

## Standard 20

*Pregnant women with established diabetes and those developing gestational diabetes (GDM) should have access to prompt expert advice and management, with follow-up after pregnancy. Those with diabetes of child-bearing age should be advised of optimal planning of pregnancy including the benefits of pre-conception glycaemic control. Those not wishing for a pregnancy should be offered appropriate contraceptive advice as required.*

### Key practice points

- The prevalence of gestational, type 1 and type 2 diabetes is increasing, particularly among women of Māori, Pacific, Asian and South Asian ethnicity. Women with pre-existing diabetes should be aware of risks associated with poor glycaemic control and pregnancy.
- Women with pre-existing diabetes should receive pre-conception planning and care to minimise these risks.
- Gestational diabetes carries increased risk of morbidity and mortality for the mother and baby and should therefore be screened and managed according to national guidelines.

Read this standard in conjunction with the equality and diversity section in the Introduction to the Toolkit.

### What the quality statement means for each audience

**Service providers** ensure local arrangements that provide information to women of childbearing age with diabetes on pre-conception glycaemic control and any risks including medication that may harm an unborn child, and ensure women with diabetes planning a pregnancy are offered pre-conception care, and those not planning a pregnancy are offered advice on contraception.

**Health care professionals** ensure women with diabetes of childbearing age are provided with information on pre-conception glycaemic control and on any risks including medication that may harm an unborn child, and are offered pre-conception care if they are planning a pregnancy or offered advice on contraception if they are not planning a pregnancy.

**Planners and funders** ensure services are in place to provide pre-conception advice for women with diabetes of childbearing age, and offer pre-conception care for women with diabetes planning a pregnancy. Advice on contraception should be provided to those not planning a pregnancy.

**Women of childbearing age who have diabetes** are regularly given advice about the benefits of controlling their blood glucose before a pregnancy, and any risks such as medication that might harm an unborn baby. Women with diabetes who are planning a pregnancy are offered care leading up to the pregnancy. Women not planning a pregnancy are offered advice on contraception.

## Definitions

'Established diabetes' refers to women diagnosed with diabetes prior to pregnancy planning or a confirmed pregnancy.

'Women of childbearing age with diabetes' refers to all women with diabetes (excluding gestational diabetes) who have childbearing potential.



## Introduction

According to the Diabetes and Pregnancy Guideline documentation (2014) 'approximately 61,000 women give birth in New Zealand each year and 4.9–6.6% of pregnancies in New Zealand involve women with diabetes' (p 2). Type 1 diabetes affects approximately 0.1–0.2% of all pregnancies (Chiang et al 2014) and the prevalence of gestational, type 1 and type 2 diabetes is increasing, particularly affecting women of Māori, Pacific and South Asian ethnicity (NZ Gestational Diabetes Working Group [NZGDMWG] 2014).

### Established type 1 or 2 diabetes

Women with pre-existing type 1 and type 2 diabetes (including those in whom the diabetes was not recognised before pregnancy) have an increased risk of adverse pregnancy outcomes, including miscarriage, foetal congenital anomaly and perinatal death (National Collaborating Centre for Women's and Children's Health 2008). To minimise risks associated with pregnancy and established type 1 or 2 diabetes, pre-conception planning and care is critical. Evidence suggests pre-conception care with tight glycaemic control (HbA<sub>1c</sub> levels should be as close to normal as possible) improves outcomes including decreased perinatal mortality and decreased congenital malformations (Chiang et al 2014). The prevalence of type 2 diabetes is increasing in women of reproductive age and outcomes may be equivalent or worse than in those with type 1 diabetes (Scottish Intercollegiate Guidelines Network [SIGN] 2010). Medications used by such women should be evaluated prior to conception, since some drugs commonly used to treat diabetes and its complications may be contraindicated or not recommended in pregnancy, including statins, ACE inhibitors, angiotensin receptor blockers (ARBs), and some noninsulin therapies.

