

**NATIONAL INSTITUTE FOR HEALTH AND CARE
EXCELLENCE**

Health and social care directorate

Quality standards and indicators

Briefing paper

Quality standard topic: Diabetes in pregnancy

Output: Prioritised quality improvement areas for development.

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1 Introduction

This briefing paper presents a structured overview of potential quality improvement areas for diabetes in pregnancy. It provides the Committee with a basis for discussing and prioritising quality improvement areas for development into draft quality statements and measures for public consultation.

1.1 Structure

This briefing paper includes a brief description of the topic, a summary of each of the suggested quality improvement areas and supporting information.

If relevant, recommendations selected from the key development source below are included to help the Committee in considering potential statements and measures.

1.2 Development source

The key development source(s) referenced in this briefing paper is:

[Diabetes in pregnancy: management of diabetes and its complications from preconception to the postnatal period](#) NICE guideline NG3 (2015)

2 Overview

2.1 Focus of quality standard

This quality standard will cover the management of diabetes and its complications in women (all females of childbearing potential) who are planning a pregnancy and those who are already pregnant. It will also cover areas where additional or different care should be offered to women with diabetes and their newborn babies.

2.2 Definition

Diabetes mellitus is a group of metabolic disorders in which persistent hyperglycaemia is caused by deficient insulin secretion or by resistance to the actions of insulin combined with relative insulin deficiency. Insulin deficiency and insulin resistance lead to the abnormalities of carbohydrate, fat, and protein metabolism that are characteristic of diabetes mellitus.

Diabetes mellitus is classified as:

- Type 1 diabetes — an absolute insulin deficiency that causes persistent hyperglycaemia (insulin activity is normal).

- Type 2 diabetes — insulin resistance and a relative insulin deficiency result in persistent hyperglycaemia.
- Gestational diabetes — hyperglycaemia develops during pregnancy and resolves after delivery.

The women identified with glucose intolerance in pregnancy as a result of screening comprise 3 sub-groups. The vast majority have exclusively pregnancy-specific glucose intolerance (gestational diabetes). However, some women will be identified in screening with previously undetected type 2 diabetes. Finally, there are a small number of women who present with type 1 diabetes in pregnancy.

2.3 *Incidence and prevalence*

Approximately 700,000 women give birth in England and Wales each year, and up to 5% of these women have either pre-existing diabetes or gestational diabetes. Of women who have diabetes during pregnancy, it is estimated that approximately 87.5% have gestational diabetes (which may or may not resolve after pregnancy), 7.5% have type 1 diabetes and the remaining 5% have type 2 diabetes. The prevalence of all 3 types of diabetes is increasing. The incidence of gestational diabetes is also increasing as a result of higher rates of obesity in the general population and more pregnancies in older women.

Diabetes in pregnancy is associated with risks to the woman and to the developing fetus. Miscarriage, pre-eclampsia and preterm labour are more common in women with pre-existing diabetes. In addition, diabetic retinopathy can worsen rapidly during pregnancy. Stillbirth, congenital malformations, macrosomia, birth injury, perinatal mortality and postnatal adaptation problems (such as hypoglycaemia) are more common in babies born to women with pre-existing diabetes.

2.4 *Management*

Diabetes in pregnancy is primarily managed within secondary care by joint antenatal and diabetes services. Most costs associated with treating diabetes in pregnancy are likely to be incurred in secondary care and be commissioned by clinical commissioning groups (CCGs). Some aspects of care specifically postnatal care take place within primary care and there are points along the pathway when community care services are also involved.

As gestational diabetes may or may not resolve after pregnancy before a woman is discharged to the care of her GP, her blood glucose levels will be tested to ensure that they have returned to normal. All women who have had gestational diabetes will be offered an annual HbA1c test. This is expected to be carried out in primary care. In addition all women with gestational diabetes should be referred to a dietitian.

Women with pre-existing diabetes will be managed within general adult diabetes services following birth.

2.5 National Outcome Frameworks

Tables 1–2 show the outcomes, overarching indicators and improvement areas from the frameworks that the quality standard could contribute to achieving.

Table 1 [NHS Outcomes Framework 2015–16](#)

Domain	Overarching indicators and improvement areas
1 Preventing people from dying prematurely	<p>Overarching indicators</p> <p>1a Potential Years of Life Lost (PYLL) from causes considered amenable to healthcare i Adults ii Children and young people 1c Neonatal mortality and stillbirths</p> <p>Improvement areas</p> <p>Reducing mortality in children</p> <p>1.6 i Infant mortality* ii Neonatal mortality and stillbirths</p>
2 Enhancing quality of life for people with long-term conditions	<p>Overarching indicator</p> <p>2 Health-related quality of life for people with long-term conditions**</p> <p>Improvement areas</p> <p>Ensuring people feel supported to manage their condition</p> <p>2.1 Proportion of people feeling supported to manage their condition</p> <p>Reducing time spent in hospital by people with long-term conditions</p> <p>2.3 ii Unplanned hospitalisation for asthma, diabetes and epilepsy in under 19s</p>
4 Ensuring that people have a positive experience of care	<p>Overarching indicators</p> <p>4a Patient experience of primary care i GP services ii GP Out-of-hours services 4b Patient experience of hospital care 4c <i>Friends and family test</i> 4d <i>Patient experience characterised as poor or worse</i> I Primary care ii Hospital care</p> <p>Improvement areas</p> <p>Improving people’s experience of outpatient care</p> <p>4.1 Patient experience of outpatient services</p> <p>Improving access to primary care services</p> <p>4.4 Access to i GP services</p> <p>Improving women and their families’ experience of</p>

	<p>maternity services</p> <p>4.5 Women's experience of maternity services</p>
5 Treating and caring for people in a safe environment and protecting them from avoidable harm	<p>Improving the safety of maternity services</p> <p>5.5 Admission of full-term babies to neonatal care</p> <p>Improving the culture of safety reporting</p> <p>5.6 Patient safety incidents reported</p>
<p>Alignment with Public Health Outcomes Framework</p> <p>* Indicator is shared</p> <p>** Indicator is complementary</p>	

Table 2 [Public health outcomes framework for England, 2013–2016](#)

Domain	Objectives and indicators
2 Health improvement	<p>Objective</p> <p>People are helped to live healthy lifestyles, make healthy choices and reduce health inequalities</p> <p>Indicators</p> <p>2.1 Low birth weight of term babies</p> <p>2.2 Breastfeeding</p> <p>2.3 Smoking status at time of delivery</p> <p>2.11 Diet</p> <p>2.12 Excess weight in adults</p> <p>2.17 Recorded diabetes</p>
4 Healthcare public health and preventing premature mortality	<p>Objective</p> <p>Reduced numbers of people living with preventable ill health and people dying prematurely, whilst reducing the gap between communities</p> <p>Indicators</p> <p>4.1 Infant mortality*</p>
<p>Alignment with NHS Outcomes Framework</p> <p>* Indicator is shared</p>	

3 Summary of suggestions

3.1 Responses

In total 15 stakeholders, including 4 specialist committee members responded to the 2-week engagement exercise 08/04/2015-22/04/2015.

Stakeholders were asked to suggest up to 5 areas for quality improvement. Specialist committee members were also invited to provide suggestions. The responses have been merged and summarised in table 3 for further consideration by the Committee.

NHS England's patient safety division submitted comments during stakeholder engagement, which are summarised in this paper and can be found in full in appendix.

Full details of all the suggestions provided are given in appendix 3 for information.

Table 3 Summary of suggested quality improvement areas

Suggested area for improvement	Stakeholders
Preconception care <ul style="list-style-type: none"> • Preconception counselling • Contraception advice • Blood glucose levels • Retinal assessment 	SCM ABCD ML DUK CHUNFT RCM
Monitoring during pregnancy <ul style="list-style-type: none"> • Blood glucose levels • Retinopathy screening 	SCM ABCD ML DUK
Gestational diabetes mellitus (GDM) <ul style="list-style-type: none"> • Screening and assessment • Referral after diagnosis 	SCM BMFMS DUK CHUNFT RCM
Access to technology <ul style="list-style-type: none"> • Insulin pump therapy • Continuous blood glucose monitoring 	ML DUK
Organisation of antenatal care <ul style="list-style-type: none"> • Care planning • Schedule of ultrasound scans 	ABCD DUK INPUTPA CHUNFT SCM RCM
Nutritional advice and supplements <ul style="list-style-type: none"> • Dietary advice • Folic acid 	SCM NDRUK ABCD RCM
Intrapartum care <ul style="list-style-type: none"> • Timing and mode of birth • Antenatal steroids 	SCM CHUNFT RCM
Neonatal care	DUK
Postnatal care <ul style="list-style-type: none"> • Pre-existing diabetes • GDM 	DUK RCM SCM BMFMS CHUNFT
Additional areas <ul style="list-style-type: none"> • Preconception medical review • Participation in national audit • Better care planning and review • Telemonitoring 	ABCD SCM DUK

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Suggested area for improvement	Stakeholders
SCM, Specialist Committee Member (s) NDRUK, Nutrition and Diet Resources UK ABCD, Association of British Clinical Diabetologists ML, Medtronic Limited BMFMS, British Maternal and Fetal Medicine Society DUK, Diabetes UK RCP, Royal College of Pathologists INPUTPA, INPUT Patient Advocacy RCN, Royal College of Nursing CHUNFT, Colchester Hospital University NHS Foundation Trust RCM, The Royal College of Midwives	

4 Suggested improvement areas

4.1 *Preconception care*

4.1.1 Summary of suggestions

Preconception counselling

Stakeholders report that good access to preconception care, which includes addressing glucose control, folic acid supplementation, contraindicated medications and existing diabetes complications to prepare women for pregnancy and significantly improves the pregnancy outcomes for women with diabetes. They highlight that women with diabetes who are planning to become pregnant should be offered a structured education programme as soon as possible to ensure women can achieve control of their diabetes preconception.

There is an overlap here with statement 7 of the diabetes in adult's quality standard (QS6) which contains a statement on preconception and contraception advice (see appendix 1).

Contraception advice

Stakeholders commented that there should be improved documentation of contraceptive use in women with pre-existing diabetes of child bearing potential to ensure there is a discussion about contraceptive use in order to aid diabetes management during and prior to pregnancy.

Blood glucose levels

Stakeholders report that optimal blood glucose control is required in preparation for pregnancy to prevent the risk of congenital abnormalities and reduce pregnancy related complications. Stakeholders specifically recognised that optimisation of glycaemic control has been demonstrated to improve outcomes, both in terms of macrosomia and fetal malformation. Stakeholders also commented that the risk of miscarriage is reduced when women with diabetes have optimal blood glucose levels maintained and greater support is needed within this area.

Retinal assessment

Stakeholders reported that retinopathy screening should be done prior to pregnancy or during first trimester to ensure accurate monitoring of potential retinopathy deterioration.

4.1.2 Selected recommendations from development source

Table 4 below highlights recommendations that have been provisionally selected from the development source(s) that may support potential statement development. These are presented in full after table 4 to help inform the Committee’s discussion.

Table 4 Specific areas for quality improvement

Suggested quality improvement area	Suggested source guidance recommendations
Preconception counselling	Information about outcomes and risks for mother and baby NICE NG3 Recommendation 1.1.2 NICE NG3 Recommendation 1.1.3
Contraception advice	The importance of planning pregnancy and the role of contraception NICE NG3 Recommendation 1.1.4 NICE NG3 Recommendation 1.1.7
Blood glucose levels	Target blood glucose and HbA1c levels in the preconception period NICE NG3 Recommendation 1.1.2 NICE NG3 Recommendation 1.1.18
Retinal assessment	Retinal assessment in the preconception period NICE NG3 Recommendation 1.1.31

Information about outcomes and risks for mother and baby

NICE NG3 – Recommendation 1.1.2

Explain to women with diabetes who are planning to become pregnant that establishing good blood glucose control before conception and continuing this throughout pregnancy will reduce the risk of miscarriage, congenital malformation, stillbirth and neonatal death. It is important to explain that risks can be reduced but not eliminated.

NICE NG3 Recommendation 1.1.3

Give women with diabetes who are planning to become pregnant, and their family members, information about how diabetes affects pregnancy and how pregnancy affects diabetes. The information should cover:

- the role of diet, body weight and exercise
- the risks of hypoglycaemia and impaired awareness of hypoglycaemia during pregnancy

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- how nausea and vomiting in pregnancy can affect blood glucose control
- the increased risk of having a baby who is large for gestational age, which increases the likelihood of birth trauma, induction of labour and caesarean section
- the need for assessment of diabetic retinopathy before and during pregnancy
- the need for assessment of diabetic nephropathy before pregnancy
- the importance of maternal blood glucose control during labour and birth and early feeding of the baby, in order to reduce the risk of neonatal hypoglycaemia
- the possibility of temporary health problems in the baby during the neonatal period, which may require admission to the neonatal unit
- the risk of the baby developing obesity and/or diabetes in later life

The importance of planning pregnancy and the role of contraception

NICE NG3 Recommendation 1.1.4

Ensure that the importance of avoiding an unplanned pregnancy is an essential component of diabetes education from adolescence for women with diabetes.

