

# Who's responsible for the care of women during and after a pregnancy affected by gestational diabetes?

**Shelley A Wilkinson**  
BSc(Hons), GradDipNut&Diet,  
PhD  
Senior Maternity Research  
Dietitian,<sup>1</sup> and Chief  
Investigator<sup>2</sup>

**Siew S Lim**  
BSc, MND, PhD  
Postdoctoral Research  
Fellow<sup>2,3</sup>

**Susan Upham**  
BSocWk,  
GradDipHealthPromotion,  
GCIPH  
Research Assistant<sup>2</sup>

**Andrew Pennington**  
BSc(Hons), BMed, FRACGP  
General Practitioner and  
Honorary Fellow<sup>4</sup>

**Sharleen L O'Reilly**  
BSc(Hons), PhD  
NHMRC TRIP Fellow<sup>5</sup>

**Dino Asproloupou**  
NHMRC Senior Program  
Manager<sup>3</sup>

**H David McIntyre**  
MD, FRACP  
Head,<sup>6</sup> and Head of Theme<sup>7</sup>

**James A Dunbar**  
MD, FRCPedin, FRCGP  
Director<sup>3</sup>

<sup>1</sup> Nutrition and Dietetics, Mater  
Research, Brisbane, QLD.

<sup>2</sup> Centre of Research  
Excellence in Primary  
Health Care Microsystems,  
University of Queensland,  
Brisbane, QLD.

<sup>3</sup> Greater Green Triangle  
University Department  
of Rural Health, Flinders  
and Deakin Universities,  
Warrnambool, VIC.

<sup>4</sup> Department of General  
Practice, University of  
Melbourne,  
Melbourne, VIC.

<sup>5</sup> Centre for Physical  
Activity and Nutrition  
Science, Deakin University,  
Melbourne, VIC.

<sup>6</sup> Mater Clinical School,  
University of Queensland  
and Mater Medical Research  
Institute,  
Brisbane, QLD.

<sup>7</sup> Mothers' and Babies' Health,  
Mater Research Institute,  
Brisbane, QLD.

shelley.wilkinson@  
mater.org.au

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**G**estational diabetes mellitus (GDM) is the strongest single population predictor of type 2 diabetes,<sup>1</sup> and current Australian prevalence is 10%–13%, depending on the criteria used.<sup>2</sup> Poor health outcomes extend to children of mothers who had GDM, due to increased risk of obesity and abnormal glucose metabolism during childhood, adolescence and adulthood.<sup>3</sup>

Antenatal lifestyle intervention is shown to improve short- and long-term maternal and infant health outcomes.<sup>3</sup> In addition, it can effectively prevent type 2 diabetes among women who have had GDM.<sup>1</sup> However, although some centres of excellence exist, in many cases, antenatal care is not delivered systematically.<sup>4</sup>

After their babies are born, women who have had GDM can be described as falling into a health care “chasm”.<sup>5</sup> When these women leave hospital, their obstetricians and endocrinologists feel that their work is done. Lack of coordination between the hospital and primary care sectors can mean that no one assumes responsibility for the care of these women.

The opportunity to prevent or delay type 2 diabetes in this high-risk population through primary care was noted more than a decade ago.<sup>6</sup> However, defined care pathways and coordination remain elusive; implementation of evidence has not occurred. In many cases, general practitioners may not be aware that the woman has had GDM, and may not have a clear pathway directing responsibility for follow-up care.

There is an urgent need to implement a widespread and coordinated approach to prevent progression to type 2 diabetes in this population. Rectifying this situation requires cooperation and collaboration between all care providers.