Pregnancy can affect glycaemic control in women with pre-existing diabetes, increasing frequency of hypoglycaemia and hypoglycaemia awareness, and the risk of ketoacidosis. General anaesthesia in women with diabetes can also increase the risk of hypoglycaemia. The progression of certain complications of diabetes, specifically diabetic retinopathy and diabetic nephropathy, can be accelerated by pregnancy (National Institute for Health and Care Excellence [NICE] 2008). Infants whose mothers with diabetes received dedicated multidisciplinary pre-pregnancy care showed significantly fewer major congenital malformations (approximating to the rate in non-diabetic women) compared to infants whose mothers did not receive such care (SIGN 2010).

Contraception should be discussed on an individual basis with all women of childbearing age with diabetes. There is little evidence of choice of contraceptive method specifically in these women. In general, the contraceptive advice for a woman with diabetes should follow that in the general population (SIGN 2010).

## Gestational diabetes

Gestational diabetes mellitus (GDM) is defined by the **American Diabetes Association** (2013) as ‘any degree of intolerance with onset or first recognition during pregnancy’ (pp S70–71). In New Zealand, gestational diabetes affects 3000–4000 women per annum; that is, between 4.9–6.6% of pregnancies. However, prevalence rates are sensitive to the definition and diagnostic criteria of GDM that is currently under debate. If undiagnosed or untreated, there may be significant negative consequences, both for short and long term, for the woman and/or her baby.

For the baby, the potential for macrosomia and neonatal hypoglycaemia is high, and there are possible intergenerational effects of exposure of the foetus to maternal diabetes. For the woman, GDM is associated with a high risk for type 2 diabetes with up to 50% of women developing type 2 diabetes within 10 years. Therefore, active screening, diagnosis and management of GDM during pregnancy are essential. Postnatal interventions that may reduce progression to type 2 diabetes in high-risk populations (in particular limiting weight gain) are important. Modification of risk factors and regular screening is an important aspect of postnatal education and ongoing care (see health literacy Standard 1).



## Guidelines

The **New Zealand Diabetes in Pregnancy Guidelines** with a focus on gestational diabetes reflect best practice recommendations for the screening and management of GDM in New Zealand. They are due to be published in 2014 with specific implementation advice.

In the meantime, the following guidelines apply.

Screening, diagnosis and services for women with gestational diabetes mellitus (GDM) in New Zealand: A technical report from the National GDM Technical Working Party published in the *Journal of the New Zealand Medical Association* (2008).

**Australian Diabetes in Pregnancy Society (ADIPS) 2005**  
Guideline on the management of pregnancy in type 1 and 2 diabetes  
[http://adips.org/downloads/adips\\_pregdm\\_guidelines.pdf](http://adips.org/downloads/adips_pregdm_guidelines.pdf)

**Synopsis:** In New Zealand, the approach to identifying women with GDM or undiagnosed type 2 diabetes has varied. The National GDM Technical Working Party reviewed the available data in the New Zealand context and recommend that (1) All pregnant women are offered screening for GDM backed up with relevant educational, systems and materials for health professionals and the women; (2) Criteria for GDM should remain unchanged pending further information (which should be actively sought); (3) Women at high risk of undiagnosed type 2 diabetes in pregnancy should be screened at booking: the HbA1c was recommended as a practical initial screening test; and (4) A structured, audited, population-based approach to managing women with GDM should be introduced in each district.

The **National GDM Technical Working Party Technical Report** can be found here:  
<http://journal.nzma.org.nz/journal/121-1270/2950/>.

**The Scottish Intercollegiate Guidelines Network's** guideline 116 Management of diabetes: A national clinical guideline provides comprehensive guidance for diabetes in pregnancy care: [www.sign.ac.uk/pdf/sign116.pdf](http://www.sign.ac.uk/pdf/sign116.pdf).

**National Institute for Health and Care Excellence Guideline:** Diabetes in pregnancy: management of diabetes and its complications from pre-conception to the postnatal period: [www.nice.org.uk/guidance/CG63/chapter/introduction](http://www.nice.org.uk/guidance/CG63/chapter/introduction).

