The easy-to-do audit series

An audit of pre-conception counselling in women of childbearing age with diabetes

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Undertaking simple audits and reflecting and acting on our findings can be a powerful way to change practice and improve the care we deliver. In this series, the PCDS hopes these hands-on "how to" audit guides will provide the practical guidance and motivation we all need to take action in the limited time available.

Diabetes in pregnancy is associated with a number of risks to the mother and to the developing fetus. Miscarriage, pre-eclampsia, pre-term labour, 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 (National Collaborating Centre for Women's and Children's Health, 2008).

Whilst the rates of adverse pregnancy outcome in women with both type 1 and type 2 diabetes have greatly improved, as was highlighted recently in an article in this journal, rates remain significantly higher than in the background population (Noctor and Dunne, 2014).

In February 2015, NICE (2015a) published updated guidance on *Diabetes in pregnancy: management from preconception to the postnatal period*. The overarching aim of this guidance is to empower women with diabetes to have a positive experience of pregnancy and childbirth.

The recommendations around pre-conception counselling have particular relevance for those of us working in the primary care setting because many women with diabetes, especially those with type 2 diabetes, are not under the care of a specialist diabetes team. Furthermore, the number of women of childbearing age with diabetes is growing as type 2 diabetes is being diagnosed at an earlier age. In 2013, 44.9% of women with pre-existing diabetes complicating pregnancy had type 2 diabetes (Health and Social Care Information Centre, 2014).

Pre-conception counselling has been shown to be associated with a decrease in adverse outcomes including stillbirth, neonatal death and congenital malformations, from 7.8% in non-attendees compared with 1.3% in attendees (Murphy et al, 2010). The purpose of this audit is to identify those within a practice of childbearing potential with diabetes and then to assess whether they have been offered pre-conception counselling according to the recommendations laid out in the new NICE (2015a) guidance as shown in *Table 1*.

The audit

Initial search

Perform a search to identify all women in the practice with type 1 and type 2 diabetes of childbearing potential.

Select sex: female
Select current age: 15–54 years
Select diabetes diagnosis code:
Type 1 diabetes (X40J4/C10E)*
Type 2 diabetes (X40J5/C10F)

There may be women within the search results who need to be identified and excluded. Given that the search is likely to produce fairly small numbers it may be possible to simply review the patient summary to identify the women who

*SystmOne Read codes in black, EMIS Read codes in red. Note that both terms and specific codes from SystmOne and EMIS systems are included throughout, but you may prefer to search using the Terms alone.

need to be excluded. Useful groups to identify include:

- Hysterectomy.
- Laparoscopic tubal ligation/contraception: female sterilisation.
- Sterilisation.
- Tubal occlusion.
- Infertile/infertility problem.

Tip: Remember to include all "children" codes within the Read code cluster.

The term "infertile" may have been applied during investigations for unexplained infertility, so care needs to be taken not to exclude women where there is even the slightest possibility of conceiving. It is, however, important to be aware that giving advice about pre-conception could cause considerable distress to a woman who is unable to conceive.

Women who have passed the menopause can also be excluded providing they have had no periods for at least 2 years and are under the age of 50, and for at least 1 year if they are over 50. This information may not be routinely recorded in a patient's record and may only become apparent after discussion with the individual.

Instructions to complete the audit.

Aim

The purpose of this audit is to identify those within a practice of childbearing potential with diabetes and then to assess whether they have been offered pre-conception counselling according to the recommendations laid out in the new NICE guidance.

Audit method

This will be a two-step audit completed in a primary care centre in the UK. The first data collection will be between 1 November and 31 December 2016 and the follow-up data collection will be completed 6 months later.

Criterion

Women between 15 and 54 years of ages with diabetes have been offered pre-conception counselling (or discussion about pregnancy planning) unless they have reached menopause, had sterilisation or a hysterectomy, or are definitely infertile.

Standard

All eligible women with diabetes planning pregnancy must have pre-conception counselling.

N.B. Set a reminder on the practice's electronic calendar to repeat the audit 6 months later.

Download the full-size audit form at www.diabetesandprimarycare.co.uk/audits

Results

This involves reviewing the patient record to establish if and when the woman has been offered pre-conception counselling. The quickest way to do this is to go to the New Journal and enter the search term "pre-conception". This will highlight any previous consultations where pre-conception was discussed and recorded. Another option is to search within the Read code journal for the code *Pre-conception advice* (XaIwm/67IJ) or *Pre-conception advice for diabetes* (XaX9n/67IJ1). Record the number of women who have received pre-conception counselling results in the table available for download at www.diabetesandprimarycare.co.uk/audits.

Pre-conception counselling

Undertake pre-conception counselling in those who have not received it in the past 6-month period, and it is important to note the date the advice was given. NICE (2015a) does recommend that pre-conception advice is offered at every contact. What constitutes satisfactory pre-conception counselling is an important consideration and should be assessed in relation to the recommendations set down by NICE (2015a;

Table 1. NICE (2015a) summary and recommendations for pre-conception counselling.

