

Diabetes in pregnancy:
are we providing the best care?

Executive Summary

February 2007

England, Wales and Northern Ireland

CEMACH Mission statement

Our aim is to improve the health of mothers, babies and children by carrying out confidential enquiries on a nationwide basis and by widely disseminating our findings and recommendations.

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The recommendations contained in this report represent the view of CEMACH, which was arrived at after a careful consideration of the available evidence. It does not override healthcare professionals' individual responsibility to make appropriate decisions in the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

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1. The national context

Pre-existing diabetes (diabetes diagnosed before pregnancy) occurs in 1 in 250 pregnancies in England, Wales and Northern Ireland¹, and the prevalence of both type 1 and type 2 diabetes is increasing.² Women with diabetes are at an increased risk of losing a baby during pregnancy or of having a baby with a congenital anomaly.¹ Good periconceptional glycaemic control reduces the risk of these adverse perinatal outcomes. The Diabetes National Service Framework (NSF)² has set out national standards for the management of diabetes and pregnancy, and emphasised the importance of an effective multidisciplinary team to support and empower women with diabetes before, during and after pregnancy.

2. The CEMACH diabetes programme

The Confidential Enquiry into Maternal and Child Health (CEMACH) diabetes programme was set up to provide an overview of diabetes maternity services, national pregnancy outcome rates and standards of care. This has included a survey of diabetes maternity services for women with type 1 and type 2 diabetes;³ information on 3808 pregnancies to women with type 1 and type 2 diabetes who delivered or booked in 231 hospitals in England, Wales and Northern Ireland between 1 March 2002 and 28 February 2003;¹ and a national confidential enquiry reviewing demographic, social and lifestyle factors, and clinical care in 521 pregnancies to women with pre-existing diabetes. The enquiry has included 127 pregnancies with a fetal congenital anomaly, 95 pregnancies with fetal or neonatal death of a normally-formed baby and 220 pregnancies with a good outcome. Seventy-nine pregnancies to women with type 2 diabetes have also undergone enquiry for the specific purpose of informing the separate comparison of women with type 1 and women with type 2 diabetes.

3. Factors associated with poor pregnancy outcome

- Maternal social deprivation
- Lack of contraceptive use in the 12 months before pregnancy
- No folic acid intake at any time in the 12 months before pregnancy
- Suboptimal approach of the woman to managing her diabetes
- Suboptimal preconception care
- Suboptimal glycaemic control at any stage before and during pregnancy
- Suboptimal maternity and diabetes care during pregnancy
- Suboptimal fetal surveillance of big babies.

These findings suggest that women's preparation for pregnancy, glycaemic control, and the standard of preconception and pregnancy care need to be improved if better pregnancy outcomes are to be achieved for women with diabetes.

4. Commissioning of specialist preconception services

Key recommendation

Commissioners of services must ensure that all women with diabetes are provided with specialist preconception services, with access to all members of the specialist multidisciplinary team.

As a minimum, these services should include:

- Clear signposting to different aspects of care
- Diet and lifestyle advice
- Provision of appropriate contraception
- Higher dose folic acid supplementation
- Smoking cessation support
- Assessment and management of diabetes complications
- Setting of glycaemic control targets and regular discussion of results of self-monitoring, to enable the woman to achieve control that is as near to normal as possible before conception
- Discussion of diabetes pregnancy risks and expected management strategies
- Clear documentation of care and counselling, ideally using a standard template.

In 2002, only 17% of maternity units in England, Wales and Northern Ireland provided a multidisciplinary diabetes preconception service.³ In the enquiry, just over half of women with diabetes had a retinal examination or a renal function test in the 12 months prior to pregnancy. Only half of women had evidence of a discussion before pregnancy about glycaemic control, and less than half had specific discussions about diabetes-related issues (table 1).

Table 1

Diabetes-related issues discussed with women before pregnancy

Specific issue discussed	All women in the enquiry n/N (%)
Glycaemic control	203/382 (53)
Diet	171/381 (45)
Retinopathy	129/380 (34)
Contraception	121/382 (32)
Hypertension	96/380 (25)
Nephropathy	93/381 (24)
Alcohol intake	86/381 (23)

Less than half of women had evidence of a discussion about potential fetal risks and management strategies during pregnancy.

Health professionals often missed the opportunity to provide pre-pregnancy counselling, and did not advise about contraception or prescribe folic acid before pregnancy. There were concerns about a lack of timely input by the diabetes team and whether insulin regimes in the preconception period were appropriate to achieve tight glycaemic control.

