

Putting NICE guidance into practice

Costing statement: Diabetes in pregnancy

Implementing the NICE guideline on Diabetes in pregnancy (NG3)

Published: February 2015

1 Introduction

- 1.1 This costing statement considers the cost implications of implementing the recommendations made in [Diabetes in pregnancy: management of diabetes and its complications from preconception to the postnatal period](#) (NICE guideline NG3).
- 1.2 Expert clinical opinion suggests current practice is highly variable and the guideline might have resource implications at a local level. Therefore a costing statement has been produced. Because the cost impact of the recommendations may vary, organisations are encouraged to evaluate their own practice against the recommendations in the NICE guideline and assess costs and savings locally. Some of the resource effects to be considered locally are discussed in this statement.
- 1.3 The NICE guideline on diabetes in pregnancy is supported by a baseline assessment tool. This can be used by organisations to assess the baseline against the recommendations in the guidance.
- 1.4 This guidance is an update of NICE guideline CG63 [Diabetes in pregnancy](#) (published 2008) and replaces it. New and updated recommendations have been included on (among other topics) diagnosing gestational diabetes, blood glucose monitoring for women, and postnatal testing for women who have had gestational diabetes.
- 1.5 Most costs associated with treating diabetes in pregnancy are likely to be incurred in secondary care and be commissioned by clinical commissioning groups (CCGs). Women will also be reviewed and monitored by GPs and maternity clinics in primary care, which are commissioned by NHS England. The onset of gestational diabetes is one of the intensive factors under the [Payment by Results maternity pathway](#) and is therefore allocated a higher payment tariff.
- 1.6 Early diagnosis of gestational diabetes can lead to improved care for the woman and baby and fewer complications during pregnancy and labour.

2 Background

- 2.1 The Office for [National Statistics \(2013, table 4\)](#) indicates there were around 642,000 maternities in England in 2013. It is estimated that up to 5% of these women had either pre-existing diabetes or gestational diabetes. Of women who have diabetes during pregnancy, approximately 87.5% (around 28,100) have gestational diabetes, 7.5% (around 2,400) have type 1 diabetes and the remaining 5% (around 1,600) have type 2 diabetes ([NICE guideline NG3](#))
- 2.2 The prevalence of type 1 diabetes, and especially type 2 diabetes, has increased in recent years. The incidence of gestational diabetes is also increasing as a result of higher rates of obesity and more pregnancies in older women. Women with a minority ethnic family origin are more likely to develop gestational diabetes.

3 Recommendations with potential resource impact

Monitoring blood glucose

Recommendation

- 3.1 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. (recommendation 1.3.2)

Background

- 3.2 Expert clinical opinion suggests that recommendation 1.3.2 could potentially double the number of testing strips being used by pregnant women with type 2 or gestational diabetes.

Costs

- 3.3 A box of 50 testing strips costs £2.29 ([NHS electronic Drug Tariff](#)). Expert clinical opinion suggests approximately 80% to 90% (1,400) of women with type 2 diabetes and 20% (5,600) of women with gestational diabetes are on a multiple daily insulin injection regimen. Table 1 shows the

potential impact on costs if these women doubled the number of strips they use to monitor their blood glucose.

Table 1 Maximum cost impact of recommendation 1.3.2

Diabetes type	Pregnancies	Current boxes of strips used	Future boxes of strips used	Increased boxes of strips	Cost impact (£)
Type 2 diabetes	1,400	11,800	23,500	11,800	26,900
Gestational diabetes	5,600	47,000	94,100	47,000	107,700
Total (£)					134,600

3.4 A national cost impact of around £135,000 may therefore be expected from this recommendation. GPs will be responsible for prescribing testing strips and these will, therefore, be commissioned by CCGs.

Target blood glucose levels

Recommendation

3.5 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. (recommendation 1.3.5)

Background

3.6 Compared with the previous NICE guideline on [diabetes in pregnancy](#) (CG63), target fasting plasma glucose levels have changed from between 3.5 and 5.9 mmol/litre to below 5.3 mmol/litre. The target level 1 hour after meals has not changed, but an alternative target at 2 hours after meals has been added of 6.4 mmol/litre.

3.7 Locally, there is variation in current clinical practice. In some areas there will either be no change to current practice or the recommended targets will be similar to what is currently used.

