Weigh to a Healthy Pregnancy Regional Programme

Presented by
Janet Calvert, PHA
Health and Social Well-being Improvement Manager
&
Michelle Toland, RD
Clinical Lead Specialist Dietitian, BHSCT
Overview

- Background
- Risks and cost of Maternal Obesity
- Aims and Objectives
- Materials and methods
- Results
- Conclusions

Public Health Agency
Background

Weight to Healthy Pregnancy (WTHP) project was developed to address maternal obesity as part of the wider Public health obesity agenda in NI.

WTHP was initiated by PHA and designed in partnership with regional WTHP steering group which included significant PHA, HSCTs staff and QUB academia.

Inter-disciplinary service delivery commenced in all five HSCTs in 2013
## Body Mass Index (BMI), at time of booking, of mothers who gave birth in Northern Ireland, 2010/11 to 2014/15

<table>
<thead>
<tr>
<th>Year of birth</th>
<th>Obese I (30.00 - 34.99)</th>
<th>Obese II (35.00 - 39.99)</th>
<th>Obese III (&gt;=40.00)</th>
<th>Total Obese I, II and III</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010/11</td>
<td>n 2209</td>
<td>877</td>
<td>412</td>
<td>3,498</td>
</tr>
<tr>
<td>%</td>
<td>11.5%</td>
<td>4.6%</td>
<td>2.1%</td>
<td>18.2%</td>
</tr>
<tr>
<td>2011/12</td>
<td>n 2274</td>
<td>1,048</td>
<td>497</td>
<td>4,319</td>
</tr>
<tr>
<td>%</td>
<td>11.8%</td>
<td>4.5%</td>
<td>2.1%</td>
<td>18.4%</td>
</tr>
<tr>
<td>2012/13</td>
<td>n 3,003</td>
<td>1,126</td>
<td>553</td>
<td>4,682</td>
</tr>
<tr>
<td>%</td>
<td>12.4%</td>
<td>4.6%</td>
<td>2.3%</td>
<td>19.3%</td>
</tr>
<tr>
<td>2013/14</td>
<td>n 2,945</td>
<td>1,182</td>
<td>519</td>
<td>4,646</td>
</tr>
<tr>
<td>%</td>
<td>12.4%</td>
<td>5.0%</td>
<td>2.2%</td>
<td>19.6%</td>
</tr>
<tr>
<td>2014/15</td>
<td>n 2,954</td>
<td>1,221</td>
<td>579</td>
<td>4,754</td>
</tr>
<tr>
<td>%</td>
<td>12.4%</td>
<td>5.1%</td>
<td>2.4%</td>
<td>19.9%</td>
</tr>
</tbody>
</table>

Source: NIMATS
Maternal Obesity

- Obese pregnant women cost the NHS 37% more than their counterparts of a normal weight.

- In 2014/15, almost half (49.3%) of all mothers in NI at the time of booking, are considered pre-obese or obese.

- Almost 20% of all women in NI enter pregnancy as category Obese I, II and III.

- At highest risk are pregnant women with BMI ≥ 40kg/m2. This accounts for 2.4% of pregnancies in NI.
Risks of Maternal Obesity

**Maternal**
- Thrombosis – DVT, PE
- Gestational diabetes - Type 2
- Hypertension – pre-eclampsia
- Instrumental delivery – C/S
- Post partum haemorrhage
- Wound infection
- Maternal death

**Infant**
- Large baby >4kg x 2 risk
- Shoulder dystocia
- Prematurity
- Miscarriage
- Stillbirth
- Perinatal death
- Increased risk of childhood obesity
- Diabetes in later life

HSC Public Health Agency

*Improving Your Health and Wellbeing*
Obesity in pregnancy: a retrospective prevalence-based study on health service utilisation and costs on the NHS

**Results:** There was a strong association between healthcare usage cost and BMI, mean total costs were 23% higher among overweight and 37% higher among obese women compared with women with normal weight. The total mean cost estimates were £3546.30 for normal weight, £4244.40 for overweight and £4717.64 for obese women.

