Easy to implement interventions for obesity in pregnancy

Clinical Senate of Western Australia

UWA Club

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Professor Julie Quinlivan
50% of women presenting for antenatal care are overweight or obese.

Most don’t know the IOM guidelines for optimal weight gain in pregnancy.

Most never lose the excess weight they put on in pregnancy.

IOM Targets

BMI 18.5-24.9
11.5-16 kg

BMI 25-29.9
7-11.5 kg

BMI 30+
5-9 kg
Implications of obesity

Antenatal:
• Impaired fasting glucose and impaired glucose tolerance; and gestational diabetes1
• Miscarriage1, 5
• Stillbirth6, 7
• Pre-eclampsia1, 5
• Thromboembolism1
• Obstructive Sleep apnoea8
• Maternal death1
• Abnormalities in fetal growth and development9

Intrapartum:
• Induction of labour, prolonged labour and failure to progress10
• Rate of instrumental delivery, caesarean section and postpartum haemorrhage10-12
• Shoulder dystocia13
• Difficulties with fetal heart rate monitoring14
• Difficulties with labour analgesia1
• Use of general anaesthesia1

Anaesthetic risks:
• Difficulty with positioning
• Difficulty with correct catheter sitting within the epidural space, difficulty with spinal anaesthetic and increased risk of dislodgement
• Difficulty maintaining an adequate airway
• Increased risk of need for ICU care post operatively14

Post-partum:
• Delayed wound healing1, 5
• Increased rates of wound infection1, 15
• Greater likelihood of needing support with breastfeeding establishment and continuation16, 17
• Postnatal depression18
• Long term neonatal consequences: neonatal body composition, infant weight gain, obesity18

Pre-conception management

- Measure BMI and inform woman advise of increased pregnancy risk.
- Exercise
- Nutrition
  - Folate (NTD)
  - Iodine supplement
- Timing from bariatric surgery
- Depression
- Flu vaccine
Antenatal care

- Refer to appropriate facility.
- Document BMI at booking.
- Monitor weight gain and feedback against IOM standards at each visit.
- Nutritional supplements
  - Folate
  - Iodine
  - Vit D
- GTT 20 and 28 weeks.
- Anaesthetic assessment.
- Monitor for PET and IUGR.
- Exercise advice.
Postnatal care

- Thromboembolism prophylaxis
- Breastfeeding
- Refer back to primary care provider for ongoing weight management
Interventions trials

34 RCT (5481 women) evaluated interventions on GWG.

Overall 1.42kg reduction in GWG.

The largest reduction observed with dietary interventions (3.84 kg).

### Meta analysis – Impact upon maternal weight gain

<table>
<thead>
<tr>
<th>Outcome and intervention</th>
<th>No of studies</th>
<th>No of participants</th>
<th>Mean difference (95% CI)</th>
<th>P value</th>
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<tr>
<td>All</td>
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<td>5481</td>
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<td>&lt;0.001</td>
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## Meta analysis – Impact upon maternal weight gain

<table>
<thead>
<tr>
<th>Outcome and intervention</th>
<th>No of studies</th>
<th>No of participants</th>
<th>Relative risk (95% CI)</th>
<th>P value</th>
<th>I² (%)</th>
<th>RR</th>
<th>95% CI</th>
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<td>0.51</td>
<td>50</td>
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Dietary interventions trials

**Single intervention**

One hour visit with a dietician  
Guelinckx et al. (2010) Belgium

**Repeated intervention**

Ten visits dietician and food diary  
Wolff et al. (2008) Denmark

Food diary and feedback  
Thornton et al. (2009) USA

Weighing, continuity of care, feedback and psychologist  
Quinlivan et al, 2011 Australia
Meta analysis – Impact upon maternal weight gain

<table>
<thead>
<tr>
<th>Study</th>
<th>WMD (95% CI)</th>
<th>N, mean</th>
<th>N, mean</th>
<th>%</th>
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<tr>
<td>Wolff et al. (2008)</td>
<td>-6.70 (-10.27, -3.13)</td>
<td>23, 6.6 (5.5)</td>
<td>28, 13.3 (7.5)</td>
<td>9.36</td>
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<tr>
<td>Thornton et al. (2009)</td>
<td>-9.10 (-10.93, -7.27)</td>
<td>116, 6 (6.8)</td>
<td>116, 14.1 (7.4)</td>
<td>35.75</td>
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<td>Guelinckx et al. (2010)</td>
<td>-0.80 (-3.30, 1.70)</td>
<td>65, 9.8 (7.6)</td>
<td>65, 10.6 (6.9)</td>
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<td>Quinlivan et al. (2011)</td>
<td>-6.80 (-8.63, -4.97)</td>
<td>63, 7 (5.2)</td>
<td>61, 13.8 (5.2)</td>
<td>35.68</td>
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<tr>
<td>Overall (I-squared = 89.3%, p = 0.000)</td>
<td>-6.46 (-7.55, -5.37)</td>
<td>267</td>
<td>270</td>
<td>100.00</td>
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Key message

A diary with feedback at each antenatal visit is effective in reducing GWG.

The intervention is cheaper than current practice.
Consider

Recording of BMI at booking visit

and

Achieving GWG within IOL recommendations

as

KPIs for maternity care.