



Wessex Guidance on supporting women with diabetes to prepare for pregnancy

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Wessex Strategic Clinical Network (SCN) Project Group

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Acknowledgement

On behalf of the Wessex Strategic Clinical Network (SCN), I would like to take this opportunity to thank Dr Helen Holt for developing the Wessex Guidance on supporting women with diabetes to prepare for pregnancy. I would also like to thank those women who shared their experience of having diabetes in pregnancy through the local Healthwatch survey and whose views have helped to shape the recommendations. Finally, I would like to acknowledge and thank the contributions from members of the Wessex Maternity, Children's and Young People SCN, the Wessex Cardiovascular SCN and others who attended the stakeholder day on 27th February 2014 for their advice and contributions.

The Guidance is available to be adopted across the Wessex region in order that women receive high quality care to try to avoid complications from diabetes.

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Introduction

The recently published National Pregnancy in Diabetes (NPID) Audit Report 2014 calls on diabetes and maternity services and networks to develop a focus on pregnancy preparation:

“Many women with diabetes have their first contact with specialist diabetes and specialist diabetes and pregnancy services when they are already pregnant. Because women need to be aware of pregnancy risks and have access to information about how to minimise these risks in advance of pregnancy, diabetes and maternity services (and networks of collaborating units) need to develop a focus on pregnancy preparation.” National Pregnancy in Diabetes Audit, 2014 p11

The focus on pregnancy preparation comes as a clearer picture emerges, based on two years of audit data, of women with pre-existing diabetes entering pregnancy poorly prepared. The consequence is likely to be poor pregnancy outcomes, and for this group of women, pregnancy outcomes have not shown any real improvement since the Confidential Enquiry into Maternal and Child Health (CEMACH) report from 2002-03.

In 2015, Healthwatch surveyed pregnant women with diabetes in Wessex. The results confirmed that poor pregnancy preparation is also an issue locally. The survey found that the better informed women were before pregnancy, including women who were diagnosed with gestational diabetes, the more likely they were to plan their pregnancy and seek pre-conceptual advice from a clinician. The survey findings also identified scope to improve the way health professionals engage with women, particularly those with Type 2 and gestational diabetes. The issue of diabetes in pregnancy, the growing rates and the risks needed to be more widely discussed with women of childbearing age in a much wider setting: at sexual health clinics; contraception reviews; pharmacies; smear tests; GP appointments etc.

This Wessex Guidance aims to respond to the national and local findings. Within the Guidance are specific recommendations for different health professionals, reflecting the recommendations contained within the 2014 NPID audit.

In addition to making recommendations for specific health bodies, the NPID audit calls for collaboration across health boundaries, recommending an integrated approach involving strategic networks, policy makers, commissioners, acute trusts/Local Health Boards (LHBs), clinical teams, local general practices and professional bodies.

It is hoped that the Wessex Guidance can be used as the basis on which to build greater collaboration in Wessex in order to improve outcomes for this group of women.

Context and background

Diabetes is the commonest physical health condition which impacts on pregnancy outcomes. The hazards of pregnancy for women with pre-existing diabetes have long been recognised with key recommendations in the National Services Framework for Diabetes (2002) stating the need to support women with diabetes to have the same outcomes as women without diabetes.

The 2007 Confidential Enquiry into Maternal and Child Health (CEMACH) report highlighted that women with pre-existing diabetes continue to have poor pregnancy outcomes with increased risks of miscarriage, congenital abnormality, stillbirth and adverse neonatal outcomes.

The National Pregnancy in Diabetes Audit Report (NPID), 2014, has reiterated that many of the key issues have not changed since the CEMACH report although women are more likely to be receiving pre-conception folic acid and are less likely to be separated from their baby after birth.