## Antenatal care: navigating the new gestational diabetes landscape

The health care sector operates under guidelines with conflicting content and differing levels of comprehensiveness and professional endorsement (Box). The Australasian Diabetes in Pregnancy Society (ADIPS) recently released revised consensus guidelines for testing and diagnosing GDM in Australia and New Zealand.<sup>7</sup>

Women with GDM are managed in hospitals because they are identified as having pregnancies at higher risk of adverse outcomes. The ADIPS guidelines recommend an oral glucose tolerance test (OGTT) for all women (unless already diagnosed with GDM in early pregnancy) at 24–28 weeks' gestation.<sup>7</sup> These guidelines were informed by several studies, including the Hyperglycemia and Adverse Pregnancy Outcome (HAPO) Study, which indicated a strong continuous association of maternal glucose levels with increased diabetic fetopathy.<sup>14</sup>

A change to testing protocols will be introduced in July 2014 and diagnostic criteria on 1 January 2015 (Aidan

## Summary

- Despite its increasing incidence and high conferred risk to women and their children, gestational diabetes mellitus (GDM) is managed inconsistently during and after pregnancy due to an absence of a systemic approach to managing these women.
- New guidelines for GDM testing and diagnosis are based on stronger evidence, but raise concerns about increased workloads and confusion in a landscape of multiple, conflicting guidelines.
- Postnatal care and long-term preventive measures are particularly fragmented, with no professional group taking responsibility for this crucial role.
- Clearer guidelines and assistance from existing frameworks, such as the National Gestational Diabetes Register, could enable general practitioners to take ownership of the management of women at risk of type 2 diabetes following GDM, applying the principles of chronic disease management long term.

McElduff, Clinical Associate Professor of Medicine, University of Sydney and ADIPS President; personal communication). Concerns exist about their potential workload implications and evidence base.

Health service and pathology database analyses have resulted in equivocal projections of the potential workload increases; it is most likely that many will see a doubling of cases.<sup>2,15</sup> Workload projections can be difficult, as true prevalence is not known, but it has been suggested that the increasing rate reflects the prevalence of abnormal glucose metabolism in the general population.<sup>16</sup>

In considering potential workload costs and changes, we need to consider the results from two well executed randomised controlled trials, which demonstrated that treatment of GDM can prevent adverse outcomes.<sup>17,18</sup> For most women (80%–90%), GDM could be managed through dietary counselling delivered by a dietitian. In some centres, this proportion will be lower, depending on population characteristics. Medical nutrition therapy is a cornerstone intervention for women with GDM,<sup>19</sup> and its appropriate delivery results in reduced insulin requirements and improved blood glucose control.<sup>19</sup> However, systematic, evidence-based dietetic care of women with GDM does not occur in many centres in Australia.<sup>4</sup> Australian health services require clinician leadership and commitment to partnership and change in (re)allocation of resources to support a multidisciplinary team in providing evidence-based care for improved maternal and infant outcomes.

Some clinicians raise concerns about diagnostic criteria changes based on observational study outcomes, but the previous diagnostic criteria were the product of an ad-hoc working party and lacked the strong evidence base that underpins the current criteria.<sup>20</sup>

## Postnatal follow-up: who's taking responsibility?

Australian guidelines recommend that all women who had GDM should undertake a 75 g OGTT between 6 and 12 weeks after delivery.<sup>7</sup> International guidelines also highlight the importance of lifestyle modification, breastfeeding, birth control and risk counselling to improve health outcomes for these women and their children.<sup>12,13</sup>

The extent to which these recommendations are integrated into postnatal GP visits is not known, but some studies suggest diabetes testing is suboptimal.<sup>21</sup> Self-report surveys of women with prior GDM indicated that about half of participants returned for OGTTs, but only a quarter in the appropriate period.<sup>21,22</sup> The potential use of glycated haemoglobin testing instead of the OGTT appeals to many, but the approach may not change until it is approved on the Medicare Benefits Schedule.

Appropriate strategies to engage women in screening are paramount, as the motivation to manage a GDM diagnosis transforms to apathy once GDM resolves.<sup>23</sup> Barriers to

ongoing screening include a lack of awareness of the need for screening, difficulty attending screening with an infant, dislike of the OGTT process, being a mobile population, and inconsistent advice from health care providers about testing, lifestyle modification and risk.<sup>21-23</sup> Findings from the United Kingdom suggest that health care professionals need to balance between reassurance of likely resolution of GDM and adequate information about potential progression to type 2 diabetes.<sup>23</sup> Perception of risk is an important motivator; a lack of perceived risk of developing type 2 diabetes is common and can be related to timing, content and tone of messages.<sup>23,24</sup>