Topic	Rationale
Education	● Offer women with diabetes who are planning to become pregnant a structured education programme as soon as possible if they have not already attended one.
Lifestyle and dietary advice	● Offer individualised dietary advice. ● In those who have a BMI above 27 kg/m^2 offer advice on how to lose weight in line with the NICE (2014a) pathway on obesity. ● Give smoking cessation advice for smokers and advice on reducing alcohol consumption.
Contraception/ unplanned pregnancy	● In 2013, the 3rd National Survey of Sexual Attitudes and Lifestyles reported that one in six pregnancies in the UK is unintended (Wellings et al, 2013). This is likely to be much the same for women with diabetes but given the increased risks for this group advice about contraception and avoiding unplanned pregnancy is even more pertinent. ● Unplanned pregnancy, particularly in women whose diabetes is not under optimal control, is likely to pose risks to both mother and child. ● Document their intentions regarding pregnancy and contraceptive use with emphasis on avoiding unplanned pregnancy.
Folic acid	● Advise women with diabetes who are planning to become pregnant to take folic acid (5 mg/day) from the pre-conception period until week 12 of pregnancy to reduce the risk of having a baby with a neural tube defect.
Glycaemic control	● Explain the benefits of preconception blood glucose control at every contact with a healthcare professional. Offer those planning to become pregnant monthly measurement of their HbA_{1c} level and a meter for self-monitoring of blood glucose. ● Women with type 1 diabetes who wish to become pregnant should be referred to a diabetes pre-conception clinic.
Medication review	● Assess safety of blood glucose-lowering agents in the event of pregnancy and alter as appropriate. ● Some of the medications recommended in the type 2 diabetes NICE (2015b) guideline are not licensed for use during pregnancy, and so the prescriber must be familiar with the rationale behind the recommendation. ● Women with type 2 diabetes may be advised to use metformin as an adjunct or alternative to insulin in the preconception period and during pregnancy, when the likely benefits from improved blood glucose control outweigh the potential for harm. All other oral blood glucose lowering agents should be discontinued before pregnancy and insulin substituted. This is best achieved by referral to a specialist pre-conception clinic and by shared care between diabetologist and obstetrician during pregnancy. ● ACE inhibitors and angiotensin II receptor antagonists should be discontinued before conception or as soon as pregnancy is confirmed. Alternative antihypertensive agents suitable for use during pregnancy should be substituted. ● Statins should be discontinued before pregnancy or as soon as pregnancy is confirmed.*
Diabetic complications	● Diabetic retinopathy can worsen rapidly during pregnancy. Offer retinal assessment to women with diabetes seeking preconception care at their first appointment (unless they have had an annual retinal assessment in the last 6 months). Advise them to defer rapid optimisation of blood glucose control until after retinal assessment and treatment have been completed. ● Also offer a renal assessment, including ACR, before discontinuing contraception. If serum creatinine is abnormal (120 µmol/L or more), the urinary ACR is greater than 30 mg/mmol or the eGFR is less than 45 mL/min/1.73 m^2, referral to a nephrologist should be considered before discontinuing contraception.

*However, it should be noted that the NICE (2014b) guidance on lipid modification recommends that healthcare professionals "...advise women of childbearing potential of the potential teratogenic risk of statins and to stop taking them if pregnancy is a possibility".

ACE=angiotensin-converting enzyme; ACR=albumin:creatinine ratio; eGFR=estimated glomerular filtration rate.

Table 1). *Table 2* is a quick reference guide that includes the key actions that should be undertaken during a pre-conception consultation. Where the counselling does not meet these recommendations the individual should be invited to attend for pre-conception counselling.

With a number of issues to discuss, a standardised pro forma or checklist facilitates the process and helps to ensure that all of the relevant information is recorded. Teams may want to consider building a pre-conception template such as *Figure 1* if there is not already one available in the software. This will ensure that all the relevant topics are discussed and captured within the patient's electronic record. Alternatively, teams may want to photocopy and laminate *Figure 1* to use for pre-conception counselling. If an electronic template is not used, once pre-conception counselling is complete, the "Pre-conception advice for diabetes given" codes should be added, as this will be used for the re-audit.

Tip: Setting an annual recall, as well as a reminder to discuss at every other contact, makes it easier for clinicians to recognise those eligible for pre-conception counselling in the future.

Re-audit

The purpose of the re-audit is to determine how many of the women identified in the baseline audit have attended and received pre-conception counselling. This should be conducted 6 months later to allow sufficient time for interventions to be implemented. ■

Table 2. Quick reference guide.

Actions	Advice
Glucose monitoring	Pregnancy should be avoided if HbA_{1c} is above 86 mmol/mol (10%); aim for HbA_{1c} below 48 mmol/mol (6.6%). Monthly measurements are required.
Teratogenic medications	Some medications need to be stopped (e.g. ACE inhibitors, ARBs, statins).
Use of folic acid	5 mg per day folic acid during pre-conception and for the first 12 weeks of pregnancy is required.
Retinopathy	Retinal assessment should be offered unless they have had an annual retinal assessment in the last 6 months.
Renal function	Consider referral to a nephrologist before discontinuing contraception if serum creatinine is abnormal (≥120 µmol/L), urinary ACR is >30 mg/mmol, or eGFR is <45 mL/min/1.73 m^2.