The demographics of women with pre-existing diabetes have, however, changed. The number of women with Type 1 diabetes is largely unchanged but the 2014 audit confirms the 2013 audit results showing a much higher proportion of pregnancies in women with Type 2 diabetes; now accounting for 46.7% of diabetes in pregnancy compared to 27.3% in the 2002-3 CEMACH report. This cohort is significantly more likely to be over the age of 30, to have a raised BMI, to be from a Black or Asian ethnic origin and/or to be from the most deprived quintile. It is likely given the demographic change in women giving birth that the impact of Type 2 diabetes will continue to grow.

The **key findings** from the 2013 and 2014 NPID audit reports, help to pinpoint the areas for improvement in order to respond to the growing problem of diabetes in pregnancy:

- Less than half of women were taking folic acid in any dose prior to pregnancy (41.9%)
- Only around a third of women or less, had a first trimester HbA1c measurement below the new NICE target of 48 mmol/mol (35.8% of women with Type 2 diabetes and 15.4% of women with Type 1 diabetes)
- Some women are still taking potentially harmful medications (statins, ACE inhibitors and ARBs) at the time of conception (6.2%)
- Almost 10% of women with Type 2 diabetes became pregnant while taking a potentially hazardous glucose lowering medication (9.2%)
- More than one third of women had babies that were large for gestational age (34.3%)
- One third of babies were not able to remain with their mothers and needed intensive or specialist neonatal care (This figure does represent an improvement, with 66.6% of babies now able to remain with their mothers and not requiring intensive or specialist neonatal care)
- Rates of adverse pregnancy outcomes for this group of women continue to be high
 - 56 per 1000 booked pregnancies resulted in miscarriage
 - 12.8 stillbirths per 1000 live and stillbirths for women with diabetes, based on combined 2013 and 2014 national audit data
 - 7.6 neonatal deaths per 1000 live births compared to 2.6 in 2013
 - 44.2 congenital anomalies per 1000 live and stillbirths compared to 22.7 in 2012 (British Isles Network of Congenital Anomaly Registers - BINOCAR)

All Trusts within Wessex submitted data for the 2014 audit and results for Wessex Trusts are reported under the south west and south east regions. The results for the south east and south west regions broadly reflect national trends.

Looking beyond the headline key findings, the 2014 NPID Audit report reveals the gap between current performance and achieving NICE targets and the correlation between poor pregnancy preparation and poor outcomes.

Raised blood glucose levels in early pregnancy are strongly associated with miscarriage and congenital abnormality and, later in pregnancy, with macrosomia and stillbirth. Combined 2013 and 2014 data shows that among pregnancies where the outcome was a congenital anomaly, first trimester HbA1c values were higher for both women with Type 1 and Type 2 diabetes. In the first trimester, 14.6% of women achieved an HbA1c value below 43mmol/mol. Even when compared against the new more generous NICE target of below 48 mmol/mol, just over a quarter, 25.9%, achieved this level. Almost 10% of women had excessively high readings (>86mmol/mol or >10%) at booking.

Only 34% of women were taking the 5mg (correct) dose of folic acid before becoming pregnant with a further 7.9% taking 400mcg. Women with Type 2 diabetes were less likely to take any folic acid or to take the correct dose. Overall, only 7.2% could be considered adequately prepared for pregnancy in terms of taking the recommended 5mg folic acid dose and with a first trimester HbA1c measurement below 43 mmol/mol. Additionally, only 52% of women with Type 1 and 36.7% of women with Type 2 diabetes had accessed their specialist Diabetes in Pregnancy team by 8 weeks.



Recommendations

The Recommendations below reflect the key recommendations from the National Diabetes in Pregnancy Audit 2014 and support the recommendations from the Wessex Clinical Senate on the future shape of maternity services. Recommendations are also included from the local Healthwatch survey 2015 to reflect the views of women with diabetes in pregnancy within Wessex.

