnancy
  Healthy weight gain, sample menu plans, active living during pregnancy

Physical Activity

- Healthy Beginnings Excerpt
Resources for professionals

Nutrition & Physical Activity

- Alberta Health Services: Professional Reference
  Outlines recommended weight gain guidelines, activity and nutrition guidelines and FAQs

Physical Activity

- Sport Information Resource Centre (SIRC)
  Exercise and Pregnancy: Canadian Guidelines for Health Care Professionals; description of activity benefits and specific details on which exercises are safe and what to avoid
- PARMed-X
  PARmed-X for PREGNANCY is a guideline for health screening prior to participation in a prenatal fitness class or other exercise

Guidelines

- Alberta Health Services: Healthy Weight Gain
  Visual representation of healthy weight gain guidelines for professionals
- http://www.albertahealthservices.ca/ps-1029951-key-actions-hpwg.pdf
  Key actions/messaging when supporting women with healthy weight gains during pregnancy

Tools

- The 5As of Pregnancy: http://www.obesitynetwork.ca/pregnancy