5. Improving access and providing information to women with diabetes

Key recommendations

Preconception and maternity services related to pregnancy should be easily accessible and responsive to all women with diabetes, and provide appropriate care and information.

Providers of diabetes care should develop educational strategies that will enable all women of childbearing age with diabetes to prepare adequately for pregnancy.

In 2002 – 03, less than half of the pregnant women with pre-existing diabetes in England, Wales and Northern Ireland had pre-pregnancy counselling, a test of glycaemic control, or folic acid before conception. The majority of women entered pregnancy with poor glycaemic control.¹

In the enquiry, less than half of women with diabetes had a planned pregnancy and only a quarter had evidence of contraceptive use in the 12 months before pregnancy. Only a quarter commenced folic acid prior to conception (table 2).

Table 2

Preconception behaviour in women in the diabetes enquiry compared to the general maternity population

	Women in the enquiry n/N (%)	General maternity population (%)
Planned pregnancy	158/384 (41%)	58% ^a
Evidence of contraceptive use in 12 months prior to pregnancy	107/392 (27%)	-
Folic acid use before pregnancy	102/380 (27%)	<10 to 50% ^b
Smoking	107/386 (28%)	35% ^c

^{a, c} Millennium Cohort Study First Survey 2004

^b Ray JG et al BJOG 2004

Two-thirds of women had suboptimal glycaemic control before and during early pregnancy, and this was associated with poor pregnancy outcome. The majority of issues identified related to behaviour and lifestyle: non-attendance at planned appointments, non-adherence to medical advice about diabetes management, unplanned pregnancy, language difficulties and domestic circumstances.

6. Individual care planning

Key recommendation

An individualised care plan covering the pregnancy and postnatal period up to 6 weeks should be clearly documented in the notes, ideally using a standard template. The plan may require changes to be made depending on the clinical circumstances through pregnancy. As a minimum, the care plan should include:

- Targets for glycaemic control
- Retinal screening schedule
- Renal screening schedule
- Fetal surveillance
- Plan for delivery
- Diabetes care after delivery

In the enquiry, more than half of all women with diabetes did not have a retinal examination during the first trimester or at the booking visit. A tenth of women having antenatal steroids did not have any change in management to ensure good glycaemic control. Half of women had suboptimal glycaemic control during labour and delivery; the main underlying factors identified were inadequate intravenous insulin regimes and delays in commencing intravenous regimes.

Just half of women in the enquiry were documented to have received contraceptive advice after delivery. Women who had a poor pregnancy outcome were less likely to receive contraceptive advice prior to discharge from hospital and were more likely to have suboptimal diabetes care after delivery.

7. Antenatal surveillance of big babies

Key recommendation

Pregnancies with ultrasound evidence of macrosomia should have a clear management plan put in place by a consultant obstetrician. This should include timing of follow-up scans, fetal surveillance and mode and timing of delivery.

Nearly half of babies with antenatal evidence of macrosomia had suboptimal fetal surveillance, and this was associated with fetal/neonatal death from 20 weeks gestation. The main issue was a lack of timely follow-up. There were also concerns about poor interpretation of ultrasound scans and about actions taken as a response to tests.

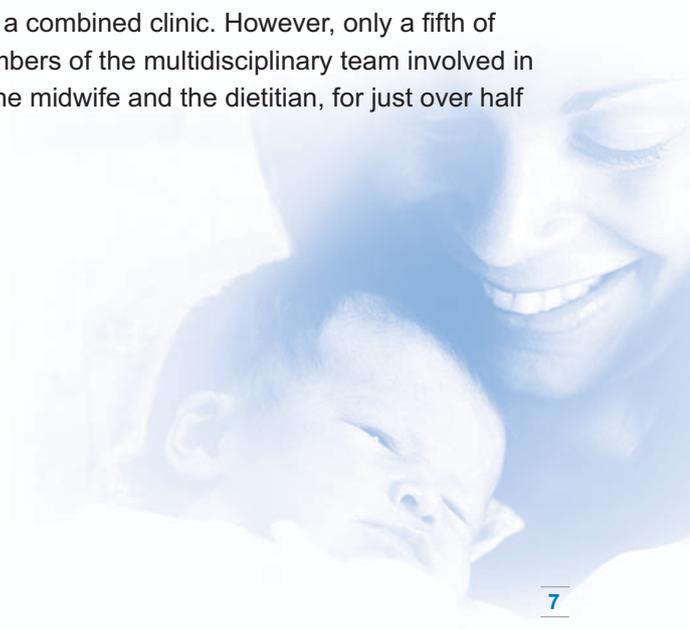
8. Commissioning multidisciplinary services for diabetes in pregnancy

Key recommendation

Commissioners should recognise the complexity of diabetes management immediately before and during pregnancy, and ensure that the available service provision includes all members of the multidisciplinary team.