Recommendations for women with diabetes

Women with diabetes should:

1: Seek and expect to be routinely involved in discussions with healthcare professionals about safe effective contraception and preparing for pregnancy from puberty to menopause as part of a care planning process in primary or specialist care settings. (NPID Report, 2014)

2: When considering pregnancy:

- access advice from health professionals
- ask for 5mg folic acid supplement on prescription
- ask to have their HbA1c measured monthly
- aim for the best possible glucose control
- know what treatments for diabetes and related complications to avoid

(NPID Report, 2014)

3: Access specialist services as soon as pregnancy is suspected. (NPID Report, 2014)

4: Maintain the best possible glucose control throughout pregnancy, balancing HbA1c control with avoiding hypoglycaemia. (NPID Report, 2014)

5: Feel able, should they wish to, to link with lay organisations such as Diabetes UK to advocate for the provision of high standard support and services locally. (NPID Report, 2014)

6: Request that their data be submitted to the NPID audit to help inform future pregnancy care for women with diabetes locally and nationally. (NPID Report, 2014)

Recommendations for Commissioners

7: Commissioners should actively promote awareness of how good physical and mental health in the period up to two years before conception impacts on the type of birth and the health of the baby. All women of child-bearing age should be aware of the health benefits of conception which is planned and prepared for. (Wessex Senate recommendation 1)

8: Commissioners should encourage the review and updating of the way information is provided to women to include:

- Standardising pre and post conception advice available across the region
- Signposting women to approved websites
- Involving women in the review of information to ensure it is developed in a style that is engaging and useful

(Healthwatch recommendations 1 & 2)

9: All women of child-bearing age should be aware of the pre-existing physical and mental health conditions which place them at higher risk and women at higher risk should be offered pre-conception counselling. Women should be supported to achieve optimal glucose control prior to pregnancy in pre-pregnancy counselling services. (Wessex Senate recommendation 3 and NPID Report, 2014)

Nb. At the current time there are few formal pre-conception clinics across Wessex with a lack of clarity around funding streams and referral criteria. This should be addressed as a matter of priority.

10: Specific commissioning pathways should be developed for women of child-bearing age with diabetes, epilepsy, mental health, alcohol abuse, drug abuse obesity and other long term conditions. (Wessex Senate recommendation 4)

11: Women who lose their babies should have access to counselling support on a 7 day basis. (Wessex Senate recommendation 26)

12: All maternity services should be commissioned for health outcomes as part of a wider integrated approach from pre-conception to school age and should be consistent with the resource pack for commissioning maternity services. (Wessex Senate recommendation 28)



Recommendations for Primary Care

Most women with Type 2 diabetes and many women with Type 1 diabetes receive most or all of their diabetes care in a primary care setting.

13: There is a need to urgently develop programmes of care to improve preparation for pregnancy in all women with diabetes of child bearing age. Consideration should be given to the development of an electronic alert system to improve screening for referral for appropriate pre-conceptual counselling. (An example screening tool is shown below: Guide to Preconception counselling.) This may be allied to annual health checks and/or to the re-prescription of insulin and oral hypoglycaemic agents and may be provided by:

- GPs
- Practice Nurses
- Community Pharmacists

(MCYP SCN recommendation)

14: Recognising that diabetes may go undiagnosed, opportunities to increase screening for diabetes in the community should be explored with the issue of diabetes in pregnancy, the growing rates and risks more widely discussed with women of childbearing age in a much wider setting: at sexual health clinics; contraception reviews; pharmacies; smear tests; GP appointments, weight watch classes etc. (Healthwatch recommendation 5)

15: The NICE guideline recommends explaining 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. Plans should be developed in primary care to incorporate training into structured patient education programmes, especially for women with Type 2 diabetes. The programmes should cover the risks of pregnancy and how to prepare for pregnancy. (NPID Report, 2014)

Recommendations

16: For women who were diagnosed with gestational diabetes and whose blood glucose levels returned to normal after the birth, offer a fasting plasma glucose test at the 6 week postnatal check to exclude diabetes. It should be recognised that these women remain at increased risk of Type 2 diabetes in the future. Early identification and lifestyle modification has the potential to mitigate the risks of future diabetes for the woman's general health and to aid preparation for a future pregnancy. It is therefore recommended that women have annual screening for diabetes following a diagnosis of gestational diabetes. (MCYP SCN recommendation)

