Diagnosing the Gestational Diabetes Mellitus Medical Nutrition Therapy evidence-practice gap: informing a project to translate guidelines into practice

Dr Shelley Wilkinson AdvAPD
NHMRC TRIP Fellow/Senior Research Dietitian – Maternal Health
Mater Health Services/Mater Medical Research Institute

Project team – Shelley Wilkinson, David McIntyre, Sally McCray, Mike Beckmann, Annette Parry, Sam Drew

1st Biennial Australian Implementation Conference – Melbourne 25-26 October 2012
The evidence practice gap
Perceived quality problem or emergence of new evidence

Assessment of influencing factors
Design of implementation strategies
Evidence-based
Informed by theory

Optimal care/Behaviour change
Explicitly evaluating your intervention using a theory-driven approach

The evidence-practice gap

Perceived quality problem or emergence of new evidence
GDM (Gestational Diabetes Mellitus)

**Negative maternal outcomes**
- caesarean sections
- assisted deliveries
- ↑ risk of T2DM (30-50%)

**Negative infant outcomes**
- macrosomia
- hypoglycaemia
- shoulder dystocia
- birth defects
- adult diabetes and obesity

T2DM (Type 2 Diabetes Mellitus)

Increased risk of:
- Heart disease
- Renal failure
- Blindness
- Amputations
- Birth defects

Decreased life expectancy by 15 years

$6 billion/year (direct & non direct costs)

Personal costs
Clinical costs costs
Health system costs
Public health costs

Better GDM control through improved diet therapy and BGLs

- Less medication use
- Fewer injections
- Improved QoL
- Patient satisfaction
- Better pregnancy outcomes
- Decreased weight retention
- Lower chronic disease incidence through improved follow up

American Dietetic Association Guidelines

<table>
<thead>
<tr>
<th>New Visit</th>
<th>Review Visits (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>1 postnatal visit</td>
<td></td>
</tr>
</tbody>
</table>

The evidence practice gap
Perceived quality problem or emergence of new evidence

Assessment of influencing factors
Design of implementation strategies
Evidence-based
Informed by theory

Optimal care/Behaviour change
Explicitly evaluating your intervention using a theory-driven approach

Assessment of influencing factors
Design of implementation strategies

Evidence-based
Informed by theory
Assessment of influencing factors

How?¹

1. Who needs to do what, differently?
2. Using a theoretical framework, which barriers and enablers need to be addressed?
3. Which intervention components (behaviour change techniques) and modes of delivery could overcome the modifiable barriers and enhance the enablers?
4. How can behaviour change be measured and understood?
Assessment of influencing factors

**How?**

1. *Who* needs to do *what*, differently?
2. Using a *theoretical framework*, which barriers and enablers need to be addressed?
3. Which intervention components (*behaviour change techniques*) and modes of delivery could overcome the modifiable barriers and enhance the enablers?
4. How can behaviour change be *measured* and *understood*?

**Where?** MMH GDM clinic

**Who?** Women with GDM

**Staff**
- Obstetricians
- Endocrinologists (ObsMed)
- Midwifery
- Diabetes Educator
- Dietitians

---

1. Determining *who* needs to do *what* differently?

Data sources:

- routinely collected hospital data,
- staff surveys,
- clinic observation and team discussion, and
- evidence from the literature and relevant reports. \(^3,6,7,8\)
1. Determining *who* needs to do *what* differently?: Barriers

- **Routinely collected hospital data**
  - Dietetic appointment not provided according to ADA model of care
  - Diet vs Medication (30% vs 70%)
  - Unreliable data sources (casemix; matrix)

<table>
<thead>
<tr>
<th>Casemix coding data</th>
<th>GDM-treatment</th>
<th>2009-11</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Insulin</td>
<td>47.6%</td>
</tr>
<tr>
<td></td>
<td>Metformin</td>
<td>15.6%</td>
</tr>
<tr>
<td></td>
<td>Diet</td>
<td>31.7%</td>
</tr>
<tr>
<td></td>
<td>Unspecified</td>
<td>5.0%</td>
</tr>
<tr>
<td>n women w/ GDM</td>
<td></td>
<td>150</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Matrix Database</th>
<th>GDM-treatment</th>
<th>2009-11</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Insulin</td>
<td>24.5%</td>
</tr>
<tr>
<td></td>
<td>Metformin</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>Diet</td>
<td>74.6%</td>
</tr>
<tr>
<td>n women w/ GDM</td>
<td></td>
<td>193</td>
</tr>
</tbody>
</table>

1. Determining *who* needs to do *what* differently?: Barriers

- **Routinely collected hospital data**
  - Dietetic appointment not provided according to ADA model of care
  - Diet vs Medication (30% vs 70%)
  - Unreliable data sources (casemix; matrix)

<table>
<thead>
<tr>
<th>Casemix coding data</th>
<th>GDM-treatment</th>
<th>2009-11</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Insulin</td>
<td>47.6%</td>
</tr>
<tr>
<td></td>
<td>Metformin</td>
<td>15.6%</td>
</tr>
<tr>
<td></td>
<td>Diet</td>
<td>31.7%</td>
</tr>
<tr>
<td></td>
<td>Unspecified</td>
<td>5.0%</td>
</tr>
<tr>
<td>n women w/ GDM</td>
<td>150</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Matrix Database</th>
<th>GDM-treatment</th>
<th>2009-11</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Insulin</td>
<td>24.5%</td>
</tr>
<tr>
<td></td>
<td>Metformin</td>
<td>n/a</td>
</tr>
<tr>
<td></td>
<td>Diet</td>
<td>74.6%</td>
</tr>
<tr>
<td>n women w/ GDM</td>
<td>193</td>
<td></td>
</tr>
</tbody>
</table>
1. Determining *who* needs to do *what* differently?: Barriers