The Diabetes NSF recommends that the multidisciplinary team should include an obstetrician, diabetes physician, diabetes specialist nurse, midwife and a dietitian.

Three-quarters of women in the enquiry had care provided in a combined clinic. However, only a fifth of women were reported by panel enquiries to have had all members of the multidisciplinary team involved in their care. The professionals most likely to be missing were the midwife and the dietitian, for just over half of women.



9. Improving clinical records

Key recommendation

Patient pathways of care including preconception counselling, pregnancy care and post-pregnancy management, should be incorporated into the clinical record.

There was poor documentation of obstetric and diabetes care for more than half of women in the enquiry. In a fifth of cases there were concerns that the design of the maternity notes was not fit for purpose for antenatal care of a woman with diabetes.

10. Reviewing local guidelines for diabetes in pregnancy

Key recommendation

Services should review their local guidelines.

There were concerns about the standard of local maternity units' diabetes guidelines for nearly three-quarters of women. These concerns included no guidelines for the antenatal period, a lack of clarity or insufficient detail, and in some cases, inappropriate advice.

11. Improving care of women with type 2 diabetes

Key recommendations

During pregnancy, retinal and renal screening schedules should be provided for both women with type 1 and women with type 2 diabetes.

Advice about hypoglycaemia during pregnancy, including prevention and management strategies, should be provided to both women with type 1 diabetes and women with type 2 diabetes.

Women with type 2 diabetes in pregnancy were more likely to be obese compared to women with type 1 diabetes. While women with type 1 diabetes were more likely to have retinopathy and hypoglycaemic episodes during pregnancy than women with type 2 diabetes, a fifth of women with type 2 diabetes had recurrent hypoglycaemia and five percent had new retinopathy in pregnancy. Planned pregnancy rates were similar for both type 1 and type 2 women but women with type 2 diabetes were less likely to have evidence of contraceptive use in the 12 months before pregnancy.

Women with type 2 diabetes were less likely than women with type 1 diabetes to have had a retinal assessment or test for albuminuria in the 12 months before pregnancy, and less likely to have a retinal assessment in the first trimester of pregnancy or at booking. They were also less likely to receive postnatal contraceptive advice.

12. Improving care of the baby

Key recommendations

All units delivering women with diabetes should have a written policy for the management of the baby. The policy should assume that babies will remain with their mothers in the absence of complications.

Mothers with diabetes should be offered an opportunity for skin-to-skin contact with their babies immediately after delivery. Breastfeeding within one hour of birth should be encouraged.

Junior paediatric staff should be trained in the management of babies of mothers with diabetes. This should include appreciation of the importance of supporting early breastfeeding, avoidance of early blood glucose testing in the well baby, and formulation of a written plan agreed with the mother.

One third of admissions to a neonatal unit occurred because of a unit policy of routinely admitting well babies of mothers with diabetes. Enquiry panels assessed that over half of all neonatal admissions were avoidable.

Several barriers to breastfeeding were reported:

- Lack of early close maternal contact and early feeding on the labour ward
- High rate of infant formula given as first feed
- Infant formula given to all babies admitted to a neonatal unit, even when the maternal intention was to breastfeed
- Infant formula feeding on the postnatal ward often explained by maternal choice.

Blood glucose testing for the baby often took place too early with inappropriate methods of testing used.

References

1. *Confidential Enquiry into Maternal and Child Health. Pregnancy in women with type 1 and type 2 diabetes in 2002-03, England, Wales and Northern Ireland.* CEMACH: London; 2005.
2. *National Service Framework for Diabetes (England) Standards.* Department of Health: The Stationery Office: London; 2001.
3. *Confidential Enquiry into Maternal and Child Health: Maternity services in 2002 for women with type 1 and type 2 diabetes, England, Wales and Northern Ireland.* CEMACH: London; 2004.

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A more detailed explanation of the methods, study findings and supporting evidence can be found in the full report, which can be obtained from:

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The report can also be found on the CEMACH website: **www.cemach.org.uk**





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