Recommendations for Providers

17: All services should implement national guidance regarding screening and identification of women who should be offered testing to detect those at risk of developing diabetes in pregnancy. (MBRRACE-UK enquiry, 2015)

18: A clear explanation of the causes and effects of gestational diabetes should be given to all pregnant women when the test is carried out and again on diagnosis, with time allotted for women to reflect and ask questions. (Healthwatch recommendation 4)

19: All services should emphasise improving glycaemic control before and during pregnancy for women with both Type 1 and Type 2 diabetes to avoid late adverse fetal outcomes, while also controlling the risk of significant hypoglycaemia. (NPID Report, 2014)

20: Opportunities should be taken to replicate good practise. For example, the *Diet in pregnancy* course run for women with gestational diabetes mellitus (GDM) in Basingstoke could be replicated by other providers across the region, facilitated by trained peer mentors alongside clinicians. (Healthwatch recommendation 3)

21: Local improvement frameworks should be put in place to reduce pregnancy risk for women with diabetes. (MCYP SCN recommendation)

22: All maternity and diabetes services should collect data on women with diabetes and their children, to include Type 1, Type 2 and gestational diabetes. (NPID Report, 2014)

23: Submission of data to the national audit should be mandatory and data shared locally. (MCYP SCN recommendation)

The NPID 2014 Report states, p11, '*Recommendations can be made for actions specific to diabetes and maternity services, strategic networks, primary care, and women with diabetes, but to be successful in reducing pregnancy risk in women with diabetes collaboration across current health boundaries will be needed.*'

Recommendations for diabetes and maternity services and networks

24: Strategic networks, policy makers, commissioners, acute trusts/LHBs, clinical teams, local general practices and professional bodies need to collaborate to develop an integrated approach that supports new ways of designing service delivery across community, primary care and specialist settings that will lead to the more effective engagement of women in their care. (NPID Report, 2014)



Guide to Pre-conception counselling

Age group

All women of child bearing age should have pregnancy discussed regularly, including girls in the adolescent clinic, to emphasise the importance of pregnancy planning for their and their baby's health. This should be part of the Annual Review for women with Type 1 and Type 2 diabetes.

Please refer all women with diabetes who may be planning a pregnancy to the Pre-conception Clinic.

Below is shown a Tool that may be helpful in risk stratifying women for referral to pre-conception services at their annual review:

Identifying women for referral to pre-conception clinic

PMI					
	0	1	2	3	SCORE
Childbearing Age	No	Yes			
Intention to Conceive	No	Possibly	12mths+	6-12mths REFER to PCC	
HbA1c		>42mmol	>53mmol	>64mmol	
Using Contraception	Yes			No	
Taking Folic Acid?		No	5mg	400mcg	
Refer to Pre-conception Clinic if Score > 6				TOTAL	



Contact

For an electronic version of the above algorithm or for assistance in setting one up on a practice database as an automatic alert, please contact Christine Smith:
christine.smith@rbch.nhs.uk

Preconception advice

Women with diabetes should plan pregnancy. The problems associated with diabetes in pregnancy should be explained.

