

# The role of the practice nurse in the preconception care of women with type 2 diabetes

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## Article points

1. Preconception counselling is important to improve pregnancy outcomes in women with pre-existing type 2 diabetes; however, it is underdelivered in the UK.
2. Practice nurses are ideally placed to deliver preconception care.
3. Use of a protocol – a step-by-step guide to the delivery of care – is recommended by the Royal College of Nursing and may improve preconception care.
4. An example protocol has been developed and is available for use or adaptation in the online Appendix to this article.

## Key words

- Practice nurses
- Preconception care
- Pregnancy
- Type 2 diabetes

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**The risks related to diabetes in pregnancy are well documented. Following publication of the National Service Framework for Diabetes in 2001, Government standards were developed to improve pregnancy outcomes in women with type 2 diabetes. However, by 2013, only 18.5% of pregnant women with type 2 diabetes had achieved glycaemic levels at the recommended target. This article contends that evidence-based preconception counselling is still lacking in the UK, but that the practice nurse is ideally placed to deliver this service. The authors have developed a comprehensive practice nurse protocol based on national guidelines and recommendations. If preconception care were to be thoroughly implemented at local and national levels, the health and wellbeing of pregnant women with type 2 diabetes would be improved to mitigate against the risks associated with poor glycaemic control in pregnancy.**

Type 2 diabetes is characterised by hyperglycaemia, which results in damage to the small blood vessels, potentially causing retinopathy, nephropathy and neuropathy. It is also associated with macrovascular damage, resulting in an increased risk of stroke, ischaemic heart disease and peripheral vascular disease; reduced quality of life; and reduced life expectancy. Diabetes in pregnancy increases the risk of miscarriage, pre-eclampsia, pre-term labour, stillbirth, congenital abnormalities, macrosomia, birth injuries, perinatal mortality and postnatal problems for the infant, such as hypoglycaemia. Preconceptual counselling is, therefore, essential and presents an opportunity to assess a woman's health and fitness (McElduff et al, 2005; Diabetes UK, 2015a). All women of childbearing age with diabetes should receive preconception counselling to minimise risks to mother and baby.

## National recommendations

On a national level, since the 2001 National Service

Framework (NSF) for Diabetes was published (Department of Health [DH], 2001), efforts have been made to achieve pregnancy outcomes for women with diabetes approximately equivalent to those for women without the condition. Standard 9 of the NSF aimed to establish policies to empower and support women with diabetes to optimise their pregnancy outcomes by providing preconception counselling and promoting optimal glycaemic control. The standards of the NSF were to be achieved by 2013 and, to enable this achievement, diabetes structured education programmes were put in place by 2005 to improve individuals' understanding of this long-term condition. However, neither of the two main type 2 diabetes education programmes, DESMOND (Diabetes Education and Self-Management for Ongoing and Newly Diagnosed) and X-PERT, included preconception as a main topic.

In 2007, the Confidential Enquiry into Maternal and Child Health (2007) reported that women with diabetes had far higher rates of stillbirth, neonatal

death, congenital abnormality and unnecessary separation of mothers from their infant at birth. In addition, the report revealed that only 17% of maternal units had a joint preconception clinic. As a result, NICE published guidance on the care of women with diabetes in pregnancy, including a section dedicated to preconception care (NICE, 2008). By 2010, a pregnancy dataset to support the upcoming National Pregnancy in Diabetes Audit (NPID) was developed, as well as a care and commissioning pathway to support preconception care for women with diabetes. Furthermore, a project titled "Diabetes Concept" was developed, focusing on community pharmacists delivering preconception advice to women with diabetes.

The NICE Quality Standard on diabetes care in adults (QS6) was published in 2011. In the original document (prior to an update in 2015), Statement 7 required evidence from local providers that preconception care was being offered to women with diabetes (NICE, 2011). This standard required women to have been informed of the need for good glycaemic control during and before pregnancy, and of the risks, including those of taking certain medications while pregnant. It recommended that women who are not planning to conceive should be offered contraception advice. However, the Public Accounts Committee (2012) still found that the agreed treatment targets were not being achieved.