3.8 In some women, gestational diabetes will respond to changes in diet and exercise. Glucose-lowering agents or insulin therapy is needed when near-normal blood glucose control cannot be achieved by diet and exercise alone.

Costs

3.9 If current plasma glucose targets used locally differ from those recommended, more treatments such as insulin therapy may be needed to achieve the new levels if these cannot be achieved through changes in diet and exercise. Nurse educators may also need more time to explain new treatments to women.

3.10 Expert clinical opinion suggests that the new target levels do not differ greatly from current practice and, therefore, the impact on cost is not expected to be significant at a national level. However, some increased costs could be incurred locally.

Savings and benefits

3.11 Good blood glucose control in pregnancy reduces adverse pregnancy outcomes, such as macrosomia, operative birth and admission to the neonatal intensive care unit.

3.12 The national average daily unit cost for neonatal intensive care is £1,118 (cost code XA01Z, [NHS reference costs 2013-14](#)). Improved monitoring and glucose control during pregnancy could produce savings if fewer babies need this care after birth.

3.13 Monitoring and controlling blood glucose levels could also lead to savings as a result of:

- reductions in pre-eclampsia – the cost associated with managing pre-eclampsia is estimated at around £4,300 (NICE guideline CG107,

[Hypertension in pregnancy: The management of hypertensive disorders during pregnancy](#)). The cost for a delivery with complications and co-morbidities is £2,188 compared to £1,496 for a delivery without complication and co-morbidities ([National tariff 2014-15](#)). Therefore the extra potential cost of delivery to the NHS for a woman with pre-eclampsia is around £700.

- a reduction in premature births, which can lead to complications such as neonatal jaundice and respiratory distress syndrome (see section 3.12 above for the daily cost in a neonatal intensive care unit)
- a reduction in health problems for the mother and/or baby shortly after birth that require hospital care, such as low blood glucose
- reductions in the numbers of miscarriages and stillbirths – the national tariff for a non-elective admission for threatened or spontaneous miscarriage is £554 (cost code MB08Z, [National tariff 2014-15](#)).

Diagnosing gestational diabetes

Recommendation

3.14 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.
(recommendation 1.2.8)

Background

3.15 The previous NICE guideline on diabetes in pregnancy (CG63; published in 2008) recommended using the criteria defined by the World Health Organization (1999) to diagnose gestational diabetes. These were a fasting plasma venous glucose concentration greater than or equal to 7.0 mmol/litre or a 2-hour plasma venous glucose concentration greater than or equal to 7.8 mmol/litre.

3.16 There is currently inconsistency across the country in the glucose levels used for diagnosing gestational diabetes. If the recommendation from NICE guideline CG63 is being followed, the number of women diagnosed

with gestational diabetes may increase. However, expert clinical opinion suggests that currently not everyone is following the NICE recommendations in CG63 and therefore it is difficult to estimate how many extra women will be diagnosed with gestational diabetes after this recommendation is implemented.

Costs

- 3.17 When a woman is diagnosed with gestational diabetes, recommendation 1.2.9 states that she should be offered a review in a joint diabetes and antenatal clinic within 1 week. Table 1 in the [full guideline](#) NG3 describes how care for women with diabetes differs from routine antenatal care. If the number of women with gestational diabetes increases there will be an increase number of women following this pathway. This however should be assessed locally; areas following the recommendations from NICE guideline 63 may see more of an increase in women being diagnosed than in other areas using different levels for diagnosing gestational diabetes.
- 3.18 Expert clinical opinion suggests a band 4 healthcare assistant would be responsible for testing a woman for gestational diabetes. It was suggested this would take approximately 20 minutes. A midpoint band 4 healthcare assistant costs approximately £16 per hour, including on-costs ([Royal College of Nursing, NHS Agenda for Change pay rates, 2013-14](#)).
- 3.19 Expert clinical opinion also suggests a band 6 diabetic specialist nurse or midwife should be responsible for explaining the test and informing the woman of the results. It was suggested this would take approximately 5 minutes of a nurse's time. A midpoint band 6 costs approximately £23 per hour, including on-costs ([Royal College of Nursing, NHS Agenda for Change pay rates, 2013-14](#)).
- 3.20 Expert clinical opinion is that testing women for gestational diabetes can be absorbed within the existing roles of the healthcare assistants and nurses and therefore it is not anticipated that any extra staff will be needed.