The key things to be discussed at annual review for women with diabetes include:

- Dietary and lifestyle information
- Monitoring blood glucose
- Folic acid supplements
- Medications
- Signposting to further information and peer support

Women should continue contraception until the following are achieved for three months:

- The following medications have been discontinued:
 - Lipid lowering medication
 - ACE inhibitors and ARBs (Angiotensin Receptor Blockers)
 - Sulphonyureas, DPP4 and SGLT2 inhibitors, GLP1 agonists, Pioglitazone
- For women who require blood pressure lowering treatment, consider Labetalol or Methyldopa as alternatives
- Folic acid has been started at 5 mg daily
- HbA1c is less than 48mmol/mol (6.5%) and aiming for 43 mmol/mol (6.1%) where this can be safely achieved

- Strongly advise women with diabetes whose HbA1c level is above 86mmol/mol (10%) not to get pregnant because of the associated risks – miscarriage, congenital malformation, stillbirth and neonatal death.
- Women with Type 2 diabetes who require oral medication:
 - Metformin may be continued and may have particular benefit in women with raised BMI. Women should be advised that this is off license but recommended by NICE (NG3 2015). Changing treatment to insulin as a single agent can also be considered.
 - Other oral hypoglycaemic drugs are not recommended. These should be discontinued and the woman commenced on insulin if HbA1c is above the target range.
- Women have stopped smoking, with support if required
- Advice re optimising diet and exercise should be provided and referrals for support made if appropriate
- Eye and kidney screening should be current
- Insulin pump therapy may be indicated in women with Type 1 diabetes if adequate glycaemic control cannot be achieved without significant hypoglycaemia
- Women should be supplied with a downloadable meter. It is advised that sufficient testing strips are prescribed to enable tight glycaemic control (up to 200 per month)
- HbA1c levels should be checked monthly

Gestational diabetes

The 2014 NPID audit concentrates on women with pre-existing diabetes and not those who develop impaired glucose control in pregnancy. Women who develop gestational diabetes will rapidly return to normal glycaemic control following birth but are at much higher risk of later Type 2 diabetes. As a result they require enhanced surveillance and lifestyle advice to minimise future risk. It must also be recognised that the identification of impaired glucose tolerance in pregnancy may, in fact, be the first diagnosis of Type 2 diabetes. In this case glucose control will not return to normal following delivery. Local data suggests that many of these women are not receiving ongoing screening and health advice.

Identifying gestational diabetes

Screening and identifying those women at risk of developing gestational diabetes was flagged as an area of concern in the MBRRACE-UK confidential enquiry into stillbirths conducted some 15 years ago and remains one of the main areas of concern today. The 2015 MBRRACE-UK report found that two thirds of women with a risk factor for developing diabetes in pregnancy were not offered testing, as per the NICE Guideline on Diabetes in Pregnancy.

Women at risk of gestational diabetes should have a 75g oral glucose tolerance test at 24-28 weeks gestation. This should be performed earlier at 16-18 weeks for women who have had GDM in a previous pregnancy.

Women who require screening for gestational diabetes

1	Body mass index above 30kg/m ²
2	Gestational diabetes in a previous pregnancy
3	Family History – first degree relative with diabetes
4	Minority ethnic origin with a high prevalence of diabetes
5	Previous macrosomic baby weighing 4.5kg or above



NICE Feb 2015: Diagnosis of Gestational Diabetes

Diagnose gestational diabetes if the woman has either:

- a fasting 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]

Offer women with a diagnosis of gestational diabetes a review with the joint diabetes and antenatal clinic within 1 week. [new 2015]

Inform the primary healthcare team when a woman is diagnosed with gestational diabetes (see also the NICE guideline on patient experience in adult NHS services (<http://www.nice.org.uk/guidance/cg138>) in relation to continuity of care). [new 2015]'



Gestational diabetes

When gestational diabetes is diagnosed

Glycaemic control

Women should be advised of the importance of good glycaemic control to reduce the risk of birth trauma such as shoulder dystocia and neonatal hypoglycaemia. Delivery should be recommended in an Obstetric Led Unit.

Dietary advice

Women should have a dietetic assessment and counselling on the importance of healthy eating and lifestyle. Women should be informed of the importance of reducing carbohydrate intake and choosing carbohydrates with a low glycaemic index. Where body mass index is above 27kg/m² women should be advised to restrict calorie intake aiming to minimise weight gain in pregnancy.