NICE NG3 Recommendation 1.1.7

Advise women with diabetes who are planning to become pregnant:

- that the risks associated with pregnancy in women with diabetes increase with how long the woman has had diabetes
- to use contraception until good blood glucose control (assessed by HbA1c level– see [recommendation 1.1.18](#)) has been established
- that blood glucose targets, glucose monitoring, medicines for treating diabetes (including insulin regimens for insulin-treated diabetes) and medicines for complications of diabetes will need to be reviewed before and during pregnancy
- that extra time and effort is needed to manage diabetes during pregnancy and that she will have frequent contact with healthcare professionals.

Target blood glucose and HbA1c levels in the preconception period

NICE NG3 Recommendation 1.1.18

Advise women with diabetes who are planning to become pregnant to aim to keep their HbA1c level below 48 mmol/mol (6.5%), if this is achievable without causing problematic hypoglycaemia.

Retinal assessment in the preconception period

NICE NG3 Recommendation 1.1.31

Offer retinal assessment (see recommendation 1.1.32) to women with diabetes seeking preconception care at their first appointment (unless they have had an annual retinal assessment in the last 6 months) and then annually if no diabetic retinopathy is found.

4.1.3 Current UK practice

Preconception counselling

The National Pregnancy in Diabetes (NPID) Audit 2013¹ found that women are still overall poorly prepared for pregnancy. They found that nearly 1 in 10 women with Type 2 diabetes (9.4%) were taking blood glucose medications that maybe harmful in pregnancy at their last menstrual period. They reported that almost one in ten women with Type 2 diabetes became pregnant while taking a potentially hazardous glucose lowering medication and 6.0% of women were taking either statins or an ACE inhibitor/ARB or both medications when they became pregnant (3.5 % of women with Type 1 diabetes and 9.4% of women with Type 2 diabetes).

In the 2007 CEMACH² survey of maternity services, less than a fifth of maternity units in England, Wales and Northern Ireland provided structured multidisciplinary preconception care for women with diabetes.

- Less than half were recorded to have had preconception counselling regarding glycaemic control, diet, contraception, diabetes complications and alcohol intake
- A third were recorded to have a test of glycaemic control in the 6 months before pregnancy
- Two-thirds had evidence of suboptimal glycaemic control before conception and in the first trimester of pregnancy.

¹ National Pregnancy in Diabetes Audit Report 2013, Health and Social Care Information Centre.

² CEMACH (2007) [Diabetes in pregnancy: are we providing the best care? Findings of a national enquiry.](#)

Contraception advice

In the 2007 CEMACH survey of maternity services less than half were recorded to have had preconception counselling regarding contraception.

Blood glucose control

The NPID audit 2013 demonstrated that only 40% of women with Type 1 diabetes and 18% of those with Type 2 achieved a target HbA1c prior to pregnancy. Only a minority of women had HbA1c measurements in the first trimester of pregnancy below the NICE target of 43 mmol/mol (6.1%) for 5.1% of women with Type 1 diabetes and 18.5% of women with Type 2 diabetes.

Retinal assessment

The NHS Diabetes Eye Screening programme does not currently provide data on the provision of retinopathy screening for women with diabetes in pregnancy.

The CEMACH enquiry³ reported that a detailed retinal assessment was recorded in the woman's notes at least once during pregnancy in 79.9% of women with pre-existing diabetes. The CEMACH case– control study reported that women with poor pregnancy outcome were as likely not to have a retinal assessment during the first trimester or at booking if later (36%) than women who had a good pregnancy outcome (27%). The most common concern noted by the CEMACH enquiry panels over sub-optimal diabetes care in pregnancy was sub-optimal retinal function monitoring and management.

The CEMACH enquiry (comparison of women with type 1 and type 2 diabetes) reported that women with type 1 diabetes were more likely to have retinopathy than women with type 2 diabetes, with 36% of women with type 1 diabetes and 9% of the women with type 2 diabetes having retinopathy in pregnancy

³ CEMACH (2007) Diabetes in pregnancy: are we providing the best care? Findings of a national enquiry.

4.2 *Monitoring during pregnancy*

4.2.1 Summary of suggestions

Blood glucose levels

Stakeholders report that improved glycaemic control is needed during pregnancy for women with Type 1 and Type 2 diabetes to avoid late adverse fetal outcomes including an increase in stillbirth. Stakeholders highlighted that poor glycaemic control throughout pregnancy can drive fetal growth, enhancing the need for operative delivery and increasing pregnancy complications.

Stakeholders comment that HbA1c which indicates average plasma glucose concentration has been shown to be a good indicator of the risk for multiple adverse pregnancy outcomes and involves just a simple blood test. Women with high levels of HbA1c can then be monitored more closely for adverse outcomes and managed appropriately to minimise risk.

Retinopathy screening

Stakeholders commented that the risk of retinopathy for the mother increases as glycaemic control changes and development of the baby progresses. There is a need for improvement in support, access to treatments and devices, information and education to support this.

4.2.2 Selected recommendations from development source

Table 5 below highlights recommendations that have been provisionally selected from the development source(s) that may support potential statement development. These are presented in full after table 5 to help inform the Committee's discussion.

Table 5 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Blood glucose levels	<p>Monitoring blood glucose</p> <p>NICE NG3 Recommendation 1.3.1</p> <p>NICE NG3 Recommendation 1.3.2</p> <p>NICE NG3 Recommendation 1.3.3</p> <p>Monitoring HbA1c</p> <p>NICE NG3 Recommendation 1.3.7</p> <p>NICE NG3 Recommendation 1.3.8</p> <p>NICE NG3 Recommendation 1.3.9</p>
Retinopathy screening	<p>Retinal assessment during pregnancy</p> <p>NICE NG3 Recommendation 1.3.24</p> <p>NICE NG3 Recommendation 1.3.25</p>

Monitoring blood glucose

NICE NG3 Recommendation 1.3.1

Advise pregnant women with type 1 diabetes to test their fasting, pre-meal, 1-hour post-meal and bedtime blood glucose levels daily during pregnancy.

NICE NG3 Recommendation 1.3.2

Advise pregnant women with type 2 diabetes or gestational diabetes who are on a multiple daily insulin injection regimen to test their fasting, pre-meal, 1-hour post-meal and bedtime blood glucose levels daily during pregnancy.

NICE NG3 Recommendation 1.3.3

Advise pregnant women with type 2 diabetes or gestational diabetes to test their fasting and 1-hour post-meal blood glucose levels daily during pregnancy if they are:

- on diet and exercise therapy or
- taking oral therapy (with or without diet and exercise therapy) or single-dose intermediate-acting or long-acting insulin.

Monitoring HbA1c

NICE NG3 Recommendation 1.3.7

Measure HbA1c levels in all pregnant women with pre-existing diabetes at the booking appointment to determine the level of risk for the pregnancy.

NICE NG3 Recommendation 1.3.8

Consider measuring HbA1c levels in the second and third trimesters of pregnancy for women with pre-existing diabetes to assess the level of risk for the pregnancy.

NICE NG3 Recommendation 1.3.9

Be aware that level of risk for the pregnancy for women with pre-existing diabetes increases with an HbA1c level above 48 mmol/mol (6.5%).

Retinal assessment during pregnancy

NICE NG3 Recommendation 1.3.24

Offer pregnant women with pre-existing diabetes retinal assessment by digital imaging with mydriasis using tropicamide following their first antenatal clinic

appointment (unless they have had a retinal assessment in the last 3 months), and again at 28 weeks. If any diabetic retinopathy is present at booking, perform an additional retinal assessment at 16–20 weeks.

NICE NG3 Recommendation 1.3.25

Diabetic retinopathy should not be considered a contraindication to rapid optimisation of blood glucose control in women who present with a high HbA1c in early pregnancy.

4.2.3 Current UK practice

Blood glucose levels

The NPID audit 2013 has indicated that women in the UK have suboptimal glucose control during pregnancy. It found that first trimester HbA1c levels of less than 43 mmol/mol (6.1%) was recorded in 131 pregnancies (10.9% of all pregnancies). Only 5.1% of pregnancies in women with Type 1 diabetes had an HbA1c measurement below the NICE recommended target, compared with 18.5% of pregnancies in women with Type 2 diabetes. 10.8% of women with Type 1 diabetes and 8.6% of women with Type 2 diabetes had a first trimester HbA1c measurement of 86 mmol/mol (10.0%) or more, the level at which the NICE guideline says women with diabetes should be strongly advised to avoid pregnancy.

Women who had a stillbirth or neonatal death (without a congenital anomaly) were more likely to have higher HbA1c measurements in late pregnancy (only 39.% had a measurement below 53 mmol/mol (7.0%), compared with 70.8% of women who had a live birth that was alive at 28 days post delivery).

A 2013 survey by Diabetes UK⁴ into the provision of test strips and meters for self-monitoring blood glucose for those with diabetes found that 3% reported an impact on their ability to monitor their levels as they are pregnant due to restrictions on prescriptions. This was due to research in 2005 found that 27 per cent of PCTs in England reported the existence of a policy restricting the provision of blood glucose test strips for people with diabetes.

Retinopathy screening

The NHS Diabetes Eye Screening programme does not currently provide data on the provision of retinopathy screening for women with diabetes in pregnancy.

The CEMACH enquiry⁵ reported that a detailed retinal assessment was recorded in the woman's notes at least once during pregnancy in 79.9% of women with pre-

⁴ Diabetes UK. Access to test strips – A postcode lottery? (Aug 2013)

⁵ CEMACH (2007) Diabetes in pregnancy: are we providing the best care? Findings of a national enquiry.

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existing diabetes. The CEMACH case– control study reported that women with poor pregnancy outcome were as likely not to have a retinal assessment during the first trimester or at booking if later (36%) than women who had a good pregnancy outcome (27%). Only 55% of the 258 assessments were recorded to have been done through dilated pupils and for 40% of women details about the retinal assessment procedure were not documented. The most common concern noted by the CEMACH enquiry panels over sub-optimal diabetes care in pregnancy was sub-optimal retinal function monitoring and management.

The CEMACH enquiry (comparison of women with type 1 and type 2 diabetes) reported that women with type 1 diabetes were more likely to have retinopathy than women with type 2 diabetes, with 36% of women with type 1 diabetes and 9% of the women with type 2 diabetes having retinopathy in pregnancy.

4.3 *Gestational diabetes mellitus (GDM)*

4.3.1 Summary of suggestions

Screening and assessment

Stakeholders commented that early detection through a simple screening procedure of the highest risk group (women with previous GDM) will reduce the numbers of potential complications. One stakeholder reported that there are differences globally on the screening tools used to identify women with GDM.

Stakeholders highlighted that all women who are pregnant and at risk of gestational diabetes should be assessed and provided with education, information and advice about risk and what to do. They should be tested for GDM and provided with information, advice about food, lifestyle interventions, medications and follow up as appropriate. There is increasing evidence that more women are at risk of GDM and, particularly in black and minority ethnic communities.

Stakeholders reported that it is important that women at risk of GDM are identified and women are seen in a timely manner to discuss and make dietary changes with blood glucose testing. If testing takes place at a later gestation it can be more difficult to achieve normal blood glucose levels by diet and babies have been shown to have signs of increased growth on scan.

There is an overlap here with statement 6 of the antenatal care quality standard (QS2) which contains a statement on screening for gestational diabetes (see appendix 1).

Referral after diagnosis

Stakeholders highlight that women diagnosed with GDM should have referral to a joint diabetes and antenatal clinic within a week or less. The period between diagnosis and referral is a very stressful time for a pregnant woman, a faster referral can lower the stress levels in women and the sooner interventions are begun, the lower the risks of birth complications in women with GDM.

Stakeholders also commented that an increasing incidence of GDM without increasing resources has meant that it is not possible to give higher risk women (with pre-existing diabetes) the appropriate level of care following diagnosis.

4.3.2 Selected recommendations from development source

Table 6 below highlights recommendations that have been provisionally selected from the development source(s) that may support potential statement development. These are presented in full after table 6 to help inform the Committee's discussion.

Table 6 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Screening and assessment	Risk assessment NICE NG3 Recommendation 1.2.1 NICE NG3 Recommendation 1.2.2
Referral after diagnosis	Diagnosis NICE NG3 Recommendation 1.2.9

Risk assessment

NICE NG3 Recommendation 1.2.1

So that women can make an informed decision about risk assessment and testing for gestational diabetes, explain that:

- in some women, gestational diabetes will respond to changes in diet and exercise
- the majority of women will need oral blood glucose-lowering agents or insulin therapy if changes in diet and exercise do not control gestational diabetes effectively
- if gestational diabetes is not detected and controlled, there is a small increased risk of serious adverse birth complications such as shoulder dystocia
- a diagnosis of gestational diabetes will lead to increased monitoring, and may lead to increased interventions, during both pregnancy and labour.