**American Diabetes Association** Type 1 diabetes through the life span: A position statement of the American Diabetes Association:  
<http://care.diabetesjournals.org/content/early/2014/06/09/dc14-1140.full.pdf+html>.



## Implementation advice

### Established diabetes

Barriers to pre-conception care have been identified by NICE (2008) as lack of pregnancy planning, sociocultural factors, misconceptions and lack of knowledge, attitudes of health care providers towards pregnancy, lack of social support, appropriateness and availability of services, and younger age. Services should therefore be arranged that acknowledge and aim to reduce these barriers.

The workforce needs to be appropriately resourced and skilled to provide care to women with established diabetes and for those developing gestational diabetes. This will include coordination and appropriate transfer of care between primary care teams, specialist diabetes services (physician, diabetes nurse specialist and diabetes specialist dietitian), obstetricians, and midwives according to local guidelines.

International guidelines recommend pre-conception and perinatal care is provided by an experienced multidisciplinary team, composed of diabetes nurse educators (in New Zealand diabetes nurse specialists), midwives, (diabetes specialist) dietitians, obstetricians and diabetologists. Care provided in this way has been shown to minimise maternal and foetal risks in women with diabetes (ADIPS 2005; SIGN 2010; Canadian Diabetes Association 2013) (see Standard 16).

### Gestational diabetes

- A suitable programme to detect and treat GDM should be offered to all women in pregnancy (ADIPS 2005; New Zealand Guidelines Group 2014; SIGN 2010).
- Pregnant women with GDM should be offered dietary advice and blood glucose monitoring and be treated with glucose-lowering therapy depending on target values for fasting and postprandial targets (SIGN 2010).
- Specialist dietetic and laboratory services need to be in place to manage the diagnoses of probable undiagnosed and gestational diabetes (NZGDMWG guidelines 2014)
- Continuing education of GPs and midwives about screening for diabetes in pregnancy should be provided (NZGDMWG 2014).



## Implementation examples / innovations

### Gestational diabetes



#### Diabetes Projects Trust

The Diabetes Projects Trust (DPT) was originally called the 'South Auckland Diabetes Project', and in 2013 they celebrated 21 years of delivering services focused on preventing diabetes and its complications. The Diabetes Projects Trust emphasises partnership with the community to achieve better health for present and for future generations. The DPT has a focus on prevention, health promotion, empowerment, quality improvement support, and research and delivers a number of programmes that achieve these aims.

The DPT Gestational Diabetes Mellitus project focuses on reducing the impact of GDM on mother and child. At the moment, there are a number of projects under way, for example looking at ways of encouraging early screening for the development of type 2 diabetes, promoting early antenatal care of mothers in subsequent pregnancies, and supporting mothers and families to adopt health behaviours that reduce the risk of future type 2 diabetes and poor health outcomes. Work is under way on a GDM diabetes registry.

The GDM Registry is a collaborative effort with funding from Counties Manukau District Health Board (CMDHB) and Diabetes Projects Trust. The Registry collects together a key subset of information about women who have had GDM in their pregnancy. This information is held in a confidential database that will be used primarily to help improve follow-up and future care. The Registry is to be linked to other data sources and will continuously receive updates, such as HbA1c results, to enable timely prompts and send out annual screening reminders over the longer term. Future positive pregnancy testing will result in a prompt to the primary carer regarding GDM history. The Registry will also allow contact to be made directly with the woman regarding relevant lifestyle interventions and health promotion activities. The registry will include data on demographics, contact and health care provider details, past and current medical history, relevant lab results, details of gestational diabetes episodes and details of participants' interaction with the service. This is taking place in CMDHB and has been designed to be suitable to roll out to other areas at a later date.

[www.dpt.org.nz/our-programmes/gestational-diabetes](http://www.dpt.org.nz/our-programmes/gestational-diabetes).

Contact the Diabetes Projects Trust for more information at: [gdm@dpt.org.nz](mailto:gdm@dpt.org.nz).



## Assessment tools

### Established diabetes

#### Structure

Evidence of local arrangements to ensure that women of childbearing age with diabetes are regularly informed about the benefits of pre-conception glycaemic control and of any risks, including medication, which may harm an unborn child.