The following year, the NPID posed two questions: whether women were adequately prepared for pregnancy, and whether adverse maternal and fetal/infant outcomes were minimised. Data collected from around 1700 pregnancies in women with diabetes revealed that, amongst women with type 2 diabetes, only 18.5% had achieved the recommended glycaemic targets in the first trimester, while 8.6% had glycaemic levels at which pregnancy should be avoided and 9.4% were taking potentially hazardous glucose-lowering medication when they conceived (Health and Social Care Information Centre, 2014). Further strategies were recommended, including collaboration between maternity units and primary care teams; adding the topic of pregnancy to structured education programmes for women with type 2 diabetes; and focusing on improving glycaemic control during pregnancy.

Unfortunately, NHS England failed to provide a

prominent place for preconception and pregnancy care in its response to the Public Accounts Committee report (NHS England, 2014). The 2008 NICE guideline on diabetes in pregnancy has recently been updated (NICE, 2015a). One change to the guidance concerned glycaemic control, with preconception targets for women with type 2 diabetes matched to those for women with type 1 (NICE, 2015b). In reviewing the progress in preconception care for women with type 2 diabetes to date, Diabetes UK (2016a) mirrors the conclusions of the NPID in expressing concerns about the paucity of preconception and pregnancy care.

### Preconception care in diabetes

The Public Accounts Committee (2012) report noted that there is a consensus about what needs to be done, and NICE (2015a) has provided detailed recommendations on preconception care. These recommendations aim to empower women to have a positive experience of pregnancy by providing them with information, advice and support to help prevent adverse outcomes.

Good glycaemic control will help to reduce the many risks to mother and fetus, and support should be given by means of a monthly HbA<sub>1c</sub> check, with a target of <48 mmol/mol (<6.5%). Any woman with an HbA<sub>1c</sub> of ≥86 mmol/mol (≥10.0%) should be strongly advised not to conceive because of the associated risks.

Home blood glucose monitoring should be commenced. Together, the NICE guidelines on diabetes in pregnancy and type 1 diabetes provide the advice on capillary blood glucose targets, which should be 4–7 mmol/L before meals and <9 mmol/L postprandially (NICE, 2015a; 2015b). Education should be given about recognition and treatment of hypoglycaemia. The woman should be provided with information about what to expect around the time of the birth.

The role of diet and exercise, and the importance of avoiding obesity, should be discussed. In a population-based registry covering 1.6 million births in Texas, USA, analysis revealed that a higher maternal BMI significantly increased the incidence of birth defects (Marengo et al, 2013). The authors recommended that advice to aim for a normal weight (BMI 18.5–24.9 kg/m<sup>2</sup>) was essential in preconception counselling.

### Preconception advice to give to women with pre-existing type 2 diabetes

- Good glycaemic control will reduce the risk to mother and fetus: the ideal preconception HbA<sub>1c</sub> target is <48 mmol/mol (<6.5%), if achievable without problematic hypoglycaemia.
- Women with an HbA<sub>1c</sub> ≥86 mmol/mol (≥10.0%) are strongly advised not to conceive because of associated risks.
- In the preconception period, home blood glucose monitoring should be offered, with capillary blood glucose targets of 4–7 mmol/L before meals and <9 mmol/L postprandially.
- Weight loss should be advised for women with a BMI over 27 kg/m<sup>2</sup>, and smoking cessation and avoiding alcohol should be discussed.
- A comprehensive medication review should be performed, so that medications that could pose risk during pregnancy are avoided.
- Folic acid 5 mg should be started once contraception has been stopped, and continued until 12 weeks into pregnancy.
- Psychological wellbeing should also be assessed.

### Page points

1. The provision of preconception care to women with type 2 diabetes in the UK is poor owing to a number of factors, including a lack of time in consultations.
2. With the growing prevalence of type 2 diabetes in younger women, preconception counselling should begin in adolescence.
3. The practice nurse is ideally placed to reach women of childbearing age, both in routine appointments and by offering appointments and referrals specifically for preconception care.
4. Use of a protocol as a step-by-step guide to the delivery of care is recommended.