NICE NG3 Recommendation 1.2.2

Assess risk of gestational diabetes using risk factors in a healthy population. At the booking appointment, determine the following risk factors for gestational diabetes:

- BMI above 30 kg/m²
- previous macrosomic baby weighing 4.5 kg or above
- previous gestational diabetes
- family history of diabetes (first-degree relative with diabetes)
- minority ethnic family origin with a high prevalence of diabetes.

Offer women with any one of these risk factors testing for gestational diabetes (see recommendations 1.2.5–1.2.7).

Diagnosis

NICE NG3 Recommendation 1.2.9

Offer women with a diagnosis of gestational diabetes a review with the joint diabetes and antenatal clinic within 1 week.

4.3.3 Current UK practice

Screening and assessment

The National Screening Committee has noted that the strongest predictor for the development of type 2 diabetes is having had GDM.

Referral after diagnosis

No published studies on current practice were highlighted for this suggested area for quality improvement; this area is based on stakeholder's knowledge and experience.

4.4 Access to technology

4.4.1 Summary of suggestions

Insulin pump therapy

Stakeholders highlighted that insulin pump therapy (continuous subcutaneous insulin infusion) for women who have type 1 diabetes enables good blood glucose control at conception and in early pregnancy when the vital organs of the foetus are being developed. Stakeholders also comment that when used in conjunction with continuous glucose monitoring, insulin pump therapy can also reduce the rate of hypoglycaemic events, often associated with lower blood glucose levels.

Continuous blood glucose monitoring

Stakeholders commented that some women with diabetes who are pregnant require additional technological support to manage their glycaemic control throughout pregnancy. This is a time where the most effective treatment and devices benefit women and babies and those assessed as requiring these interventions should have quick and effective access.

Stakeholders report that hypoglycaemia is the limiting factor in the management of diabetes, and is a key concern when aiming to achieve the desired levels of glycaemic control in type 1 diabetes patients and continuous glucose monitoring has been shown to reduce exposure to hypoglycaemic events

4.4.2 Selected recommendations from development source

Table 7 below highlights recommendations that have been provisionally selected from the development source(s) that may support potential statement development. These are presented in full after table 7 to help inform the Committee’s discussion.

Table 7 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Insulin pump therapy	Insulin treatment and risks of hypoglycaemia NICE NG3 Recommendation 1.3.16
Continuous blood glucose monitoring	Continuous glucose monitoring NICE NG3 Recommendation 1.3.17 NICE NG3 Recommendation 1.3.18 NICE NG3 Recommendation 1.3.19

Insulin treatment and risks of hypoglycaemia

NICE NG3 Recommendation 1.3.16

Offer women with insulin-treated diabetes continuous subcutaneous insulin infusion (CSII; also known as insulin pump therapy) during pregnancy if adequate blood glucose control is not obtained by multiple daily injections of insulin without significant disabling hypoglycaemia.

Continuous glucose monitoring

NICE NG3 Recommendation 1.3.17

Do not offer continuous glucose monitoring routinely to pregnant women with diabetes.

NICE NG3 Recommendation 1.3.18

Consider continuous glucose monitoring for pregnant women on insulin therapy:

- who have problematic severe hypoglycaemia (with or without impaired awareness of hypoglycaemia) or
- who have unstable blood glucose levels (to minimise variability) or
- to gain information about variability in blood glucose levels.

NICE NG3 Recommendation 1.3.19

Ensure that support is available for pregnant women who are using continuous glucose monitoring from a member of the joint diabetes and antenatal care team with expertise in its use.

4.4.3 Current UK practice

Insulin pump therapy

The national insulin pump audit of 2013⁶ identified that:

- 34% of diabetes specialist services did not have provision for continuing and self-managing (CSII) (when clinically appropriate) for women with diabetes and
- 63% did not report having a written policy/guideline for the management of patients with diabetes on CSII who are pregnant

⁶ White et al., 2014. The UK service level audit of insulin pump therapy in adults. *Diabet. Med.* 31, 412–418.

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Continuous blood glucose monitoring

No published studies on current practice were highlighted for this suggested area for quality improvement; this area is based on stakeholder's knowledge and experience.

4.5 *Organisation of antenatal care*

4.5.1 Summary of suggestions

Care planning

Stakeholders report that all women with diabetes who become pregnant should be signposted or referred to regular and co-ordinated care with trained diabetes and antenatal care in joint pregnancy clinics involving specialist diabetes clinicians, obstetric and midwifery care immediately. Stakeholders report that an early referral, at 6 weeks gestation, to maternity diabetes team from the GP or midwife should occur. They also report that greater awareness is needed about who to contact when a woman with diabetes becomes pregnant, particularly if they do not receive their ongoing diabetes care from the diabetes specialist team.

Stakeholders highlighted that suboptimal glycaemic control can nearly always be improved by skilled multidisciplinary care through regular contact and that there should be contact with joint diabetes and antenatal clinic every 1-2 weeks for assessment of glucose control.

Stakeholders highlighted the importance of the multidisciplinary, including the community team ensuring they discuss information, education and advice about how diabetes will affect the pregnancy, birth and early parenting (such as breastfeeding and initial care of the baby).

Schedule of ultrasound scans

Stakeholders commented that it is important that antenatal care services adhere to the recommended schedule of ultrasound scans. Stakeholders highlighted that it was particularly important that the frequency and timing of ultrasound scans to assess growth of baby in third trimester was in line with guidance to enable accurate assessment to be made and timely decisions on delivery.

4.5.2 Selected recommendations from development source

Table 8 below highlights recommendations that have been provisionally selected from the development source(s) that may support potential statement development. These are presented in full after table 8 to help inform the Committee's discussion.

Table 8 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Care planning	Organisation of antenatal care NICE NG3 Recommendation 1.3.34 NICE NG3 Recommendation 1.3.35
Schedule of ultrasound scans	Organisation of antenatal care NICE NG3 Recommendation 1.3.36[KPI]

Organisation of antenatal careNICE NG3 Recommendation 1.3.34

Offer immediate contact with a joint diabetes and antenatal clinic to women with diabetes who are pregnant.

NICE NG3 Recommendation 1.3.35

Ensure that women with diabetes have contact with the joint diabetes and antenatal clinic for assessment of blood glucose control every 1–2 weeks throughout pregnancy.

NICE NG3 Recommendation 1.3.36 [KPI]

At antenatal appointments, provide care specifically for women with diabetes, in addition to the care provided routinely for healthy pregnant women (see the NICE guideline on antenatal care). [Table 1](#) describes how care for women with diabetes differs from routine antenatal care. At each appointment, offer the woman ongoing opportunities for information and education.

4.5.3 Current UK practice**Care planning**

The NPID audit 2013 shows that only 51% of women with Type 1 diabetes and 37% with Type 2 diabetes had first contact with the specialist team prior to 8 weeks gestation. First contact with a specialist antenatal diabetes team should take place as early as possible in pregnancy to ensure that any pregnancy risks not addressed pre pregnancy are corrected promptly. There were a small number of pregnancies where the initial contact with the team is after the first trimester. The average gestation at first contact was 8.2 weeks for women with Type 1 diabetes and 9.7 weeks for women with Type 2 diabetes.

The CEMACH enquiry⁷ reported that 63% of maternity units in England Wales and Northern Ireland had a full multidisciplinary team comprising an obstetrician, a diabetes physician, a diabetes specialist nurse, a diabetes specialist midwife and a dietitian. There had been an increase in provision of staff over the preceding 8 years, with the availability of a diabetes specialist midwife in the antenatal clinic increasing from 25% to 77% of units, and the availability of a dietitian increasing from 40% to 80% of units. Seventy-five percent of women were reported to have maternity and diabetes care provided in a joint clinic, although only 22% of women were reported to have the entire multidisciplinary team involved in their care.

The CEMACH enquiry panels commented that infrequent clinic appointments, lack of multidisciplinary involvement and communication issues were factors in sub-optimal diabetes care in pregnancy in some of the women in the case–control study.

Schedule of ultrasound scans

The CEMACH enquiry case–control study reported fetal surveillance was sub-optimal for 20% of 37 babies with antenatal evidence of fetal growth restriction and for 45% of 129 babies with antenatal evidence of macrosomia. For babies with antenatal evidence of macrosomia, sub-optimal fetal surveillance was associated with poor pregnancy outcome. The main concerns of the enquiry panels regarding surveillance of macrosomic and growth- restricted babies was lack of timely follow-up (affecting approximately 80% of babies). For macrosomic babies, there were also concerns about poor interpretation of ultrasound scans and about actions taken in response to tests.

⁷ CEMACH (2007) Diabetes in pregnancy: are we providing the best care? Findings of a national enquiry.

4.6 Nutritional advice and supplements

4.6.1 Summary of suggestions

Dietary and lifestyle advice

Stakeholders highlighted that the timely provision of good dietary advice for pregnant can influence a favourable outcome for mother and child. Lack of dietary control can increase the risk of problems to the mother and her child. Stakeholders specifically report that there is potential for gestational diabetes to respond to changes in diet and exercise, they highlight that women are also likely to be more open to changing their behaviour at this time.

Folic acid

Stakeholders report that congenital malformations are at least double that of the background population and neural tube defects account for some of this increase and may be reduced by the use of folic acid preconception.

4.6.2 Selected recommendations from development source

Table 9 below highlights recommendations that have been provisionally selected from the development source(s) that may support potential statement development. These are presented in full after table 9 to help inform the Committee’s discussion.

Table 9 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Dietary and lifestyle advice	Diet, dietary supplements and body weight NICE NG3 Recommendation 1.1.9 NICE NG3 Recommendation 1.1.10
Folic acid	Diet, dietary supplements and body weight NICE NG3 Recommendation 1.1.11

Diet, dietary supplements and body weight

NICE NG3 Recommendation 1.1.9

Offer women with diabetes who are planning to become pregnant individualised dietary advice.

NICE NG3 Recommendation 1.1.10

Offer women with diabetes who are planning to become pregnant and who have a BMI above 27 kg/m² advice on how to lose weight, in line with the NICE guideline on obesity: identification, assessment and management of overweight and obesity in children, young people and adults.

NICE NG3 Recommendation 1.1.11

Advise women with diabetes who are planning to become pregnant to take folic acid (5 mg/day) until 12 weeks of gestation to reduce the risk of having a baby with a neural tube defect.

4.6.3 Current UK practice

Dietary and lifestyle advice

A 2011 shared learning example 'The Monday Clinic'; Implementing a maternal obesity service by Doncaster and Bassetlaw Hospitals NHS Foundation Trust⁸ initiated a midwifery-led service which encouraged obese, pregnant women to make positive healthy lifestyle changes in the antenatal period, which would be sustainable after the birth. They achieved average weight gain of attendees to the clinic was 7.65kg, with 74% not developing any new conditions i.e. co-morbidities during pregnancy, thereby impacting positively on maternity care costs.

Folic acid

The NPID Audit 2013 showed that only 33% of women with diabetes were on 5mg folic acid at the time of conception (43% of women with type 1 and 25% with type 2). Folic acid use was higher among women with Type 1 diabetes, with 42.6% of women taking the 5mg dose, and a further 4.6% taking 400mcg. Among women with Type 2 diabetes, only 24.7% were taking the 5mg dose, with a further 9.7% taking 400mcg.

The CEMACH enquiry⁹ found 69% (83/120) of the women with poor pregnancy outcome and 50% (66/131) of the women with good pregnancy outcome were documented as not having commenced folic acid supplementation before pregnancy (this is similar to the general maternity population), but only 33 women were on the 'high dose' (5 mg) of folic acid. Not commencing folic acid supplements prior to pregnancy led to an increased risk of poor pregnancy outcome. The CEMACH enquiry (comparison of women with type 1 and type 2 diabetes) reported that 45% (32/71) of women with type 2 diabetes and 49% (54/110) of women with type 1

⁸ Doncaster and Bassetlaw Hospitals NHS Foundation Trust (2011) ['The Monday Clinic': Implementing a maternal obesity service](#)

⁹ CEMACH (2007) Diabetes in pregnancy: are we providing the best care? Findings of a national enquiry.

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diabetes were documented as having commenced folic acid supplementation before pregnancy.

4.7 *Intrapartum care*

4.7.1 Summary of suggestions

Timing and mode of birth

Stakeholders report that women with type 1 or 2 diabetes with no other complications should have an elective birth between 37-38 weeks. Delivery at less than 37 weeks is associated with an increased risk of neonatal care admission with resultant maternal separation and problems with establishing breastfeeding.

Stakeholders commented that women should feel that they don't have to have an over medicalised birth, that they still have options available to them for a natural birth.

Antenatal steroids

Stakeholders highlighted that antenatal corticosteroids should be given to all women in preterm labour up to 34 weeks gestation and those with a planned caesarean section prior to 38 +6 week for the prevention of respiratory distress syndrome. They report that corticosteroids can adversely increase blood glucose levels in those women with underlying diabetes and high maternal blood glucose levels around the time of delivery may increase the risk of neonatal hypoglycaemia. Therefore women with insulin treated diabetes receiving steroids should have additional insulin and be monitored closely.

4.7.2 Selected recommendations from development source

Table 10 below highlights recommendations that have been provisionally selected from the development source(s) that may support potential statement development. These are presented in full after table 10 to help inform the Committee's discussion.