Blood glucose monitoring

- Instruction on how to safely monitor blood glucose levels should be provided
- Women should be issued with a downloadable blood glucose monitor and issued with a one week supply of testing strips.
- The woman's GP should be notified of the diagnosis of GDM and of the need to supply sufficient testing strips thereafter
- Four times daily blood glucose testing is recommended aiming for pre-meal glucose levels below 5.5mmol/L and post meal glucose levels below 7.5mmol/L

Additional monitoring

- Best practice suggests that women should be reviewed 2-4 weekly by the joint obstetric diabetes clinic from the point of diagnosis
- Serial USS assessment of fetal growth and liquor is recommended from 28 weeks. Scans should occur at 4 weekly intervals and include sequential measurements of fetal abdominal circumference to assess for developing macrosomia and polyhydramnios.

Pharmacological treatment

Indications to commence insulin or metformin treatment

- Persistently raised blood glucose levels
- Evidence of developing fetal macrosomia (increased fetal abdominal circumference) especially if associated with hyperglycaemia.
- Women requiring medication require regular review to titrate treatment and to optimise control.
- Other potential agents may be indicated. NICE guidance (2008) suggests glibenclamide as an alternative option for this group.
- Choice of insulin treatment: Short-acting insulin analogues (insulin aspart and insulin lispro) are considered safe for use during pregnancy and lactation. Evidence of the safety of long-acting insulin analogues in pregnancy is limited, therefore isophane insulin is recommended where longer-acting insulins are needed. While there is most experience with isophane insulins, analogue insulins have not been shown to be harmful and it is reasonable to continue these insulins particularly when there is a risk of hypoglycaemia. Insulin detemir may also be considered.

Birth

Prolonged pregnancy is not recommended for women with gestational diabetes due to the increased risks of late fetal death. Delivery is advised by 38+6 weeks gestation for women with pre-existing diabetes and 40+6 weeks for those with gestational diabetes.

Post birth

Women should be advised of the increased risk of developing diabetes later in life. An oral glucose tolerance test should be carried out 48 hours after delivery and/or within 6 weeks after delivery. Women should then be advised to have screening for diabetes 3 yearly, aiming for annual screening where possible in accordance with the latest NICE guidance.

For the management of pre-existing diabetes during pregnancy and gestational diabetes, see NICE Guidelines 2015 <http://www.nice.org.uk/guidance/ng3/chapter/1-recommendations>, together with local Trust Guidelines.



Managing diabetes post birth

Women diagnosed with gestational diabetes

Women who have experienced gestational diabetes during pregnancy should be advised of the increased risk of developing diabetes later in life. The extent to which follow up advice and support is currently provided would appear to vary across Wessex with scope to increase the take up of follow up testing for diabetes.

The NICE guidelines on postnatal care recommend that:

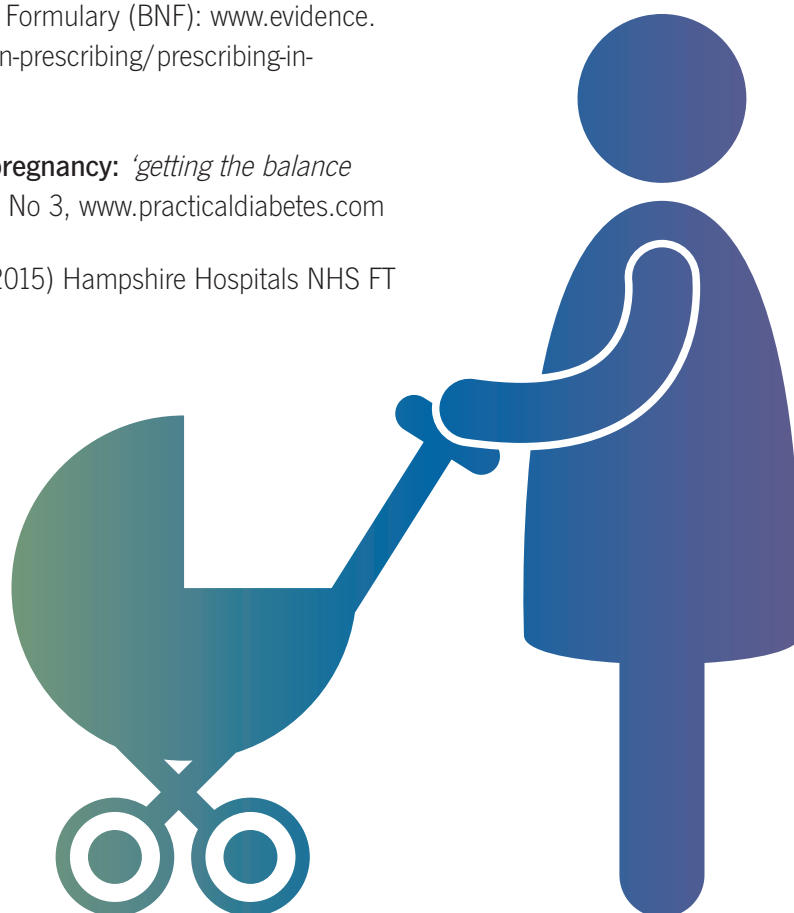
- **For women who were diagnosed with gestational diabetes and whose blood glucose levels returned to normal after birth:**
 - Offer lifestyle advice (including weight control, diet and exercise).
 - Offer a fasting plasma glucose test 6-13 weeks after the birth to exclude diabetes (for practical reasons 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 recommendation in NICE Guidelines NG3, see section 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 recommendation in NICE Guidelines NG3, see section 1.6.14)

Women with pre-existing diabetes

Women with pre-existing diabetes should be referred back to their routine diabetes arrangements. They should be reminded of the importance of contraception and the need for preconception care when planning future pregnancies.

References

1. **NICE Diabetes in Pregnancy: Management of diabetes and its complications from preconception to the postnatal period**, National Institute for Health and Clinical Excellence (Feb 2015) www.nice.org.uk/guidance/ng3
2. **MBRRACE-UK Perinatal Confidential Enquiry Report** (Nov 2015) www.npeu.ox.ac.uk/mbrance-uk/reports
3. **National Pregnancy in Diabetes (NPID) Audit Report, 2014**, Health and Social Care Information Centre (Nov 2015) www.hscic.gov.uk
4. **National Pregnancy in Diabetes (NPID) Audit Report, 2013**, Health and Social Care Information Centre (Oct 2014) www.hscic.gov.uk
5. **Wessex Diabetes in Pregnancy survey findings** (May 2015) Local Healthwatch, www.healthwatch.co.uk
6. **Diagnostic criteria and classification of hyperglycaemia first detected in pregnancy** World Health Organization (WHO) 2013
7. **Prescribing in pregnancy** British National Formulary (BNF): www.evidence.nhs.uk/formulary/bnf/current/guidance-on-prescribing/prescribing-in-pregnancy
8. **NICE's latest guidelines on diabetes in pregnancy: 'getting the balance right'** Helen Holt, Practical Diabetes Vol 32 No 3, www.practicaldiabetes.com
9. **Diabetes in Pregnancy Guidelines** (July 2015) Hampshire Hospitals NHS FT