#### Process

The proportion of women of childbearing age with diabetes who are regularly informed about the benefits of pre-conception glycaemic control and of any risks including medication that may harm an unborn child.

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Numerator	The number of women in the denominator informed about pre-conception glycaemic control and of any risks including medication that may harm an unborn child at their last diabetes consultation
Denominator	The number of women of childbearing age with diabetes

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#### Structure

Evidence that women with diabetes who are planning a pregnancy are offered pre-conception care.

#### Process

The proportion of women of childbearing age with diabetes planning a pregnancy who are offered pre-conception care from an appropriately trained health care professional.

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Numerator	The number of women in the denominator offered pre-conception care from an appropriately trained health care professional
Denominator	The number of women of childbearing age with diabetes planning a pregnancy

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#### Structure

Evidence that women with diabetes who are not planning a pregnancy are offered advice on contraception.

#### Process

The proportion of women of childbearing age with diabetes not planning a pregnancy who are offered advice on contraception.

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Numerator	The number of women in the denominator offered advice on contraception
Denominator	The number of women with diabetes not planning a pregnancy

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## Gestational diabetes mellitus

### Structure

A suitable programme to detect and treat gestational diabetes is offered to all women in pregnancy.

### Process

The proportion of pregnant women who are offered a screening test for gestational diabetes at the appropriate time/s.

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Numerator	The number of pregnant women in the denominator offered screening at the appropriate time/s
Denominator	The number of pregnant women without known pre-gestational diabetes

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The proportion of women with gestational diabetes diagnosed in their pregnancy offered a screening test after the birth of their child.

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Numerator	The number of women with gestational diabetes in the denominator offered postnatal screening
Denominator	The number of women with gestational diabetes

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## Established and gestational diabetes

The proportion of babies of mothers who have had diabetes in pregnancy admitted to a Neonatal Intensive Care Unit.

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Numerator	The number of babies of women with diabetes in pregnancy admitted to a Neonatal Intensive Care Unit in the denominator offered postnatal screening
Denominator	The number of babies of women with diabetes in pregnancy

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The proportion of babies of mothers who have had diabetes in pregnancy who have a congenital anomaly.

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Numerator	The number of babies of women with diabetes in pregnancy with a congenital anomaly
Denominator	The number the number of babies of women with diabetes in pregnancy

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The proportion of babies of mothers who have had diabetes in pregnancy suffering perinatal mortality.

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Numerator	The number of babies of women with diabetes in pregnancy suffering perinatal mortality
Denominator	The number of babies of women with diabetes in pregnancy

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## Resources

**Auckland District Health Board** has the following patient information on gestational diabetes:

<http://nationalwomenshealth.adhb.govt.nz/Portals/o/A%20to%20Z/G%20to%20L/G/G%20Gestational%20Diabetes.pdf>.

**Diabetes New Zealand** information on:

- gestational diabetes:  
[www.diabetes.org.nz/about\\_diabetes/gestational\\_diabetes](http://www.diabetes.org.nz/about_diabetes/gestational_diabetes)
- type 2 diabetes and pregnancy:  
[www.diabetes.org.nz/living\\_with\\_diabetes/type\\_2\\_diabetes/pregnancy](http://www.diabetes.org.nz/living_with_diabetes/type_2_diabetes/pregnancy)

**National Diabetes Service Scheme Australia:** Diabetes Australia has the following informative booklets:

- Gestational Diabetes: Life after Gestational diabetes  
[www.ndss.com.au/en/About-Diabetes/Gestational/](http://www.ndss.com.au/en/About-Diabetes/Gestational/)
- Established Diabetes: Can I have a healthy baby – pregnancy planning  
[www.ndss.com.au/Global/GD/GD%20Resources/Can%20I%20have%20a%20healthy%20baby%20Booklet.pdf](http://www.ndss.com.au/Global/GD/GD%20Resources/Can%20I%20have%20a%20healthy%20baby%20Booklet.pdf)



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