Table 10 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Timing and mode of birth	Timing and mode of birth NICE NG3 Recommendation 1.4.2[KPI] NICE NG3 Recommendation 1.4.6
Antenatal steroids	Preterm labour in women with diabetes NICE NG3 Recommendation 1.3.37

Timing and mode of birth

NICE NG3 Recommendation 1.4.2 [KPI]

Advise pregnant women with type 1 or type 2 diabetes and no other complications to have an elective birth by induction of labour, or by elective caesarean section if indicated, between 37+0 weeks and 38+6 weeks of pregnancy.

NICE NG3 Recommendation 1.4.6

Diabetes should not in itself be considered a contraindication to attempting vaginal birth after a previous caesarean section.

Preterm labour in women with diabetes

NICE NG3 Recommendation 1.3.37

Diabetes should not be considered a contraindication to antenatal steroids for fetal lung maturation or to tocolysis.

4.7.3 Current UK practice

Timing of birth

The National Pregnancy in Diabetes Audit (2013) reported that 36% of women with type 1 diabetes were delivered at under 37 weeks. The mean gestational age at delivery for singleton pregnancies ongoing at 24 weeks was 36.6 weeks for women with Type 1 diabetes and 37.2 weeks for women with Type 2 diabetes. A greater proportion (59.6%) of women with Type 2 diabetes had pregnancies continuing at 38 weeks gestation than women with Type 1 diabetes (39.2%). The audit shows a higher proportion (36.3 per cent) of pregnancies in women with Type 1 diabetes were delivered preterm compared with the proportion of preterm deliveries (19.7 per cent) in women with Type 2 diabetes.

Antenatal steroids

The CEMACH enquiry¹⁰ found that of the 3474 women in this study with a continuing pregnancy at 24 weeks of 328 gave birth before 34 weeks of gestation. Thirty-five of these pregnancies resulted in a stillbirth. Of the remaining 293 women, 70.3% received a full course of antenatal steroid therapy. The most common reason given for non-administration of antenatal steroids was birth of the baby before the full course could be given. In a small group of women diabetes was considered a contraindication to antenatal steroid use.

¹⁰ CEMACH (2007) Diabetes in pregnancy: are we providing the best care? Findings of a national enquiry.

4.8 Neonatal care

4.8.1 Summary of suggestions

Stakeholders highlighted that babies of women with all forms of diabetes should be kept with mothers. Separation of mother and baby should not be routine practice unless the infant needs clinical intervention, such as with neonatal hypoglycaemia.

4.8.2 Selected recommendations from development source

Table 11 below highlights recommendations that have been provisionally selected from the development source(s) that may support potential statement development. These are presented in full after table 11 to help inform the Committee's discussion.

Table 11 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Neonatal care	Initial assessment and criteria for admission to intensive or special care NICE NG3 Recommendation 1.5.2

Initial assessment and criteria for admission to intensive or special care

NICE NG3 Recommendation 1.5.2

Babies of women with diabetes should stay with their mothers unless there is a clinical complication or there are abnormal clinical signs that warrant admission for intensive or special care.

4.8.3 Current UK practice

The CEMACH enquiry¹¹ covered neonatal care of term babies born to women with pre-existing type 1 or type 2 diabetes. In the 112 babies selected for the neonatal enquiry that had medical records available, 70 were admitted to a postnatal ward, transitional care unit, stayed on the labour ward or in a maternal dependency unit and 42 were admitted to a NICU for special care. The three main indications for admission to a NICU were a hospital policy of routine admission of healthy babies of women with diabetes 29%, asymptomatic hypoglycaemia in a healthy baby 26% and a clinical need for admission such as poor feeding or respiratory problems 43%. The enquiry panels assessed that 57% of the admissions were unavoidable and that subsequent care of 63% of the babies was compromised, especially in the area of

¹¹ CEMACH (2007) Diabetes in pregnancy: are we providing the best care? Findings of a national enquiry.

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feeding (50%). There was evidence of a clear written care plan for 73% of babies who remained with their mothers and 57% of babies admitted to a NICU. The care plan was not fully followed for 35% of babies remaining with their mothers; aspects of the care plan that were not followed included.

There is evidence that there has been a reduction in separation of mothers and babies post delivery, with reduced admissions to neonatal intensive and special care. There has been an increase in the number of babies receiving normal post delivery care from 42.8% in the CEMACH study¹² and 70.3 in the NPID audit report 2013¹³.

¹² Confidential Enquiry into Maternal and Child Health: Pregnancy in Women with Type 1 and Type 2 diabetes in 2002/3, England, Wales and Northern Ireland. CEMACH. 2005

¹³ National Pregnancy in Diabetes Audit Report 2013, Health and Social Care Information Centre.

4.9 *Postnatal care*

4.9.1 Summary of suggestions

Pre-existing diabetes

Stakeholders highlighted women with pre-existing Type 1 or Type 2 diabetes will need additional postnatal follow up and support to review optimisation of blood glucose. They report that women with ongoing diabetes need careful follow up and support post-partum as diabetes management will need to change.

Stakeholders commented that adequate care planning for the postpartum and postnatal period is not being routinely undertaken when women are given a loan insulin pump during pregnancy. They report that women have been told only during their third trimester that their pump will be removed in the delivery room and not returned to them. The post-partum period and breastfeeding are both times that present unusual challenges for good blood glucose control.

Pre-pregnancy insulin needs should be noted and care planning agreed in consultation with the pregnant woman allowing plenty of time for discussion.

Postnatal care of GDM

Stakeholders report that the risk of future type 2 diabetes following GDM is up to 50%. Early detection and treatment can delay progression and risk of complications and reduce the chance of a woman entering a subsequent pregnancy with uncontrolled and undetected diabetes. They highlight that in accordance with NICE recommendations, following GDM all women should be checked for abnormal glucose tolerance at 6 or 13 weeks postnatal and yearly thereafter. Stakeholders report that annual testing of HbA1c is one of most important predictors for the subsequent development of diabetes.

Stakeholders commented that women who had GDM but do not have diabetes post-partum can be educated to the importance of good diet and exercise to avoid diabetes in later life.

4.9.2 Selected recommendations from development source

Table 12 below highlights recommendations that have been provisionally selected from the development source(s) that may support potential statement development. These are presented in full after table 12 to help inform the Committee's discussion.

Table 12 Specific areas for quality improvement

Suggested quality improvement area	Selected source guidance recommendations
Postnatal care	Blood glucose control, medicines and breastfeeding NICE NG3 Recommendation 1.6.1 NICE NG3 Recommendation 1.6.2 NICE NG3 Recommendation 1.6.4 NICE NG3 Recommendation 1.6.5
Postnatal care of GDM	Information and follow-up after birth Women diagnosed with gestational diabetes NICE NG3 Recommendation 1.6.8 NICE NG3 Recommendation 1.6.10 NICE NG3 Recommendation 1.6.11 NICE NG3 Recommendation 1.6.14

Blood glucose control, medicines and breastfeeding

NICE NG3 Recommendation 1.6.1

Women with insulin-treated pre-existing diabetes should reduce their insulin immediately after birth and monitor their blood glucose levels carefully to establish the appropriate dose.

NICE NG3 Recommendation 1.6.2

Explain to women with insulin-treated pre-existing diabetes that they are at increased risk of hypoglycaemia in the postnatal period, especially when breastfeeding, and advise them to have a meal or snack available before or during feeds.

NICE NG3 Recommendation 1.6.4

Women with pre-existing type 2 diabetes who are breastfeeding can resume or continue to take metformin and glibenclamide immediately after birth, but should avoid other oral blood glucose-lowering agents while breastfeeding.

NICE NG3 Recommendation 1.6.5

Women with diabetes who are breastfeeding should continue to avoid any medicines for the treatment of diabetes complications that were discontinued for safety reasons in the preconception period.

Information and follow-up after birth

Women diagnosed with gestational diabetes

NICE NG3 Recommendation 1.6.8

Test blood glucose in women who were diagnosed with gestational diabetes to exclude persisting hyperglycaemia before they are transferred to community care.

NICE NG3 Recommendation 1.6.10

Explain to women who were diagnosed with gestational diabetes about the risks of gestational diabetes in future pregnancies, and offer them testing for diabetes when planning future pregnancies.

NICE NG3 Recommendation 1.6.11

For women who were diagnosed with gestational diabetes and whose blood glucose levels returned to normal after the birth:

- Offer lifestyle advice (including weight control, diet and exercise).
- Offer a fasting plasma glucose test 6–13 weeks after the birth to exclude diabetes (for practical reasons this might take place at the 6-week postnatal check).
- If a fasting plasma glucose test has not been performed by 13 weeks, offer a fasting plasma glucose test, or an HbA1c test if a fasting plasma glucose test is not possible, after 13 weeks.
- Do not routinely offer a 75 g 2-hour oral glucose tolerance test (OGTT).

NICE NG3 Recommendation 1.6.14

Offer an annual HbA1c test to women who were diagnosed with gestational diabetes who have a negative postnatal test for diabetes.

4.9.3 Current UK practice

Pre-existing diabetes

No published studies on current practice were highlighted for this suggested area for quality improvement; this area is based on stakeholder's knowledge and experience.

Postnatal care of GDM

A 2014 quantitative retrospective cohort study in 127 primary care practices in England found that postpartum follow-up was performed in 146 (18.5%) females within 6 months of delivery. Annual rates of long-term follow-up were consistently around 20% a year over a period of 5 years. They also noted that there were substantial regional differences were identified among rates of follow-up.

4.10 Additional areas

4.10.1 Summary of suggestions

The improvement areas below were suggested as part of the stakeholder engagement exercise. However they were felt to be either unsuitable for development as quality statements, outside the remit of this particular quality standard referral or require further discussion by the Committee to establish potential for statement development.

There will be an opportunity for the QSAC to discuss these areas at the end of the session on 4 June 2015.

Preconception medical review

Stakeholders identify that a pre-pregnancy medical review is an important aspect of pre-pregnancy care to reducing complications of pregnancy and teratogenicity. This area is often neglected in practice and is a good marker of quality of care. Whilst no specific recommendations are presented on women receiving a formal medical review pre-pregnancy a number of elements of a medical review are contained within the sections above.

Participation in national audit

Stakeholders commented that all diabetes maternity services should participate in the NPID audit and show evidence of responding constructively to those areas where their performance is below the national average. It is expected that the national pregnancy in diabetes audit will be referenced as a data source within relevant areas for quality improvement within the quality standard.

Better care planning and review

Stakeholders highlighted that regular care planning discussions and reviews should be used as the basis to support women with diabetes who are pregnant during the pregnancy, and co-ordinate care provision with the specialist care teams involved. This should also include psychological support where need is identified. It is anticipated that care planning and review this will form part of a number of individual statements.

Telemonitoring

Stakeholders highlighted that telemonitoring of home blood glucose measurement by pregnant women with diabetes allows supervision and insulin dose adjustment by the diabetes team between scheduled hospital visits. They report that it happens sporadically in the UK but there is emerging evidence that it may contribute to enhanced care or allow reduced the frequency of clinic visits without compromising

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care particularly in remote or rural areas. This area for quality improvement is not contained within the source guidance.

Appendix 1: Related quality standard statements:

Antenatal Care QS22

Quality statement 6: Risk assessment – gestational diabetes

Quality statement

Pregnant women are offered testing for gestational diabetes if they are identified as at risk of gestational diabetes at the booking appointment.

Quality measure

Structure:

- a) Evidence of local arrangements to ensure that pregnant women have their risk factors for gestational diabetes identified and recorded at the booking appointment.
- b) Evidence of local arrangements to ensure that pregnant women identified as at risk of gestational diabetes at the booking appointment are offered testing for gestational diabetes.

Process:

- a) Proportion of pregnant women identified as at risk of gestational diabetes at the booking appointment who are offered testing for gestational diabetes.

Numerator – the number of women in the denominator offered testing for gestational diabetes.

Denominator – the number of pregnant women identified as at risk of gestational diabetes at the booking appointment.

- b) Proportion of pregnant women identified as at risk of gestational diabetes at the booking appointment who receive testing for gestational diabetes.

Numerator – the number of women in the denominator receiving testing for gestational diabetes.

Denominator – the number of pregnant women identified as at risk of gestational diabetes at the booking appointment.

Outcome: Early identification of women with gestational diabetes.

What the quality statement means for each audience

Service providers ensure that systems are in place to offer pregnant women identified as at risk of gestational diabetes at the booking appointment testing for gestational diabetes.

Healthcare professionals offer pregnant women identified as at risk of gestational diabetes at the booking appointment testing for gestational diabetes.

Commissioners ensure they commission services that offer pregnant women identified as at risk of gestational diabetes at the booking appointment testing for gestational diabetes.

Pregnant women with a higher than normal chance of developing gestational diabetes (a type of diabetes that occurs during pregnancy) at the booking appointment are offered a test for gestational diabetes.

Source guidance

[NICE clinical guideline 62](#) recommendations 1.2.2.2 and 1.9.1.1 (key priority for implementation).