**Conclusions:** Increased health service usage and healthcare costs during pregnancy are associated with increasing maternal BMI; this was apparent across all health services considered within this study. Interventions costing less than £1171.34 per person could be cost-effective if they reduce healthcare usage among obese pregnant women to levels equivalent to that of normal weight women.

<table>
<thead>
<tr>
<th>HRG Label</th>
<th>£</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ante-Natal Routine Observation</td>
<td>831</td>
</tr>
<tr>
<td>Ante-Natal Complex Disorders</td>
<td>1,655</td>
</tr>
<tr>
<td>Ante-Natal Major Disorders</td>
<td>1,572</td>
</tr>
<tr>
<td>Ante-Natal Therapeutic Procedures, including Induction</td>
<td>1,176</td>
</tr>
<tr>
<td>Post-Natal Disorders</td>
<td>1,995</td>
</tr>
<tr>
<td>Post-Natal Therapeutic Procedures</td>
<td>1,897</td>
</tr>
<tr>
<td><strong>Normal Delivery Average</strong></td>
<td>2,063</td>
</tr>
<tr>
<td>Normal Delivery</td>
<td>1,751</td>
</tr>
<tr>
<td>Normal Delivery, with Epidural or Induction</td>
<td>2,403</td>
</tr>
<tr>
<td>Normal Delivery, with Epidural and Induction, or with Post-Partum Surgical Intervention</td>
<td>2,826</td>
</tr>
<tr>
<td>Normal Delivery, with Epidural or Induction, and with Post-Partum Surgical Intervention</td>
<td>2,800</td>
</tr>
<tr>
<td>Normal Delivery, with Epidural, Induction and Post-Partum Surgical Intervention</td>
<td>2,970</td>
</tr>
<tr>
<td><strong>Assisted Delivery Average</strong></td>
<td>3,079</td>
</tr>
<tr>
<td>Assisted Delivery</td>
<td>2,603</td>
</tr>
<tr>
<td>Assisted Delivery, with Epidural or Induction</td>
<td>3,104</td>
</tr>
<tr>
<td>Assisted Delivery, with Epidural and Induction, or with Post-Partum Surgical Intervention</td>
<td>3,593</td>
</tr>
<tr>
<td>Assisted Delivery, with Epidural or Induction, and with Post-Partum Surgical Intervention</td>
<td>3,371</td>
</tr>
<tr>
<td>Assisted Delivery, with Epidural, Induction and Post-Partum Surgical Intervention</td>
<td>3,762</td>
</tr>
<tr>
<td>Planned Caesarean Section</td>
<td>3,645</td>
</tr>
<tr>
<td><strong>Emergency Caesarean Section</strong></td>
<td>4,989</td>
</tr>
</tbody>
</table>

Source: NI 2014/15 Reference Costs
Aims and Objectives

The objectives of the WTHP programme were to:

- Support individuals in adopting healthy eating behaviours during pregnancy.
- Encourage individuals to achieve appropriate levels of physical activity during pregnancy.
- Facilitate sustained lifestyle changes post-natally.
- Promote breastfeeding.
- Encourage optimal gestation weight gain and post-partum weight loss.
## IOM recommendations for weight gain in pregnancy depending BMI

<table>
<thead>
<tr>
<th>BMI Category</th>
<th>Total Pregnancy Weight Gain</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.5 - 24.9 (healthy)</td>
<td>11.5 - 16 kg (25–35lbs)</td>
</tr>
<tr>
<td>25 - 29.9 (overweight)</td>
<td>7 - 11.5 kg (15- 25lbs)</td>
</tr>
<tr>
<td>30 + (very overweight)</td>
<td>5 - 9 kg (11-20lbs)</td>
</tr>
</tbody>
</table>
Making Healthy Lifestyle Changes

This is in keeping with NICE guidance which states that 'dieting during pregnancy is not recommended as it may harm the health of the unborn child' and it must be noted that the purpose of this intervention was to limit gestational weight gain and was not to achieve intentional weight loss in pregnancy.
# Eligibility Criteria