## Prevention of diabetes in primary care

### Which guidelines?

Three Australian guidelines exist for the follow-up of women who are at risk of type 2 diabetes (Box).<sup>7-9</sup> Their core messages are similar, but they vary in several areas, diluting GP awareness and implementation. Beyond the timing of

A comparison of current gestational diabetes mellitus diagnosis (GDM), treatment and follow-up guidelines

Guideline/society (country)	Details of guidelines						
	ADIPS (Australia and New Zealand) <sup>7</sup>	Diabetes Australia and RACGP (Australia) <sup>8</sup>	Therapeutic guidelines: endocrinology (Australia) <sup>9</sup>	ACOG (US) <sup>10</sup>	ADA (US) <sup>11</sup>	NICE (UK) <sup>12</sup>	CDA (Canada) <sup>13</sup>
<b>Antenatal testing protocol</b>	Universal OGTT at 24–28 weeks; earlier if clinically indicated	Universal screening at 26–28 weeks. Two-step approach recommended (GCT then OGTT).	Universal GCT or OGTT at 26 weeks. Early screening if high risk	—	Universal OGTT at 24–28 weeks in women not previously diagnosed with overt diabetes	At 24–28 weeks if the woman has any risk factors or earlier if GDM in a previous pregnancy	Universal screening 24–28 weeks. Two-step approach preferred (GCT then OGTT)
<b>Timing of first postpartum follow-up visit</b>	6–12 weeks	6–12 weeks	6–12 weeks	6–12 weeks	6–12 weeks	6 weeks	6 weeks – 6 months
<b>Which test(s) for postpartum screening</b>	75 g OGTT	75 g OGTT	75 g OGTT	FPG or 75 g OGTT	75 g OGTT; not HbA <sub>1c</sub>	FPG	75 g OGTT
<b>Who with?</b>	—	GP	—	—	—	—	—
<b>Frequency of follow-up and recommended test</b>	Dependent on future pregnancy plans and perceived risk of type 2 diabetes, yearly OGTT if planning pregnancy, 1–2 yearly FPG (low risk); OGTT/HbA <sub>1c</sub> (higher risk)	3-yearly; with FPG	If postnatal test normal: annual fasting or random blood glucose or OGTT every 2 years and before subsequent planned pregnancies	3-yearly, as above	Minimum 3-yearly; with OGTT. If IFG or IGT, yearly	Yearly; no blood test specified	At least 3-yearly and before each pregnancy; not specified
<b>Other postnatal advice included</b>	No recommendations	Increase physical activity, weight loss/healthy diet. Refer to dietitian and/or physical activity program. Preconception advice.	Risk counselling for future type 2 diabetes. Lifestyle advice: diet/physical activity. Subsequent pregnancy: early screening 12–16 weeks repeated at 26 weeks.	Weight loss and physical activity counselling as needed	Women with a history of gestational diabetes found to have prediabetes should receive lifestyle interventions or metformin to prevent diabetes.	Lifestyle advice: weight control, diet and exercise	Lifestyle advice to prevent diabetes and cardiovascular disease should begin in pregnancy and continue postpartum. Encourage breastfeeding for at least 3 months postpartum. Provide risk and preconception counselling.

ACOG = American College of Obstetricians and Gynecologists. ADA = American Diabetes Association. ADIPS = Australasian Diabetes in Pregnancy Society. CDA = Canadian Diabetic Association. FPG = fasting plasma glucose. GCT = glucose challenge test. HbA<sub>1c</sub> = glycated haemoglobin. IFG = impaired fasting glucose. IGT = impaired glucose tolerance. NICE = National Institute for Health and Clinical Excellence. OGTT = oral glucose tolerance test. RACGP = Royal Australian College of General Practitioners. UK = United Kingdom. US = United States.

testing regimens, recommendations regarding lifestyle interventions to prevent type 2 diabetes progression are absent from the ADIPS guidelines, but the Diabetes Australia/Royal Australian College of General Practitioners (RACGP) *Diabetes management in general practice 2014–2015*<sup>8</sup> and *Guidelines for preventive activities in general practice* (the “red book”; also distributed to GPs in Australia)<sup>25</sup> outline diabetes management and dietary advice for diagnosed cases in general practice and for diabetes prevention.