[NICE clinical guideline 63](#) recommendation 1.2.2.4.

Data sources

Structure: a) and b) Local data collection.

Process: a) and b) Local data collection. The [NICE clinical guideline 62 audit support](#), criterion 8 and 9. The [Maternity Services Secondary Uses Dataset](#), once implemented, will collect data on the following risk factors at booking: maternal height (global number 17209970) and weight (global number 17209960), maternal family history of diabetes (global number 17200950) and ethnic group (global number 17200030), and obstetric diagnoses from previous pregnancies including gestational diabetes mellitus (global number 17200720). The date of the booking appointment will also be available (global number 17201190).

Definitions

Risk factors are taken from [NICE clinical guideline 62](#):

- body mass index above 30 kg/m²
- previous macrosomic baby weighing 4.5 kg or above
- previous gestational diabetes
- family history of diabetes (first-degree relative with diabetes)

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- family origin with a high prevalence of diabetes:
- South Asian (specifically women whose country of family origin is India, Pakistan or Bangladesh)
- black Caribbean
- Middle Eastern (specifically women whose country of family origin is Saudi Arabia, United Arab Emirates, Iraq, Jordan, Syria, Oman, Qatar, Kuwait, Lebanon or Egypt).

Women with any 1 of these risk factors should be offered testing for gestational diabetes.

Testing for gestational diabetes should be carried out in accordance with [NICE clinical guideline 63](#):

'The 2-hour 75 g oral glucose tolerance test (OGTT) should be used to test for gestational diabetes and diagnosis made using the criteria defined by the World Health Organization^[2]. Women who have had gestational diabetes in a previous pregnancy should be offered early self-monitoring of blood glucose or an OGTT at 16–18 weeks, and a further OGTT at 28 weeks if the results are normal. Women with any of the other risk factors for gestational diabetes should be offered an OGTT at 24–28 weeks.'

Equality and diversity considerations

Any risk assessment for gestational diabetes should be corrected for family origin. Some family origins are risk factors for diabetes (see [Definitions](#)) and people from these groups should be offered testing in accordance with the guidance.

Diabetes in adults QS6

Quality statement 7: Preconception care

Quality statement

Women of childbearing age with diabetes are regularly informed of the benefits of preconception glycaemic control and of any risks, including medication that may harm an unborn child. Women with diabetes planning a pregnancy are offered preconception care and those not planning a pregnancy are offered advice on contraception.

Quality measure

Structure:

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

b) Evidence that women with diabetes planning a pregnancy are offered preconception care.

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

Process:

a) Proportion of women of childbearing age with diabetes who are regularly informed about the benefits of preconception glycaemic control and of any risks including medication that may harm an unborn child.

Numerator – the number of women in the denominator informed about preconception 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.

b) Proportion of women of childbearing age with diabetes planning a pregnancy who are offered preconception care from an appropriately trained healthcare professional.

Numerator – the number of women in the denominator offered preconception care from an appropriately trained healthcare professional.

Denominator – the number of women of childbearing age with diabetes planning a pregnancy.

c) Proportion of women of childbearing age with diabetes not planning a pregnancy who are offered advice on contraception.

Numerator – the number of women in the denominator offered advice on contraception.

Denominator – the number of women with diabetes not planning a pregnancy.

What the quality statement means for each audience

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

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

Commissioners ensure they commission care pathways that provide preconception advice for women of childbearing age with diabetes, and offer preconception care for women with diabetes planning a pregnancy and advice on contraception for those not planning a pregnancy.

Women of childbearing age who have diabetes are regularly given advice about the benefits of controlling their blood sugar 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.

Source guidance

[NICE clinical guideline 63](#) recommendation 1.1.1.2.

Data source

Structure: a), b) and c) Local data collection. Contained within [NICE clinical guideline 87 Audit support organisational criteria](#), criteria 1–3.

Process: a), b) and c) Local data collection. [NICE clinical guideline 87 Audit support clinical criteria](#), criterion 36.

A pregestational diabetes audit which is currently being piloted and rolled out in 2012 as part of the next phase of the [National Diabetes Audit](#) includes the relevant structure and process measures.

Definitions

Medication that may harm an unborn child includes, but is not limited to:

- angiotensin-converting enzyme inhibitors and angiotensin II receptor antagonists
- statins
- oral anti-diabetes hypoglycaemic agents with the exception of metformin.

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

Appendix 2: Key priorities for implementation (NG3)

Recommendations that are key priorities for implementation in the source guideline and that have been referred to in the main body of this report are highlighted in grey.

Preconception planning and care

Advise women with diabetes who are planning to become pregnant to aim for the same capillary plasma glucose target ranges as recommended for all people with type 1 diabetes^[1]. [new 2015][recommendation 1.1.17]

Gestational diabetes

Diagnose gestational diabetes if the woman has either:

- a fasting plasma glucose level of 5.6 mmol/litre or above or
- a 2-hour plasma glucose level of 7.8 mmol/litre or above. [new 2015][recommendation 1.2.8]

Antenatal care for women with diabetes

Advise pregnant women with any form of diabetes to maintain their capillary plasma glucose below the following target levels, if these are achievable without causing problematic hypoglycaemia:

- fasting: 5.3 mmol/litre
and
- 1 hour after meals: 7.8 mmol/litre or
- 2 hours after meals: 6.4 mmol/litre. [new 2015][recommendation 1.3.5]

Test urgently for ketonaemia if a pregnant woman with any form of diabetes presents with hyperglycaemia or is unwell, to exclude diabetic ketoacidosis. [new 2015][recommendation 1.3.22]

At antenatal appointments, provide care specifically for women with diabetes, in addition to the care provided routinely for healthy pregnant women (see the NICE guideline on [antenatal care](#)). Table 1 describes how care for women with diabetes differs from routine antenatal care. At each appointment, offer the woman ongoing

opportunities for information and education. [2008, amended 2015] [recommendation 1.3.36]

Intrapartum care

- Advise pregnant women with type 1 or type 2 diabetes and no other complications to have an elective birth by induction of labour, or by elective caesarean section if indicated, between 37⁺⁰ weeks and 38⁺⁶ weeks of pregnancy. [new 2015][recommendation 1.4.2]
- Advise women with gestational diabetes to give birth no later than 40⁺⁶ weeks, and offer elective birth (by induction of labour, or by caesarean section if indicated) to women who have not given birth by this time. [new 2015][recommendation 1.4.4]

Postnatal care

- For women who were diagnosed with gestational diabetes and whose blood glucose levels returned to normal after the birth:
 - Offer lifestyle advice (including weight control, diet and exercise).
 - Offer a fasting plasma glucose test 6–13 weeks after the birth to exclude diabetes (for practical reasons this might take place at the 6-week postnatal check).
 - If a fasting plasma glucose test has not been performed by 13 weeks, offer a fasting plasma glucose test, or an HbA1c test if a fasting plasma glucose test is not possible, after 13 weeks.
 - Do not routinely offer a 75 g 2-hour OGTT. [new 2015][recommendation 1.6.11]
- Offer an annual HbA1c test to women who were diagnosed with gestational diabetes who have a negative postnatal test for diabetes. [new 2015][recommendation 1.6.14]

Appendix 3: Suggestions from stakeholder engagement exercise – registered stakeholders

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
Preconception care					
001	SCM 1	<p>Key area for quality improvement 1</p> <p>Improved access to and provision of Preconception Care to all women with pre-gestational diabetes.</p>	<p>There is good evidence that preconception care (addressing glucose control, folic acid supplementation, contraindicated medications and existing diabetes complications) to prepare women for pregnancy, significantly improves pregnancy outcomes for women with pre-existing Type 1 and 2 diabetes.</p>	<p>The NPID audit 2013 found that most women with Type 1 and 2 diabetes are still not being adequately prepared for pregnancy, despite this being a recommendation in NICE CG63 (2008) and one of the diabetes quality standards in the NICE Diabetes QS (2012).</p>	<p>Preconception planning and care has been identified as a key priority for implementation in NICE NG3 (2015). NPID audit report (2013). NICE Diabetes QS (2012).</p>
005	SCM1	<p>Key area for quality improvement 5</p> <p>Improved documentation of contraception use in women with diabetes of child bearing age, with evidence of preconception care offered to those not using contraception.</p>	<p>Women with diabetes of child-bearing age who are having sex but not using contraception are at extremely high risk of pregnancy. Unless this is recognised, discussed and managed, these are the women who enter pregnancy with poor glycaemic control, no folic acid, and on medications that are unsafe and contraindicated in pregnancy.</p>	<p>The NPID report 2013 indicates that very few women with diabetes are adequately prepared for pregnancy. This is a particular problem for women with Type 2 diabetes who are often managed solely in primary care, where the risks may be underappreciated. Both NICE CG63 (2008), NICE NG3 (2015) have detailed the importance of documentation of contraception and offering preconception care in their recommendations.</p>	<p>NPID report (2013) NICE NG3 (2015) NICE CG63 (2008)</p>
011	SCM3	<p>Preparation for pregnancy Target HbA1c</p>	<p>Optimum blood glucose control at the time of conception is key in the prevention of congenital abnormalities and reducing pregnancy complications.</p>	<p>Recent national audit demonstrated that only 40% of women with Type 1 diabetes and 18% of those with Type 2 achieved a target HbA1c prior to pregnancy</p>	<p>Diabetes in pregnancy : management of diabetes and its complications from preconception to the postnatal period (2015)_NICE guideline</p>

ID	Stakeholder	Suggested key area for quality improvement	Why is this important?	Why is this a key area for quality improvement?	Supporting information
			NICE (2015) recommend an HbA1c of < 48mmol/mol prior to pregnancy.		NG3 National Pregnancy in Diabetes Audit (2013) <i>www.hscic.gov.uk/npid</i>
017	Association of British Clinical Diabetologists	Key area for quality improvement 1	Evidence of pre-pregnancy medical review	Review of diabetes and associated medical conditions (and treatment) is fundamental to preconception care with a view to reducing complications of pregnancy and teratogenicity. This area is often neglected in practice and is a good marker of quality of care.	See NICE Guidance NG 3
019	Association of British Clinical Diabetologists	Key area for quality improvement 3	HbA1c at 48 – 53 mmol/mol prior to pregnancy	Optimisation of glycaemic control has been demonstrated to improve outcomes, both in terms of macrosomia and fetal malformation. An HbA1c target is outlined in NICE NG3, but care can be audited through an ideal and audit standard HbA1c level	See NICE Guidance NG 3
020	Association of British Clinical Diabetologists	Key area for quality improvement 4	Retinopathy screening prior to pregnancy or during first trimester	Screening for diabetic eye disease (retinopathy) is a basic aspect of diabetes care. Retinopathy can worsen during pregnancy. This aspect can be monitored as a standard of good care.	See NICE Guidance NG 3
026	Diabetes UK	Key area for quality improvement 1 Pre-conception care	There is strong evidence that when women of childbearing age are well prepared for pregnancy the risk of harm to mother and baby are significantly reduced.	The risk to mother and baby is reduced with good planning and management of glycaemic control prior to, and throughout, pregnancy. Maintaining glycaemic control at any time can be very	NICE diabetes in pregnancy guideline NG3. National Pregnancy in Diabetes Audit Report 2013

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			<p>Key priorities within this improvement area include</p> <ul style="list-style-type: none"> • Making every contact count in discussing pregnancy and contraception - the responsibility of everyone in contact with women with diabetes • Women with diabetes being given contact numbers and attending a specialist multidisciplinary preconception service • Through quality consultations and shared decision making women should not just attend for preconception care but are able to engage in the work needed to adequately prepare them for pregnancy and take folic acid, maintaining agreed/optimal glycaemic control, and discontinuing medications which may cause foetal harm. 	<p>hard, even without being pregnant, and additional support and motivation may be needed for some women with both Type 1 and Type 2 diabetes. A growing number of women with Type 2 diabetes are also becoming pregnant and it is important that pre-conception care and advice is provided as part of routine care planning reviews which are often provided in primary care.</p> <p>Evidence shows that only:</p> <ul style="list-style-type: none"> • 33% of women who become pregnant are taking folic acid prior to pregnancy, • 5.1% of women with Type 1 diabetes and 18.5% of women with Type 2 diabetes had Hba1c measurements in the first trimester below the previous NICE target of 43mmol/mol • More than 10% of the women had a first trimester HbA1c of 86mmol/mol or more, the level at which NICE strongly advises women with diabetes to avoid getting pregnant • Nearly 1 in 10 women with Type 2 diabetes were taking blood glucose medications that may be harmful in pregnancy • 6% women were taking statins or ACE inhibitors when they 	<p>1. O'Higgins, S. et al. Barriers and facilitators to attending pre-pregnancy care services: the ATLANTIC-DIP experience. Diabetic Medicine (2014) DOI:10.1111/dme.12370</p> <p>2. Murphy, HR. et al. Effectiveness of a regional pre-pregnancy care program in women with Type 1 and Type 2 diabetes. Diabetes Care (2010) 33. 2514-2520</p>