<table>
<thead>
<tr>
<th>Inclusion</th>
<th>Exclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI $&gt; 40$ at booking</td>
<td>BMI $&lt; 40$ at booking</td>
</tr>
<tr>
<td>Over 18 years old</td>
<td>Under 18 years old</td>
</tr>
<tr>
<td>Singleton pregnancy</td>
<td>Multiple Pregnancy</td>
</tr>
<tr>
<td>Hypertension</td>
<td>Severe psychiatric illness with active diagnosis and current treatment.</td>
</tr>
<tr>
<td>Gestational Diabetes</td>
<td>Previous SGA baby</td>
</tr>
<tr>
<td></td>
<td>Maternal cardiac condition e.g. CHD, valvular disease, heart failure, arrythmia</td>
</tr>
<tr>
<td></td>
<td>Not interested in participating</td>
</tr>
</tbody>
</table>
Materials and Methods

- Allocated hours for WTHP teams Dietitians, Midwives and Physiotherapists
- PHA provided specialist regional training to WTHP teams
- Women were identified for recruitment by their midwife at their first booking appointment or through the Northern Ireland Maternity System (NIMATs) and referred to local WTHP team.
- Follow up phone call from WTHP team and invited to attend first consultation with the team.
- Contacts a combination of face to face, telephone and small groups.
- Support materials and tele-health access
Components of programme

- Telehealth
- Tommy booklet
- Programme booklet
Remote Telemonitoring

The participants used Remote Telemonitoring NI (RTNI) regional service.

Used to monitor weekly weight readings

Patient led – time and day of monitoring chosen by patient – self monitoring.

Readings then access remotely by WTHP clinicians to inform ongoing care.
Evaluation Methods (UU)

University of Ulster evaluation involving:

- NIMATs data
- WTHP team data collection
- Qualitative feedback – women and teams
- Tele-health data
Results

- WTHP data was evaluated by University of Ulster (UU) in 2013/14.

- During evaluation period, 306 women agreed to participate. This demonstrates 80% uptake to the programme.

- Of 306 sample, 217 (71%) completed the programme.

- Average BMI 43.95 (SD 3.87)

- Average GWG was 4.65kg (Institute of Medicine(IOM) guidance for BMI≥40 is 5-9kg).
Results

- 53% within IOM
- 29% below IOM
- 18% over IOM

At 6-8 weeks post partum weight loss was 3.96kg compared to booking weight.

Higher breastfeeding rates at 6 weeks post partum, 23.8% of participants exclusively breastfed compared to 10.7% who did not participate in the WTHP programme.
Results

- Interviews one year after completing WTHP indicate positive lifestyle changes have been extended to include the wider family.
- Participants reported changes in usual shopping habits and changes in attitude towards weight gain in pregnancy.
- Self-monitoring with telehealth scales increased awareness of eating habits, making women more mindful and feeling a sense of control.
- Majority of women felt that the programme did help them limit their GWG.
I think the way the midwife approached me about it was very good, in a really non-judgemental way.

"My eating habits before I got pregnant were atrocious, I’d eat nothing all day and then eat at night. Now I eat breakfast, lunch, a snack through the day and then a small dinner."

"It helps me maintain the whole way through and I would say if I wasn’t on it I probably would have put on a lot more than I did."

"It keeps in the back of your mind to be conscious of what you’re eating and it wasn’t all about diet, it was about making me aware that I’m pregnant and I need to keep healthy."

"The team encouraged me that just because I was pregnant, didn’t mean I had to stop all exercise, to just continue and know your limits, so I kept exercising throughout pregnancy."

"The Dietitian talked about why I was overeating and that’s helped me now that the baby has been born. It was more to stop me snacking and be a bit more mindful about what I was eating which was most helpful."
Anticipated Economic and Social Return

- Potential for significant reduction in maternity care and neonatal care costs
- Future reduction in cost for chronic conditions (Maternal and Child)
- Creating a 'trickle down' effect of positive health messages to women and their families.
- Contributing to multiple public health priorities relevant to maternity, obesity and diabetes.
- Increased uptake of breastfeeding for obese women.
- WTHP contributing significantly to the HSCTs delivery targets for RTNI set by the PHA.
Conclusions

The UU team stated “evidence from evaluation was sufficient to confidently state that the intervention has the potential to impact positively on weight management for pregnant women with BMI≥40” (2015).

The project is an effective intervention to manage health risks, resulting in significant positive health outcomes for mother and child.