ACE=angiotensin-converting enzyme; ACR=albumin:creatinine ratio; ARBs=angiotensin-receptor blockers; eGFR=estimated glomerular filtration rate.

Health and Social Care Information Centre (2014) *National Pregnancy in Diabetes Audit, 2013*. HSCIC, Leeds. Available at: http://bit.ly/1Et0pzl (accessed 10.10.16)

Murphy HR, Roland JM, Skinner TC et al (2010) Effectiveness of a regional prepregnancy care program in women with type 1 and type 2 diabetes: benefits beyond glycemic control. *Diabetes Care* **33**: 2514–20

National Collaborating Centre for Women's and Children's Health (2008) *Diabetes in Pregnancy: Management of Diabetes and its Complications from Preconception to the Postnatal Period*. Royal College of Obstetricians and Gynaecologists, London

NICE (2014a) *Obesity: identification, assessment and management* (CG189). NICE, London

NICE (2014b) *Cardiovascular disease: risk assessment and reduction, including lipid modification* (CG181). NICE, London

NICE (2015a) *Diabetes in pregnancy: management of diabetes and its complications from preconception to the postnatal period* (NG3). NICE, London

NICE (2015b) *Type 2 diabetes in adults: management*. NICE, London

Noctor E, Dunne F (2014) A practical guide to pregnancy complicated by diabetes. *Diabetes & Primary Care* **16**: 146–53

Wellings K, Jones KG, Mercer CH et al (2013) The prevalence of unplanned pregnancy and associated factors in Britain: findings from the third National Survey of Sexual Attitudes and Lifestyles (Natsal-3). *Lancet* **382**: 1807–16

Your turn:

You can download the full-size audit form from www.diabetesandprimarycare.co.uk/audits to fill in and retain. The audit should take no more than a few hours to complete.

After you have completed the first data collection, you can send in your top-line aggregated data to **dpc@omniamed.com**.

Pre-conception care for women with diabetes checklist

Is the patient planning a pregnancy?
Trying to conceive? ☐
6125/6125
Not currently trying to conceive? ☐
XaXsB/1P7B

Is the patient using contraception? ☐

Is the patient planning to conceive during the next 12 months? ☐

If so, record the following advice:

Education
Referral to diabetes structured education programme ☐
XaKGy/8Hj0

Lifestyle and dietary advice
Dietary advice ☐
8CA4/8CA4

Dietary advice for diabetes/ Patient advised re diabetic diet ☐
Xa2h7/8CA41

Dietary advice for weight loss/Patient advised re weight-reducing diet ☐
Xa2jQ/8CA40

Dietary advice for pregnancy ☐
67A2

Smoking cessation advice ☐
Ua1Nz

Referral to smoking cessation advisor ☐
XaItC

Advised to reduce alcohol consumption ☐
Y1202

Glycaemic control
Agreed HbA_{1c} target/HbA_{1c} target level
IFCC standardised ☐
XaWP9/66Ae0

Self-monitoring of blood glucose ☐
XaBLn/8A17

Typical blood glucose levels:
Pre-breakfast = mmol/L
Pre-meals = mmol/L

Diabetic complications
Check retinal screening status ☐

Referral to retinal screener ☐
XaIPU/8H7n

Check renal status (eGFR & ACR) ☐

Referral to nephrology service/ renal physician ☐
XaAci/8H4a

Medication review
Advice to stop drug treatment /drug Rx stopped – medical advice ☐
XaAO2/8B35

Folic acid
Folic acid advice – pre-pregnancy ☐
XaEDd/6760

Pre-conception advice for diabetes given ☐
XaX9n/67IJ1

*SystmOne Read codes in black, EMIS Read codes in red.

Figure 1. An example checklist for pre-conception care for women with diabetes with associated SystmOne and EMIS Read codes.

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Aim

The purpose of this audit is to identify those within a practice of childbearing potential with diabetes and then to assess whether they have been offered pre-conception counselling according to the recommendations laid out in the new NICE guidance on diabetes in pregnancy (NG3).

This will be a two-step audit completed in a primary care centre in the UK. The first data collection will be between 1 November and 31 December 2016 and the follow-up data collection will be completed 6 months later.

Date of first data collection: __/__/__
Date of second data collection (6 months later): __/__/__

Criterion

1. Women between 15 and 54 years of ages with diabetes have been offered pre-conception counselling (or discussion about pregnancy planning) unless they have reached menopause, had sterilisation or a hysterectomy, or are definitely infertile.

Standard

All eligible women with diabetes planning pregnancy must have pre-conception counselling.

Method

See the above article for a step-by-step guide.

Criterion	Number sampled (0 months)	Achievement Number of women meeting the criterion	%	Number sampled (6 months)	Achievement Number of women meeting the criterion	%	Standard
1							100%

1. What change(s) will be implemented after the first data collection?

2. What are the conclusions and lessons learned following the first and second data collections?

3. Are there any further steps required for change?