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				<p>became pregnant</p> <p>For women with pre-existing diabetes, whether Type 1 or 2, pre-conception counselling and care is vitally important and has been shown to improve pregnancy outcomes¹. Major factors to be considered are; improving overall glycaemic control; careful monitoring of any complications (especially retinopathy and nephropathy); ensuring the woman is on the most suitable treatment for pregnancy; consideration of other modifiable risk factors (such as obesity) and; commencement of high dose folic acid. Simply attending a preconception clinic has been shown to improve pregnancy outcomes independent of improvements in glycaemic control². Yet, studies have shown that, despite these benefits, only about 30-40% of women might actually attend such a clinic^{1,2}.</p>	
038	Colchester Hospital University NHS Foundation Trust	<p>Key area for quality improvement 2</p> <p>Pre pregnancy advice to all women with type 1 and type 2</p>	<p>Ensure optimisation of BG levels to reduce risk of miscarriage etc and better outcomes for pregnancy, also ensure women not taking any non-appropriate medication for pregnancy</p>	<p>Women find it much harder to achieve acceptable BG levels in early pregnancy if not already been working at achieving target levels and also increased guilt when realise on medication contraindicated in pregnancy</p> <p>NDIP audit shows women are not getting satisfactory pre pregnancy advice as shown by non-appropriate medications at start of pregnancy and lack of women prescribed Folic acid 5mg</p>	<p>NICE Diabetes in pregnancy guidance</p>

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043	The Royal College of Midwives	Key area for quality improvement 2 Preconception Counselling	Pregnancy outcomes for women with pre existing diabetes are likely to be more favourable if the woman has achieved excellent control of her diabetes preconception. Women with diabetes who are planning to become pregnant should be offered a structured education programme as soon as possible.	The National Pregnancy in Diabetes Audit found that women are still overall poorly prepared for pregnancy and this is reflected in pregnancy outcomes. This has an impact on the woman and her family and potential cost to the NHS of neonatal unit admissions and ongoing care for children with congenital malformations,	NICE Diabetes in Pregnancy guidelines 2015 National Pregnancy in Diabetes Audit 2013 (published 2014)
049	SCM 4	Key area for quality improvement 2 (1.1.29) Improvement in pre-conception care for women with pre-existing diabetes	Evidence shows that women who have pre-existing diabetes and prepare for pregnancy have better outcomes for their babies than women who don't.	As the number of women with diabetes increases, the need to ensure these women are getting proper and timely pre-conception advice is increasing as well. The guideline sets out strong recommendations for when this information should be given. Measurement of women who are getting pre-conception advice v women who are presenting post-conception would tell us if the way it is currently being managed is working.	
Gestational diabetes mellitus (GDM)					
004	SCM1	Key area for quality improvement 4 Improved long term follow up of women with gestational diabetes.	Women who have been diagnosed with Gestational diabetes (GDM) during pregnancy are at extremely high risk of developing Type 2 diabetes (T2DM). If detected early, treatment has been shown to delay progression and	It has been recommended in NICE NG3 (2015) and NICE CG63 (2008) that women who have had GDM should have annual blood testing for diabetes. However, evidence suggests that this is not occurring (McGovern; Pierce). Thus there is lost opportunity to reduce the burden of disease in this group of	NICE NG3 (2015) NICE CG63 (2008) McGovern et al. 2014. Diabetes screening after gestational diabetes in England: a quantitative retrospective cohort study.

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			subsequent risk of developing diabetes complications. Also as these are women of childbearing age, early detection and management reduces the chances of entering a further pregnancy with uncontrolled and undetected T2DM.	women, that should be avoidable.	British Journal of General Practice. 64(618): e17-e23. Pierce M et al 2011. Missed opportunities for diabetes prevention: post-pregnancy follow-up of women with gestational diabetes mellitus in England. Br J Gen Pract;61(591):e611-9.
006	SCM2	Annual HbA1c check post GDM (1.6.14)	For women who have had GDM this is the most important predictor for the subsequent development of diabetes.	Currently there are many cases of undiagnosed type 2 diabetes in the community. Early detection through a simple screening procedure of the highest risk group (women with previous GDM) will reduce the numbers of potential complications and may be able to reduce the incidence if measures are introduced when results are borderline for the diagnosis of diabetes. .	The National Screening Committee has noted that the strongest predictor for the development of type 2 diabetes is having had GDM.
015	SCM 3	Risk of future Type 2 diabetes	The risk of future type 2 diabetes following gestational diabetes mellitus (GDM) is up to 50 % NICE recommend that following GDM all women are checked for abnormal glucose tolerance at 6 or 13 weeks postnatal and yearly thereafter	The uptake for this postnatal screening is known to be poor (Diabetes UK 2015), denying the opportunity for early diagnosis of type 2 diabetes or the provision of healthy lifestyle advice in the prevention of Type 2 diabetes.	Diabetes in pregnancy : management of diabetes and its complications from preconception to the postnatal period (2015) NICE guideline NG3

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					<p>Preventing Type 2 diabetes: risk identification and interventions for individuals at high risk. NICE guideline (PH38)</p> <p>'Women with gestational diabetes missing out on postnatal care ' Diabetes.org.uk</p>
025	British Maternal and Fetal Medicine Society	Key area for quality improvement 1 Screening for gestational diabetes	There are very different screening tools used in different countries and much controversy around this	This is a controversial area which has huge organisational and financial implications for maternity services	<p>J Diabetes Complications. 2015 Mar 19. pii: S1056-8727(15)00102-6. doi: 10.1016/j.jdiacomp.2015.03.006. [Epub ahead of print]</p> <p>Gestational diabetes: differences between the current international diagnostic criteria and implications of switching to IADPSG.</p> <p>Agarwal MM1, Dhatt GS2, Othman Y2. and other similar publications</p>
028	Diabetes UK	Key area for quality improvement 3 Improved assessment of	All women who are pregnant and at risk of gestational diabetes (and do not have pre-existing	NICE guidance, published in 2008 ³ , stated that 2–5% of pregnancies involve women with diabetes. Of all pregnancies	3. NICE guidelines [CG63]. Diabetes in pregnancy: Management

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		gestational diabetes	diabetes) should be assessed and provided with education, information and advice about risk and what to do (e.g. those who have had GDM before). They should be tested for GDM and provided with information, advice about food, lifestyle interventions, medications and follow up as appropriate. There is increasing evidence that more women are at risk of GDM and, particularly in black and minority ethnic communities. As such appropriate resources need to be put in place to manage them effectively.	complicated by diabetes, 7.5% are estimated to be due to Type 1 diabetes and 5% are due to Type 2. This balance will be changing as more women develop Type 2 diabetes at a younger, child-bearing age. A combination of factors will be contributing to significant increases in numbers of women with GDM including women having babies later in life, growing numbers of people being overweight/obese and earlier diagnosis of diabetes. Approximately 87.5% of pregnancies complicated by diabetes are estimated to be due to gestational diabetes.	of diabetes and its complications from pre-conception to the postnatal period March 2008
037	Colchester Hospital University NHS Foundation Trust	Key area for quality improvement 1 Ensure all women who qualify for GDM screening in pregnancy are screened at the appropriate gestation	Women seen in timely manner to discuss and make dietary changes with BG testing, if later gestation testing then can be more difficult to achieve normal BG levels by diet and when have growth scans can also be find baby already showing signs of increased growth	When screening performed late or not at all, then increased risk of complications at birth for both mum and baby due to baby getting large for gestational age. Potential increase admission to NNU	NICE recommendations for timing of testing
042	The Royal College of Midwives	Key area for quality improvement 1 Separate provision for high and lower risk diabetic women.	Increasing incidence of Gestational Diabetes without increasing resources has meant that it is not possible to give higher risk women (with pre existing diabetes) the appropriate level of care.	The National Pregnancy in Diabetes Audit of women with pre existing diabetes identified that there is still a lot to be done to improve outcomes for this group of women, in terms of reducing stillbirths, congenital malformations and large for gestational age	National Pregnancy in Diabetes Audit 2013 (published 2014) Quality of care and outcomes of Diabetic Pregnancies 2013.

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				babies(macrosomic) NICE Diabetes in Pregnancy guideline updated 2015 states that all diabetic women should be seen 1-2 weekly by the diabetes team.	Local Data showing increasing incidence of gestational diabetes
051	SCM4	Key area for quality improvement 4 Referral time after diagnosis of GDM	The current guideline recommends referral in a week or less. The period between diagnosis and referral is a very stressful time for a pregnant woman (see key area 1 above). In addition to lowering the stress levels in women, it is also known that the sooner interventions are begun, the lower the risks of birth complications in women with GDM.	The sooner women with GDM are seen and interventions begun, the fewer adverse outcomes from GDM will occur.	
Monitoring during pregnancy					
003	SCM 1	Key area for quality improvement 3 Improved glycaemic control during pregnancy for women with Type 1 and Type 2 diabetes to avoid late adverse fetal outcomes.	Suboptimal glucose control in later pregnancy is associated with adverse fetomaternal outcomes (including an increase in stillbirth)	The NPID audit 2013 has indicated that women in the UK have suboptimal glucose control during pregnancy. Risk of having a stillbirth is higher in women with diabetes than the background population, and suboptimal glucose control contributes to this risk. Focusing on improving glucose control in the second and third trimesters is important to reduce stillbirth and large for gestational age babies, improving pregnancy outcomes.	NPID audit report (2013)

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008	SCM2	Measurement of HbA1c in the second and third trimester in women with pre-existing diabetes to assess the level of risk (1.38, 1.39)	Women with diabetes have increased risks in pregnancy of complications such as stillbirth, shoulder dystocia, hypertension, caesarean section, neonatal unit admission.	HbA1c has been shown to be a good indicator of the risk for multiple adverse pregnancy outcomes and involves just a simple blood test. Women with high levels of HbA1c can then be monitored more closely for adverse outcomes and managed appropriately to minimise risk.	Risks of many adverse outcomes have been shown to increase as HbA1c increases. Tennant et al Diabetologia 2014 Maresh et al Diabetes Care 2015
014	SCM3	Optimum blood glucose control during pregnancy	<p>Poor glycaemic control throughout pregnancy can drive fetal growth, enhancing the need for operative delivery and increasing pregnancy complications.</p> <p>NICE recommend that blood glucose levels are maintained at a fasting of 5.3 mmols or less mmols and a 1 hour value of 7.8mmols or less .</p>	Recent national audit found that a significant number of women with diabetes continue to have infants that are large for gestational age. Increasing the need for operative delivery and contributing to neonatal morbidity and mortality.	<p><u>Diabetes in pregnancy : management of diabetes and its complications from preconception to the postnatal period (2015)</u> NICE guideline NG3</p> <p>National Pregnancy in Diabetes Audit (2013) www.hscic.gov.uk/npid</p> <p>Royal college of Obstetricians (RCOG) <u>Shoulder Dystocia : Green Top guideline No 42 (2012)</u> rcog.org.uk</p>
030	Diabetes UK	Key area for quality improvement 5 Support for improved glycaemic control during pregnancy	Evidence shows that maintaining good glycaemic control during pregnancy reduces the risk of complications to the mother and baby. Furthermore, the risk of	The NPID report shows that there is significant room for improving HbA1c control during all phases of pregnancy. Approximately 38% of pregnant women had an HbA1c between 53-63mmol/mol	NICE diabetes in pregnancy guideline NG3. National Pregnancy in Diabetes Audit Report 2013

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			<p>retinopathy increases as glycaemic control changes and development of the baby progresses. There is a need for improvement in support, access to treatments/devices, information and education to support this.</p>	<p>at 24 weeks and over. A further 2.2% had an HbA1c greater than, or equal to, 86 mmol/mol where NICE advises caution. This is a key area for quality improvement requiring access to appropriate devices and monitoring testing to inform the pregnant woman about what actions to take to reduce risk, balancing the need to optimise blood glucose control without hypos. Many people with diabetes experience problems getting enough blood glucose strips to monitor more frequently⁶ and this is vital during pregnancy.</p> <p>28.8% of pregnancies where the pregnancy was ongoing at 24 weeks were delivered preterm. Stillbirth and neonatal death rates for women with diabetes are significantly higher than the rate for the general population at 16.1 (all births=4.9) and 10.7 (all births=2.8) per 1,000 births respectively.</p>	<p>6. Diabetes UK. Access to test strips – A postcode lottery? (Aug 2013).available at http://www.diabetes.org.uk/About_us/What-we-say/Diagnosis-ongoing-management-monitoring/Access-to-test-strips-A-postcode-lottery/ National Pregnancy in Diabetes Audit Report 2013</p>
Diet and nutritional advice					
010	SCM2	Use of folic acid at conception in women with type 1 and 2 diabetes (1.1.11).	Congenital malformations are at least double that of the background population and neural tube defects account for some of this increase and may be reduced by the use of folic acid preconception.	All women in the reproductive age group with pre-existing diabetes should be having regular checks at least annually thus giving the opportunity to ensure that those considering pregnancy are prescribed folic acid so that they are taking it around the time of conception.	The National Pregnancy in Diabetes Audit (2013) showed that only 33% of women with diabetes were on 5mg folic acid at the time of conception (43% of women with type 1 and