Appendix 1

Appointment	Care for women with diabetes during pregnancy *
Booking appointment (joint diabetes and antenatal care) – ideally by 10 weeks	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). If the woman has been attending for preconception care and advice, continue to provide information, education and advice in relation to achieving optimal blood glucose control (including dietary advice). If the woman has not attended for preconception care and advice, give information, education and advice for the first time, take a clinical history to establish the extent of diabetes-related complications (including neuropathy and vascular disease), and review medicines for diabetes and its complications. Offer retinal assessment for women with pre-existing diabetes unless the woman has been assessed in the last 3 months. Offer renal assessment for women with pre-existing diabetes if this has not been performed in the last 3 months. Arrange contact with the joint diabetes and antenatal clinic every 1-2 weeks throughout pregnancy for all women with diabetes. Measure HbA1c levels for women with pre-existing diabetes to determine the level of risk for the pregnancy. Offer self-monitoring of blood glucose or a 75g 2-hour OGTT as soon as possible for women with a history of gestational diabetes who book in the first trimester. Confirm viability of pregnancy and gestational age at 7-9 weeks.
16 weeks	Offer retinal assessment at 16–20 weeks to women with pre-existing diabetes if diabetic retinopathy was present at their first antenatal clinic visit. Offer self-monitoring of blood glucose or a 75g 2-hour OGTT as soon as possible for women with a history of gestational diabetes who book in the second trimester.
20 weeks	Offer an ultrasound scan for detecting fetal structural abnormalities, including examination of the fetal heart (4 chambers, outflow tracts and 3 vessels).

28 weeks	Offer ultrasound monitoring of fetal growth and amniotic fluid volume. Offer retinal assessment to women with pre-existing diabetes. Women diagnosed with gestational diabetes as a result of routine antenatal testing at 24-28 weeks enter the care pathway.
32 weeks	Offer ultrasound monitoring of fetal growth and amniotic fluid volume. Offer nulliparous women all routine investigations normally scheduled for 31 weeks in routine antenatal care.
34 weeks	No additional or different care for women with diabetes.
36 weeks	Offer ultrasound monitoring of fetal growth and amniotic fluid volume. Offer information and advice about: • timing, mode and management of birth • analgesia and anaesthesia • changes to blood glucose-lowering therapy during and after birth • care of the baby after birth • initiation of breastfeeding and the effect of breastfeeding on blood glucose control • contraception and follow-up.
37⁺⁰ weeks to 38⁺⁶ weeks	Offer induction of labour, or caesarean section if indicated, to women with Type 1 or Type 2 diabetes; otherwise await spontaneous labour.
38 weeks	Offer tests of fetal well-being.
39 weeks	Offer tests of fetal well-being. Advise women with uncomplicated gestational diabetes to give birth no later than 40+6 weeks.

* Women with diabetes should also receive routine care according to the schedule of appointments in the NICE guideline on antenatal care (<http://www.nice.org.uk/guidance/cg62>), including appointments at 25 weeks (for nulliparous women) and 34 weeks, but with the exception of the appointment for nulliparous women at 31 weeks. OGTT = oral glucose tolerance test.

Appendix 2

Supporting women to plan for pregnancy

Raising awareness

In Primary & Community settings, discuss the:

- Need for contraception and
- Risks of unplanned pregnancy

Use screening tool to discuss future pregnancy plans

Planning pregnancy

- Continue contraception until the following achieved for 3 months:
 - Folic acid started at 5 mg daily
 - HbA1c less than 48 mmol/mol (or 43 mmol/mol if safe)
 - Appropriate medications taken for diabetes care
- Refer to Diabetes & Antenatal clinic

Joint Diabetes & Antenatal clinic

- Develop individual care plan
- Regular ongoing review of diabetes care
- Ensure retinal & renal assessments up-to-date





Postnatal care

- Discharge to diabetes team (Type 1 & 2) and to GP (gestational)
- Postnatal follow up check at 6 weeks (all diabetes types)
- Screening at annual health check (Type 1 & 2), 3 yearly check (gestational)
- Use screening tool to discuss future pregnancy plans
- Raising awareness (all diabetes types), including risk of gestational diabetes in subsequent pregnancies

Gestational Diabetes

- Check for GDM history & risk factors
- Conduct oral glucose tolerance test:
 - @ 16-18 weeks/24-28 weeks
 - Repeat OGTT at 28 weeks if normal

Pregnant

Continue antenatal care, following:

- RCOG guidelines
- NICE guideline on diabetes and pregnancy



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Strategic Clinical Networks**

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