Many similarities exist between the diet for GDM and diabetes prevention (ie, focus on low glycaemic index, low saturated fat, high fibre content). However, during a pregnancy complicated by GDM, there is a major focus on tightly controlled blood glucose levels, although appropriate diet quality for pregnancy requirements and gestational weight gain is also paramount. By contrast, diabetes prevention diets have a greater focus on weight reduction. Currently, there is no effort to explain to women who have had GDM the difference in approach.

### A missed opportunity?

Although GPs view follow-up care as their role within the broader context of general health screening and promotion, this is often opportunistic.<sup>26</sup> Advice from GPs is a powerful motivator for women to adopt lifestyle modification.<sup>27</sup> However, GPs report not being well versed in guidelines for GDM follow-up care, potentially reflecting the lack of clarity in the literature and their varying knowledge and confidence in provision of lifestyle advice and interventions.<sup>28</sup> GPs generally give appropriate exercise advice, but can be less clear about dietary or weight loss goals.<sup>26</sup>

These practices are reinforced by systems and process barriers of prioritisation of issues during a consultation, a lack of integration of recall tools and intervention resources in daily workflow, and uncertainty about responsibility for screening, as well as poor communication between secondary and primary care sector and fragmentation of pre- and postnatal care services.<sup>28</sup>

### Right information, right people, right time

Clinical trials have demonstrated that lifestyle modifications with weight loss and moderate exercise can reduce the incidence of type 2 diabetes by up to 58% for people at high risk, with an impact still evident 8 years from the intervention onset and 4 years after the active intervention ceased.<sup>29</sup> Real-world implementation in the Australian health care system has achieved 40% reduction in the risk of progression to diabetes.<sup>30</sup>

Agreement between and willingness to work in partnership with key stakeholders — such as ADIPS, Diabetes Australia, the RACGP and the Royal Australian and New Zealand College of Obstetricians — is required for a collective approach to delivering diabetes prevention to this high-risk population.

However, despite convincing evidence about effective programs in Australia, postnatal support after a pregnancy with GDM is lacking and is without coordination. Interventions using technologies such as telephone, SMS and the internet have been trialled for diabetes care and may be useful in prevention. These must be underpinned by behaviour change theories and address barriers to making changes regarding future risk.<sup>23</sup> Women have been

identified as being receptive to messages several months after birth, which may align with “transition times” (eg, introduction of solids).<sup>23</sup> Further efforts are urgently needed to develop lifestyle strategies that meet the specific needs of this group of women.

Diabetes Australia’s National Gestational Diabetes Register (NGDR), part of the National Diabetes Services Scheme, was launched in 2011 as a free service to women with a Medicare card to help those who have had GDM to manage their health and prevent progression to type 2 diabetes. One function of the NGDR is to send regular reminder letters to women and their GPs regarding diabetes checks (at registration, 12 weeks after birth, and annually thereafter). These reminder letters also include general information for the women and their families to help them continue a healthy lifestyle.

Although the NGDR outlines what testing to undertake, its potential to allow implementation and dissemination of a comprehensive, consolidated set of guidelines is perhaps underused. It could facilitate effective connection of women with a history of GDM with specific, effective, evidence-based lifestyle advice as well as clinical guidance for their GPs.

### A call to action: the need for a collaborative approach

A clear pathway, developed between all stakeholders, with delineated roles and responsibilities to ensure that best-practice care is delivered along the continuum of antenatal, postnatal, interconception and longer-term care is required. Delivery of coordinated, effective programs is essential for this group of women. Without such clarity, and in the absence of a systems approach to care, we are failing to seize an opportunity to reduce the incidence of type 2 diabetes and promote the wellbeing of these women and their children. After a diagnosis of GDM, women view their GP as the most appropriate source of follow-up care,<sup>24</sup> so it is imperative that GPs are given the right guidelines and education to advise these women about preventing or delaying progression to type 2 diabetes.

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