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				Current National data shows women are frequently not on folic acid, particularly those with type 2 diabetes.	25% with type 2) .
012	SCM3	<p><u>Preparation for pregnancy</u> : Provision of folic acid 5mg prior to pregnancy</p>	Folic acid is known to help in the prevention of neural tube defects (NTD) . NICE (2015) recommend that women with diabetes planning a pregnancy should take a higher dose of 5mg of folic acid prior to pregnancy and up to 12 weeks gestation,	Recent national audit has recognised that only a third of women with diabetes planning pregnancies were taking the recommended dose of 5mg prior to pregnancy	<p>Diabetes in pregnancy : management of diabetes and its complications from preconception to the postnatal period (2015) NICE guideline NG3</p> <p>National Pregnancy in Diabetes Audit (2013) <i>www.hscic.gov.uk/npid</i></p>
016	NDR-UK	Key area for quality improvement 1 Dietary advice for pregnant women with diabetes	<p>There is clear evidence that the timely provision of good dietary advice for pregnant can influence a favourable outcome for mother and child.</p> <p>Lack of dietary control can increase the risk of problems to the mother and her child.</p> <p>This applies to women with type I, type II and gestational diabetes. NICE (2008) specifically recommends that such women should be offered dietary advice as part of the education package.</p>	<p>If the aim of maternity care is to ensure that all women receive care that promotes their physical health and psychological well-being and optimises the health of their baby, then the provision of dietary advice to optimise their health is essential throughout their pregnancy.</p> <p>It is important that expectant mothers can access both general and specific advice on the right diet to consume throughout pregnancy, to enable them to make informed choices.</p>	<p>Diabetes UK Recommendations for the management of pregnant women with diabetes (including Gestational diabetes) Approved April 2002 / Updated June 2005 / Updated April 2008</p> <p>Tieu J, Crowther CA, Middleton P. Dietary advice in pregnancy for preventing gestational diabetes mellitus. Cochrane Database of Systematic</p>

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			Such advice needs to be evidence based, quality assured and written in terms and language understood by all social groups.		Reviews 2008, Issue 2. Art. No.: CD006674. DOI: 10.1002/14651858.CD006674.pub2 Effect of Treatment of Gestational Diabetes Mellitus on Pregnancy Outcomes Crowther C Hiller J. Moss J et al (2005)N England Journal Medicine 352:2477-2486 NICE (2008) Diabetes in pregnancy
018	Association of British Clinical Diabetologists	Key area for quality improvement 2	Use of folic acid at 5mg prior to pregnancy	Demonstrated to improve outcome but often neglected. Again, a good marker of basic good quality care	See NICE Guidance NG 3
045	The Royal College of Midwives	Key area for quality improvement 4 Offer lifestyle advice (including weight control, diet and exercise).	The potential for gestational diabetes to respond to changes in diet and exercise. Women are also likely to be more open to changing their behaviour at this time.	As above, women repeatedly report not receiving enough information about this issue. This reflects the lack of time available for these health promotion discussions with midwives.	As demonstrated in the surveys undertaken in the RCM Pressure Points campaign and CQC Survey 2013
050	SCM4	Key area for quality improvement 3 Uptake of high dose folic acid	Women with pre-existing diabetes who take high dose folic acid pre-conception have lower risk of having babies with congenital malformations than those who	This is a straight-forward intervention without any proven risks to mother or child, and yet can improve the lives of both mothers with diabetes and their children. Measurement of the up-take	

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			don't.	will bring this to the fore in the minds of both medical carers and the women who seek their help.	
Access to technology					
023	Medtronic Limited	<p>Key area for quality improvement 1</p> <p>Insulin pump therapy (continuous subcutaneous insulin Infusion, CSII) in type 1 diabetes patients for blood glucose control where multiple daily injections are inadequate.</p>	<p>Insulin pump therapy has been shown to reduce blood glucose levels in the general type 1 diabetes population. Current NICE Guidance on Diabetes in Pregnancy recommends that insulin pump therapy should be offered to women with insulin-treated diabetes during pregnancy if adequate blood glucose control is not obtained by multiple daily injections of insulin without significant disabling hypoglycaemia.</p> <p>This is important because good blood glucose control at the time of conception and in the early stages of pregnancy where vital organs of the foetus are being developed is well-known to improve the chances of delivering a healthy baby.</p> <p>According to NICE Guidance (NG3): <i>"babies born to women with diabetes have a high risk of</i></p>	<p>According to the National Pregnancy in Diabetes Audit Report (2013), only 5.1 per cent of pregnancies in women with Type 1 diabetes in England, Wales and the Isle of Man had an HbA1c measurement below the NICE recommended target in the first trimester [HbA1c level of less than 43 mmol/mol (6.1%)]. Further, 75% of women had HbA1c of >53 mmol/mol (7.0%). These data indicate that the majority of women are not meeting NICE recommended blood glucose levels in the critical early stages of pregnancy, therefore it is clear that this is a key area for quality improvement.</p> <p>Improved uptake of insulin pump therapy in eligible type 1 diabetes patients during pre-conception and pregnancy could help to achieve target blood glucose levels in this population, thereby reducing the risk of congenital malformations.</p>	<p>There is robust clinical evidence on insulin pump therapy in type 1 diabetes, and this is deemed to be a cost-effective use of NHS resources (NICE TAG 151). Despite this, the uptake of insulin pump therapy in the UK has yet to reach projected targets from the NICE TA 151 (2008). It was anticipated that an additional 13,761 patients in NHS England should receive a pump over a 4 year projection period (by 2012), which together with the existing insulin pump patient population would equate to treating 10% of adults and 25% of children with type 1 diabetes. A UK service level audit on insulin pump uptake published in 2013 (White et al., 2014) showed that:</p>

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			<p><i>having congenital malformations and this risk is greater if blood glucose control is poor around the time of conception”</i></p> <p>Further, it is known that the risk of congenital anomaly increases with an increasing level of HbA1c (Guerin A, Nisenbaum R, Ray JG. Use of maternal GHb concentration to estimate the risk of congenital anomalies in the offspring of women with pre-pregnancy diabetes. Diabetes Care 2007;30(7):1920-5).</p> <p>Insulin pump therapy can address this issue by ensuring optimal and stable blood glucose control from the pre-conception stages and throughout pregnancy. Further, when used in conjunction with continuous glucose monitoring, insulin pump therapy can also reduce the rate of hypoglycaemic events, often associated with lower blood glucose levels.</p>		<ul style="list-style-type: none"> • Across the UK only 6% of adults with type 1 diabetes have received an insulin pump (13, 428 adults); • The uptake of insulin pump therapy in the UK falls well below the projected levels set out in the NICE TA 151, and that of other European countries (> 15%) and the USA (40%). <p>White et al., 2014. The UK service level audit of insulin pump therapy in adults. Diabet. Med. 31, 412–418.</p>
024	Medtronic Limited	Key area for quality improvement 2	Hypoglycaemia is the limiting factor in the management of diabetes, and is a key concern	It has been reported that severe hypoglycaemia occurs three to five times more frequently in women with type 1	Combining CGM with an insulin pump to give sensor augmented pump

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		<p>Continuous glucose monitoring for severe hypoglycaemic events, unstable blood glucose, or to obtain information on variations in blood glucose.</p>	<p>when aiming to achieve the desired levels of glycaemic control in type 1 diabetes patients (Cryer PE. Hypoglycemia is the limiting factor in the management of diabetes. Diabetes Metab Res Rev 1999 Jan 1;15(1):42-6.). This is an important concern particularly during pre-conception and pregnancy where the maintenance of tight glucose control is essential in order to ensure healthy foetal development, as this may increase the risk of maternal hypoglycaemia.</p> <p>Continuous glucose monitoring (CGM) has been shown to reduce exposure to hypoglycaemic episodes (Pickup et al., 2011). This meta-analysis concluded that the most cost-effective use of CGM should be for type 1 diabetics who have consistently poor glucose control during intensified insulin therapy, and who use CGM frequently. Further, the efficacy of CGM in significantly reducing HbA1c compared to self-monitored blood glucose was also reported in this</p>	<p>diabetes in early pregnancy than in the period prior to pregnancy (Ringholm et al., 2012). Recurrent or subsequent episodes of hypoglycaemia impair patients' physiological defences against hypoglycaemia which can lead to a loss in the ability to perceive early warning signs (hypoglycaemia unawareness), predisposing patients to longer, recurrent and more frequent episodes, and to severe episodes (Gold et al., 1994. Frequency of severe hypoglycemia in patients with type I diabetes with impaired awareness of hypoglycemia. Diabetes Care;17(7):697-703; Pedersen-Bjergaard et al., 2004. Severe hypoglycaemia in 1076 adult patients with type 1 diabetes: influence of risk markers and selection. Diabetes Metab Res Rev;20(6):479-86).</p> <p>Pregnant women with type 1 diabetes may become insecure and vulnerable if adequate glucose control cannot be reached. (Geelhoed 2013 Geelhoed-Duijvestijn, P.H.L.M., Diamant, M. & Wolffenbuttel, B.H.R., 2013. The challenge of multidisciplinary research: improving diabetic pregnancy together. The Netherlands journal of medicine, 71(8), pp.444–5.) CGM helps to monitor blood glucose levels continuously and</p>	<p>(SAP) therapy may further improve glycaemic control and reduce the incidence of hypoglycaemic events before and during pregnancy in type 1 diabetic patients. Some SAP systems also integrate a predictive low glucose suspend feature, which can automatically suspend the delivery of basal insulin for a period of up to 2 hours when blood glucose levels drop below a pre-defined limit, thereby preventing hypoglycaemic episodes. The combination of CGM and insulin pump technologies, particularly those pumps equipped with an automated low glucose insulin suspension system, enable the patient to maintain much greater consistency in blood glucose levels, and importantly, avoid hypoglycaemic events and the fear associated with the anticipation of such events.</p>

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			<p>meta-analysis, where the greatest reductions observed in patients with the highest HbA1c at baseline, and in patients who used the sensors most frequently (Pickup et al., 2001. Glycaemic control in type 1 diabetes during real time continuous glucose monitoring compared with self-monitoring of blood glucose: meta-analysis of randomised controlled trials using individual patient data. BMJ;343:d3805).</p> <p>NICE Guideline NG3 recommends to: <i>“Consider continuous glucose monitoring for pregnant women on insulin therapy: who have problematic severe hypoglycaemia (with or without impaired awareness of hypoglycaemia) or who have unstable blood glucose levels (to minimise variability) or to gain information about variability in blood glucose levels.</i></p> <p>The Scottish Intercollegiate Guideline Network (SIGN) Guideline 116 on the Management of Diabetes states</p>	<p>control hypo- and hyperglycaemic episodes more efficiently.</p> <p>In addition to the risks of maternal hypoglycaemia itself, it is important that the occurrence of severe hypoglycaemic episodes in pregnancy is reduced as much as possible in order to avoid poor control of HbA1c due to fear of hypoglycaemia. As stated above in Key Area #1, the National Diabetes Audit reported that only a very small minority of patients were achieving NICE recommended target levels of HbA1c. Improving uptake of CGM in carefully selected patients could help to both avoid severe hypoglycaemia and the fear associated with severe hypoglycaemia, helping to maintain desired blood glucose control safely before and during pregnancy.</p>	<p>In the ASPIRE-In Home trial, the mean area under the curve for combined daytime and night-time hypoglycaemic events was 31.4% lower when CGM with low glucose suspend versus SAP alone (Bergenstal et al. Threshold-Based Insulin-Pump Interruption for Reduction of Hypoglycemia. N Engl J Med 2013).</p> <p>Quality of life benefits of SAP therapy were captured in a recent observational study on 100 adults and children with type 1 diabetes (Pickup et al., 2014. Real-Time Continuous Glucose Monitoring in Type 1 Diabetes: A Qualitative Framework Analysis of Patient Narratives. Published online before print December 31, 2014, doi: 10.2337/dc14-1855; Diabetes Care December</p>

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			<p>that: <i>“Optimal glucose control before pregnancy reduces congenital malformations and miscarriage, while during pregnancy it reduces macrosomia, stillbirth, neonatal hypoglycaemia, and respiratory distress syndrome....There is limited evidence that continuous glucose monitoring may be of benefit to women during pregnancy.</i> <i>Recommendation Level B: Continuous glucose monitoring may be considered in women with type 1 and type 2 diabetes”.</i></p>		<p>31, 2014.). The majority of participants were using CGM with SAP (87%), and over 70% were using the sensors most of the time. The researchers recorded ‘overwhelmingly positive’ responses with regards to CGM that included improved glycaemic control, diet and exercise management, as well as enhanced quality of life, and physical and psychological well-being. The negative points recorded were technical in nature such as problems with sensor accuracy and reliability, and ‘alarm fatigue’. Patients using CGM with SAP incorporating a low glucose suspend facility reported further benefits in reduced hypoglycaemia frequency and reduced fear of nocturnal hypoglycaemia</p> <p>SAP therapy for type 1 diabetes is currently being</p>