- **Routinely collected hospital data**
  - Dietetic appointment not provided according to ADA model of care
  - Diet vs Medication (30% vs 70%)
  - Unreliable data sources (casemix; matrix)

<table>
<thead>
<tr>
<th>Casemix coding data</th>
<th>GDM-treatment</th>
<th>2009-11</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Insulin</td>
<td>47.6%</td>
</tr>
<tr>
<td></td>
<td>Metformin</td>
<td>15.6%</td>
</tr>
<tr>
<td></td>
<td>Diet</td>
<td>31.7%</td>
</tr>
<tr>
<td></td>
<td>Unspecified</td>
<td>5.0%</td>
</tr>
</tbody>
</table>

n women w/ GDM 150

<table>
<thead>
<tr>
<th>Matrix Database</th>
<th>GDM-treatment</th>
<th>2009-11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulin</td>
<td>24.5%</td>
<td></td>
</tr>
<tr>
<td>Metformin</td>
<td>n/a</td>
<td></td>
</tr>
</tbody>
</table>

Diet 74.6%
1. Determining who needs to do what differently?: Barriers

**Clinic observation and team discussion**
- Significant shortfall in dietetic resources (0.1FTE vs 0.4+FTE)
- No clinic room available outside GDM clinic
- Not in clinical pathway containing schedule of visits beyond first appointment
- No appointment system/clinic slot

**Evidence from the literature and relevant reports** 6,7,8
- Similar to other Queensland and Australian services (dietetics)

---

<table>
<thead>
<tr>
<th>Weeks</th>
<th>Diagnosed</th>
<th>Who with</th>
<th>Outcomes and Actions</th>
<th>Date and Time</th>
<th>Name Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;=2 weeks</td>
<td>Registrar</td>
<td>Normal pathway (N) (well controlled on diet)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Obstetrician/Physician</td>
<td>Variant pathway (V) (requires insulin or metformin)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnosis week</td>
<td>all fasting &lt;5.0 mmol/L, all 1-hour post-prandial &lt;8.0 mmol/L, GDM Education Clinic referral (incl dietitian)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>□ 2 or more fasting &gt;5.0 mmol/L, 2 or more 1-hour post-prandial &gt;8.0 mmol/L, order USS for biometry/AFI, refer to DietMed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnosis till 32-34 weeks of gestation</td>
<td>Obstetrician</td>
<td>Insulin indicated, metformin indicated, further &quot;lifestyle modification&quot;, diet and PA for further BSL monitoring ONLY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midwife NI Diab Ed V</td>
<td></td>
<td>Teach insulin/metformin administration, reinforce monitoring, diet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHONE Diab/NIDDM Diab Ed V</td>
<td>Phone follow-up</td>
<td>Reinforce monitoring, every 2nd day, phone calls</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHONE Diab/NIDDM Diab Ed V</td>
<td></td>
<td></td>
<td></td>
<td>2 or more fasting &gt;5.0 mmol/L, 2 or more 1-hour post-prandial &gt;8.0 mmol/L, OB/Pat NOT required, diet and PA required</td>
<td></td>
</tr>
</tbody>
</table>

Staff awareness and knowledge of (ADA) NPGs and clinic processes

Staff ‘belief’ in dietitians ability to influence lifestyle, clinical and medical outcomes


Patient LIFESTYLE outcomes that can be influenced by women with GDM seeing a dietitian according to an evidence based schedule of visits

Patient CARE and MEDICAL outcomes that can be influenced by women with GDM seeing a dietitian according to an evidence based schedule of visits
1. Determining who needs to do what differently?: Enablers

Identified through clinic observation and team discussion:

- strong clinician-consumer relationship,
- project funding for dietetic time,
- a positive research and audit culture,
- managers and clinical experts on the project team and statewide GDM guidelines steering committee, and
- a TRIP fellowship lead and inform the translation process.
2. Using a **theoretical framework**, which barriers and or enablers need to be addressed?
The TDF + GDM

- education
- audit and feedback
- clinical champions
- local opinion leaders
- audit and feedback
- clinical care path
- ‘Practix’ appts
- $$ D/N clinic room
- women

The evidence practice gap

Perceived quality problem or emergence of new evidence

Assessment of influencing factors
Design of implementation strategies
Evidence-based
Informed by theory

Optimal care/Behaviour change
Explicitly evaluating your intervention using a theory-driven approach
Optimal care/Behaviour change

Explicitly evaluating your intervention using a theory-driven approach
Measuring success

Process outcomes:

Primary: uptake of the new dietetic schedule, as measured by adherence to the ADA NPG appointment schedule

Secondary: clinician (i) awareness, (ii) knowledge and (iii) acceptance

Clinical outcomes:

Primary: effect of the NPG schedule on requirement for pharmacotherapy (insulin/metformin)

Secondary: (i) rate of maternal weight gain, (ii) diet quality, physical activity and pt satisfaction (iii) birth weight.

+ cost-benefit analysis and other clinical outcomes
Project timeline

Jan '13 (Mar – new schedule)
Dr Shelley Wilkinson AdvAPD
NHMRC TRIP Fellow & Senior Research Dietitian,
Mater Mothers’ Hospital/ Mater Medical Research Institute
shelley.wilkinson@mater.org.au
07 3163 8585

Project Team
David McIntyre (Director, Obstetric Medicine)
Sally McCray (Director, Nutrition & Dietetics)
Mike Beckmann (Director, Obstetrics & Gynaecology)
Annette Parry (MMH Diabetes Educator)
Sam Drew (Nurse Unit Manager, AN Clinic)

References