A comprehensive medication review needs to be performed, so that medications that could pose risk during pregnancy are avoided. Indeed, it could be questioned whether teratogenic medicines, such as statins, should ever be given to women of childbearing age, since unplanned pregnancy while taking them could pose a greater risk than cardiovascular disease.

Smoking cessation and avoiding alcohol should also be discussed. A full medical assessment would provide the opportunity to detect undiagnosed cardiovascular disease or autonomic neuropathy (McElduff et al, 2005).

The importance of psychological wellbeing has been emphasised (Dunning, 2013). Depression is three times more likely to occur in people with a long-term condition such as diabetes (NICE, 2009). Therefore, it is important to address this issue in preconception counselling, especially as depression can also contribute to female sexual dysfunction.

The Diabetes UK website may be recommended to women as an excellent source of information on all aspects of preconception and pregnancy (available at: <https://is.gd/3nW8F9>). All discussions with the patient about preconception care should be documented.

### Overcoming barriers to the delivery and uptake of preconception care

The provision of preconception care to women with type 2 diabetes in the UK has been poor, and the challenge to provide this service has increased in line with the rising number of people with diabetes (Diabetes UK, 2015b). The Public Accounts Committee (2012) found that contributing factors to this problem were lack of national leadership, lack of accountability for commissioners and lack of performance incentives for providers.

Women already facing the challenge of managing their diabetes often do not know what pre-pregnancy planning entails, and unsupportive staff can make some women reluctant to speak about contraception (Spence et al, 2010). GPs and practice nurses have constraints in the length of consultation time, which impacts on their ability to provide in-depth advice on preconception care to women of childbearing age. A qualitative, cross-sectional study in a London teaching hospital and neighbouring

GP practices showed that guidelines and shared protocols were needed to more effectively involve GPs in the care already being carried out in secondary care (Mortagy et al, 2010). Clear definition of roles would allow a more integrated service, greater continuity of care and optimal pregnancy preparation to be achieved.

The prevalence of type 2 diabetes is increasing in younger age groups (Dunning, 2013; Diabetes UK, 2016b). Therefore, to avoid missing younger women with the condition, preconception counselling should start in adolescence, as recommended by NICE (NICE, 2015a). The provision of culturally sensitive care to aid communication with women of different ethnicity and language is important in increasing their access to preconceptual services (Bajaj et al, 2013).

### The practice nurse's role

The practice nurse (PN) role includes the delivery and management of diabetes care, including assessment, annual care planning, teaching and clinical skills (TREND-UK, 2015). This places the PN in an ideal position to reach women of childbearing age, providing education in routine diabetes appointments and offering appointments specifically for preconception counselling, including referrals as appropriate to other members of the multidisciplinary team.

The use of a protocol improves patient care and outcomes (American College of Obstetricians and Gynecologists, 2015). A protocol is a step-by-step guide to the delivery of care, developed at a local level, to identify and standardise roles within a multidisciplinary team as it implements national standards. The protocol may include decision-support systems for specific clinical situations. However, the use of a protocol is not prescriptive and allows freedom for clinical judgement (Goddard et al, 2015).

An example of a PN protocol for the preconception care of women with type 2 diabetes, written by the principal author, is found in *Appendix 1*, available with the online version of this article ([www.diabetesonthenet.com/jdn](http://www.diabetesonthenet.com/jdn)).

The following measures may act as a guide to establishing optimum preconception care, and can be used or adapted as appropriate for the individual practice setting:

- A search can be performed to identify women of childbearing age with type 2 diabetes, and letters can be sent advising them of the importance of preconception counselling and inviting them to book an appointment with the PN.
  - An example of a preconception patient information leaflet to enclose with the letter was produced by NHS Diabetes (2011).
  - For women of different ethnicities, the letter must be available in their first language in order to maximise response rates.
- PNs seeing any of these patients for a diabetes review can provide preconception advice during their consultations.
- If the woman is planning pregnancy, a 30-minute preconception counselling appointment with the PN can be offered.
  - The protocol in *Appendix 1* is very comprehensive, and it may appear too long to

be user-friendly. However, the headings can be used as a framework to guide the consultation, and the sections contain enough detail to facilitate concentration on any aspect required for the individual patients.