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					examined with the NICE Diagnostic Assessment Programme.
033	Diabetes UK	Additional developmental areas of emergent practice Access to technology	Use of insulin pumps and continuous blood glucose monitoring is recommended as interventions to help manage blood glucose levels during pregnancy for those not maintaining effective glycaemic control, for whatever reason. This is presented as an option in NICE pregnancy guidelines to optimise glycaemic control throughout pregnancy, yet feedback from people with Type 1 diabetes is that these devices are not easily accessible.	Some women with diabetes who are pregnant require additional technological support to manage their glycaemic control throughout pregnancy. NICE recommends this for all women not achieving glucose targets where this is due to hypoglycaemia risk. This is a time where the most effective treatment and devices benefit women and babies and those assessed as requiring these interventions should have quick and effective access. The national Insulin pump audit of 2013 ⁹ identified that: <ul style="list-style-type: none"> • 34% of diabetes specialist services did not have provision for continuing and self--managing CSII (when clinically appropriate) for women with diabetes and • 63% did not report having a written policy/guideline for the management of patients with diabetes on CSII who are pregnant 	NICE diabetes in pregnancy guideline NG3. 9. The UK Insulin Pump Audit- service level data. 2014. Available at http://www.diabetes.org.uk/Documents/News/The_United_Kingdom_Insulin_Pump_Audit_May_2013.pdf
034	Royal College of Pathologists	Key area for quality improvement 1	Telemonitoring of home blood glucose measurement by pregnant women with diabetes.	This allows supervision and insulin dose adjustment by the diabetes team between scheduled hospital visits. This happens only sporadically in the UK but	

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				there is emerging evidence that it may contribute to enhanced care or allow reduced the frequency of clinic visits without compromising care particularly in remote / rural areas.	
035	INPUT Patient Advocacy	Care planning for the post partum and post natal period for women with pre-existing insulin treated diabetes.	Women with pre-existing insulin treated diabetes are at increased risk of hypoglycaemia during the postnatal period, especially if breastfeeding.	We are concerned that adequate care planning for the post partum and post natal period is not being routinely undertaken when women are given a loan insulin pump during pregnancy. We have been contacted a number of times by women who have been told only during their third trimester that their pump will be removed in the delivery room and not returned to them. The post-partum period and breastfeeding are both times that present unusual challenges for good blood glucose control. Pre-pregnancy insulin needs should be noted and care planning agreed in consultation with the pregnant woman allowing plenty of time for discussion.	NICE NG3, Diabetes in Pregnancy; section 1.6.2.
Organisation of antenatal care					
021	Association of British Clinical Diabetologists	Key area for quality improvement 5	Adherence to scheduled scans throughout pregnancy	The schedule of scans is outlined in the guidance. Hard pressed obstetric units may omit scans. This is a useful audit standard.	See NICE Guidance NG 3
027	Diabetes UK	Key area for quality improvement 2 Antenatal care	All women with diabetes who become pregnant should be signposted/referred to regular and co-ordinated care with trained	Evidence shows that only 51% of women with Type 1 diabetes and 37% with Type 2 diabetes had first contact with the specialist team prior to 8 weeks	NICE diabetes in pregnancy guideline NG3. National Pregnancy in Diabetes Audit Report

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			(specialist) diabetes, antenatal care in joint pregnancy clinics involving specialist diabetes clinicians, obstetric and midwifery care immediately	gestation. Greater awareness is needed about who to contact when a woman with diabetes becomes pregnant, particularly if they do not receive their ongoing diabetes care from the diabetes specialist team. The frequency of contact should be discussed with the woman i.e. every 1-2 weeks as per NICE NG3, so that women are empowered to initiate contact when needed.	2013
040	Colchester Hospital University NHS Foundation Trust	Key area for quality improvement 4 Promote early referral to maternity/diabetes team once pregnant from GP/midwife, ideally 6 weeks gestation	Can make changes to medication etc especially if not been seen for pre pregnancy advice and early advice regards changes to expect regards hypo awareness and need for extra monitoring	Ensure all advice is given to the women and can personalise optimisation depending on known complications	Stillbirth rate, which is of major concern, remains similar up to term (Eidem et al Diabetologia 2011; Holman et al Diabetic Medicine 2014). In the National Pregnancy in Diabetes Audit (2013) 36% of women with type 1 diabetes were delivered at under 37 weeks.
041	Colchester Hospital University NHS Foundation Trust	Key area for quality improvement 5 Frequency and timing of ultrasound scans to assess growth of baby in third trimester	Ensure an accurate assessment can be made and more predictive for possible outcomes for mum and baby	Enable a minimum assessment, to enable units to make timely decisions on delivery	<u>Diabetes in pregnancy : management of diabetes and its complications from preconception to the postnatal period (2015) NICE guideline NG3</u>

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					<p>Royal College of Obstetricians (RCOG) <u>Antenatal Corticosteroids to Reduce Neonatal Morbidity</u> (Green-top Guideline No. 7) RCOG.org.uk</p> <p>JBDS-IP Joint British Diabetes Societies for inpatient care. Management of Hyperglycaemia and Steroid (Glucocorticoid) Therapy 2014</p>
044	The Royal College of Midwives	Key area for quality improvement 3 Discuss information, education and advice about how diabetes will affect the pregnancy, birth and early parenting (such as breastfeeding and initial care of the baby).	Midwives, who are key to the initial discussion at booking, as well as postnatally, will need specific updating to inform this discussion,. There needs to be skilled members of the multidisciplinary team who can remain up to date with knowledge in this area and are accessible as a source.	Women repeatedly report not receiving enough information about early parenting and feeding which reflects the lack of time available for these discussions with midwives. This needs to be recognized as a very significant issue for women requiring more complex care.	As demonstrated in the surveys undertaken in the RCM Pressure Points campaign and CQC Survey 2013 Anecdotal evidence suggests that few women with gestational diabetes are referred to a dietician
009	SCM2	Contact with joint diabetes/antenatal clinic	Poor glycaemic control during pregnancy is associated with	Suboptimal glycaemic control can nearly always be improved by skilled	

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		every 1-2 weeks for assessment of glucose control (1.3.35)	increased risks of adverse maternal and fetal outcomes	multidisciplinary care through regular contact and hence should reduce adverse outcomes.	
048	SCM 4	Key area for quality improvement 1 (1.1.8) Involvement of the community team	Often women who are diagnosed with GDM are feeling perfectly healthy. With this diagnosis can go their dreams of a straightforward pregnancy and unmedicated birth. Women can feel confused, angry and cheated. The way their medical carers work with them is critical to ensuring these women have a positive pregnancy and birth experience.	While there are always units who work well together and manage the care of women diagnosed in pregnancy with GDM, for others it is disjointed and uncoordinated. It can be measured through the number of visits she has had with the community team v hospital team before the baby is born, and perhaps through a qualitative survey or a satisfaction survey.	
031	Diabetes UK	Key area for quality improvement 6 Baby to be kept with mother	Babies of women with all forms of diabetes should be kept with mothers (unless there is a clinical complication warranting admission for intensive or special care).	Separation of mother and baby should not be routine practice unless the infant needs clinical intervention, such as with neonatal hypoglycaemia. Evidence ⁷ shows benefits of early skin to skin contact on successful initiation of breast feeding, improved cardio-respiratory stability and some improvements in glycaemia. Women with diabetes should not be denied this early contact without good clinical reason. There is evidence that there has been a reduction in separation of mothers and babies post delivery, with reduced admissions to neonatal intensive and special care. There has been an increase in the number of babies receiving normal	7. Moore ER et al. Early skin-to-skin contact for mothers and their healthy newborn infants. Cochrane Database Syst Rev. 2012 May 16;5:CD003519. doi: 10.1002/14651858.CD003519.pub3. National Pregnancy in Diabetes Audit Report 2013 8. Confidential Enquiry into Maternal and Child Health: Pregnancy in Women with Type 1 and Type 2

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				post delivery care from 42.8% in the CEMACH study ⁸ and 70.3 in the NPID audit report.	diabetes in 2002/3, Englan, Wales and Northern Ireland. CEMACH. 2005
Postnatal care					
032	Diabetes UK	Key area for quality improvement 7 Post natal care	<p>Women with gestational diabetes should be offered a 6 week postnatal test for diabetes and should be followed up to ensure this takes place. For those who have a negative postnatal test for diabetes, an annual HbA1c test should be offered.</p> <p>Women with pre-existing Type 1 or Type 2 diabetes will need additional follow up and support to review optimisation of blood glucose.</p>	<p>This key NICE recommendation requires improvement as women diagnosed with GDM during pregnancy are at high risk of developing Type 2 diabetes/developing GDM at future pregnancies. Local audit data shows this happens in about 30% women long term and there are no programmes of support for avoiding type 2 diabetes or preparing for future pregnancies.</p> <p>There is no data to show if this recommendation is delivered routinely. At the same time, there is an opportunity to provide lifestyle interventions for this group to reduce risk of developing Type 2 diabetes in the future.</p> <p>Women with ongoing diabetes need careful follow up and support post-partum as diabetes management will need to change.</p>	NICE diabetes in pregnancy guideline NG3.
046	The Royal College of Midwives	Key area for quality improvement 5 Offer a fasting plasma glucose test 6–13 weeks	This important test should inform the future care of the woman in primary care.	Women have recently reported about the inadequacy of the 6 week postnatal check which is often rushed and there is a lack of consistency in questions being	http://www.nct.org.uk/pres-s-release/nct-netmums-research-finds-six-week-postnatal-check-

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		after the birth to exclude diabetes (for practical reasons this might take place at the 6-week postnatal check).		asked. Attention must be given to raising awareness with GPs here.	unsatisfactory
052	SCM4	Key area for quality improvement 5 Testing of women with GDM for diabetes in the post-partum period.	GDM can be an indicator of either pre-existing undiagnosed diabetes. It is also statistically more likely that a woman who has had GDM will develop diabetes in later life.	Good post-partum testing for diabetes in these women should identify those women with pre-existing diabetes so they can be referred for treatment. Those women who had GDM but do not have diabetes post-partum can be educated to the importance of good diet and exercise to avoid diabetes in later life. Success in this area should be measured.	
Additional areas					
002	SCM 1	Key area for quality improvement 2 All diabetes maternity services should participate in the NPID audit and show evidence of responding constructively to those areas where their performance is below the national average.	The National Pregnancy in Diabetes Audit (NPID) launched in 2013. It collects key data on diabetic pregnancies and allows regional and local comparison of key outcome measures (such as preconception care, glucose control during pregnancy and fetomaternal outcomes) to the national average. In doing so it allows variations in quality of care to be identified and acted upon.	The NPID audit has illustrated that there are wide variations in the standard of care given to women with diabetes in pregnancy. Participation in this audit and willingness to evaluate local and regional care in relation to the national averages of the audit has the potential to drive forward quality improvement in diabetes in pregnancy care and reduce geographical variation in provision of care.	NPID audit report (2013)
029	Diabetes UK	Key area for quality improvement 4	Regular care planning discussions and reviews should	Achieving readiness for pregnancy (good glucose control, treatment review,	4. Year of Care. Report of findings from the pilot

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		Better care planning and review	be used as the basis to support women with diabetes who are pregnant during the pregnancy, and co-ordinate care provision with the specialist care teams involved. This should also include psychological support where need is identified.	<p>stopping smoking, starting folic acid) is challenging for many women and less than 10% are able to achieve this at present. Good care planning offers an opportunity to do this better through better conversations about the priorities of individuals. It has been shown to increase engagement in care and health, as well as, most importantly, enabling the discussions and planning to be based on what is important to the individual⁴. This approach to providing person centred care should be applied for all care groups, including preparation for pregnancy. At present the extent to which this happens is patchy and the quality of the conversations variable. This is also a key standard in the diabetes in adults quality standard and applies to all people with diabetes including women of childbearing age and should therefore remain as a consistent standard across different standards targeting population groups.⁵</p> <p>Currently most care planning takes place in primary care. Around 75% women with diabetes who are able to become pregnant (local audit data) are receiving all of their care in primary care and this is therefore where the discussions need to take place</p>	<p>programme. 2011 http://www.yearofcare.co.uk/sites/default/files/images/YOC_Report%20-%20correct.pdf 5. NICE quality standard QS6</p>

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				<p>This approach to providing person centred care should be applied for all care groups, but during pregnancy it is particularly important for the person with diabetes and clinical team, to agree priorities, contacts and goals in the form of a care plan. There remains significant variation across areas and healthcare teams in provision of joint care planning and knowledge of agreed care plans. Care planning is an important way to help make sure different services and professionals are all pulling in the same direction, to meet that person's needs. Yet despite the clear benefits of this approach, care plans are often not understood or used systematically. ^{8,9.}</p>	
022	NHS England	<p>Thank you for the opportunity to comment on the above Quality Standard. I wish to confirm that NHS England has no substantive comments to make regarding this consultation.</p>			<p>Thank you for the opportunity to comment on the above Quality Standard. I wish to confirm that NHS England has no substantive comments to make regarding this consultation.</p>