- 3.21 Diagnosis of gestational diabetes leads to an increase in antenatal monitoring compared to low risk pregnancy. Expert clinical opinion suggests 3 additional ultrasounds and 3 additional hospital appointments are needed for each woman.
- 3.22 Three additional ultrasounds will cost approximately £130 (cost code RA23Z, [National tariff 2014-15](#)) and 3 additional hospital appointments will cost approximately £230 (cost code WF01A) [NHS reference costs 2013-14](#)). These will be extra costs to the provider who will already have received the antenatal tariff from the commissioner.
- 3.23 Because of the variation in the plasma glucose levels used currently to diagnose gestational diabetes, it is difficult to quantify the effect this recommendation will have at a national level. However, expert clinical opinion suggests that there is likely to be an increase in the number of women diagnosed in some areas, and so there could be additional costs locally associated with monitoring and treating these women.

Benefits

- 3.24 Better detection and earlier diagnosis of gestational diabetes may lead to improved care for the mother and baby and fewer complications and adverse events during pregnancy and labour (please refer to 3.13).

Postnatal testing for women diagnosed with gestational diabetes

Recommendations

- 3.25 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. (recommendation 1.6.11)

3.26 Offer an annual HbA1c test to women who were diagnosed with gestational diabetes who have a negative postnatal test for diabetes. (recommendation 1.6.14)

Background

3.27 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.

3.28 All women who have had gestational diabetes will be offered an annual HbA1c test. This is expected to be carried out in primary care. Expert opinion suggests, in the majority of areas annual HbA1C tests are current practice.

3.29 Women who have had gestational diabetes are at increased risk of developing type 2 diabetes during their lifetime. Annual testing will play an important role in the diagnosis and management of diabetes.

Costs

3.30 Expert clinical opinion suggests there is likely to be an increase in women diagnosed with gestational diabetes and therefore there is also likely to be an increase in the number of HbA1c tests as a result of implementing the guidance. The national average cost of a haematology test is £3 ([NHS reference costs 2013–2014](#)). Since the potential increase in the number of women diagnosed with gestational diabetes is expected to vary locally, the impact of these recommendations are also expected to vary at a local level.

3.31 Tests will be carried out in primary care (commissioned by NHS England), or as part of a community health service (commissioned by CCGs). Costs should be assessed locally.

Benefits

- 3.32 Women who have had gestational diabetes are at increased risk of developing type 2 diabetes during their lifetime. Annual testing will play an important role in the early diagnosis and management of diabetes.

4 Other considerations

- 4.1 Recommendation 1.1.15, which recommends blood ketone testing strips and a meter for women with diabetes who are planning pregnancy, is a new recommendation. The Guideline Development Group members felt that there may be a slight increase in the use of ketone strips as a result of this recommendation being more directive. However, this is unlikely to be significant.
- 4.2 All women with gestational diabetes should be referred to a dietitian. Expert clinical opinion suggests this is common practice in most areas, but if more women are diagnosed with gestational diabetes in some areas this could also lead to an increased number of women being referred to a dietitian.

5 Conclusion

- 5.1 NHS organisations are advised to assess the resource implications of this guidance locally. Potential areas for additional costs locally are:
- the cost of prescribing a greater number of blood glucose monitoring strips
 - the cost of additional ultrasounds and hospital appointments
 - the cost of additional HbA1c tests.

If gestational diabetes is not managed properly or is not detected, it could cause a range of serious complications. Avoiding such complications could lead to potential savings and benefits, including:

- reduction in complications during pregnancy and labour and their related costs

- improved care for the mother and baby.

About this costing statement

This costing statement accompanies [Diabetes in pregnancy](#) (NICE guideline NG3).

Issue date: February 2015

This statement is written in the following context

This statement represents the view of NICE, which was arrived at after careful consideration of the available data and through consulting healthcare professionals. It should be read in conjunction with the NICE guideline. The statement is an implementation tool and focuses on those areas that were considered to have potential impact on resource utilisation.

The cost and activity assessments in the statement are estimates based on a number of assumptions. They provide an indication of the potential impact of the principal recommendations and are not absolute figures.

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