- Posters can also be placed in the waiting area of the general practice inviting women of childbearing age to make an appointment with the PN.
- Each time preconception advice is provided, this should be documented to facilitate the audit process.
- A further search may be carried out on women with type 2 diabetes who are currently pregnant or who have recently given birth, to review what their HbA<sub>1c</sub> was when they conceived
- The service may be audited after one year by repeating the two searches to determine whether there is an improved rate of women receiving



Example of a patient information leaflet on preconception care for women with diabetes (NHS Diabetes, 2011). Available at: <https://is.gd/PniSj5>

#### Target groups

This protocol is divided into two parts, targeted at different patient groups:

- Part 1** – all women with type 2 diabetes of childbearing age, 16–45 years
- Part 2** – all women with type 2 diabetes who are planning pregnancy

#### Part 1 – Brief advice for all women with type 2 diabetes between the ages of 16 and 45, at diagnosis and at every annual review

- Inform the woman of the importance of preconception planning
- Explain the benefits of good glycaemic control during pregnancy, and that good glycaemic control can reduce risks
- Explain the risks associated with diabetes and pregnancy
- Explain the risks of taking certain medications and the benefits of starting high-dose folic acid (5 mg) before and during pregnancy
- For women not planning pregnancy, offer an appointment for contraception advice and document any plans for future pregnancies
- For women planning pregnancy, offer a 30-minute appointment with the practice nurse for preconception counselling
- Ensure an advocate is booked for women whose first language is not English
- Give written advice, in an appropriate language for women whose first language is not English if possible
- Recommend the Diabetes UK website ([www.diabetes.org.uk](http://www.diabetes.org.uk)) as a source of information about pregnancy

#### Part 2 – Advice to give at the preconception counselling appointment

##### Partnership

- Establish a partnership with the woman in looking forward to her pregnancy, and in doing everything possible to make it a positive experience

##### Information, support, empowerment

- Explain that information will be shared and support given to enable her to understand how her diabetes will affect her pregnancy, and to give her confidence and empower her in her day-to-day decision-making around her pregnancy and her diabetes. This will include decisions about lifestyle, medication and about when to stop contraception

##### The role of blood glucose control

###### Good blood glucose control reduces risks

- Explain that good blood glucose control before and during pregnancy can greatly reduce many risks both to mother and baby. These risks include:
  - Miscarriage
  - Stillbirth
  - Congenital malformation
  - Having a large baby (macrosomia)
  - Birth trauma
  - Caesarean section
  - Neonatal death

##### Hypoglycaemia

- Discuss how tighter blood glucose control, while reducing so many other risks, may increase the risk of hypoglycaemia. Explain what this is, how to recognise it and how to treat it

##### Nausea and vomiting

- Explain how nausea and vomiting can affect blood glucose control and how to manage this. Management will depend on whether or not the woman is using insulin

##### Watching HbA<sub>1c</sub>

- Explain that an HbA<sub>1c</sub> of 48 mmol/mol (6.5%) is recommended before getting pregnant

Appendix 1. Sample pages from the principal author's protocol for the preconception care of women with type 2 diabetes. The full Word document can be accessed with the online version of this article ([www.diabetesonthenet.com/jdn](http://www.diabetesonthenet.com/jdn)).



**“More work needs to be undertaken to raise awareness among women of childbearing age who have type 2 diabetes.”**



**Read more online**

#### Gestational diabetes: A practical guide

Paru King provides a broad overview of gestational diabetes, with a particular focus on areas of interest to diabetes specialist nurses.

*Journal of Diabetes Nursing* 21: 84–9

Available at:  
<https://is.gd/kingjdn>

#### E-learning module

##### Pre-conception, pregnancy and postnatal advice to women with diabetes

A free online training module for all healthcare professionals involved in the care of women of childbearing age who have diabetes.

Available at:  
<https://is.gd/preconceptioncare>



documented preconception counselling, and whether any women who conceived had better glucose control as compared with those who conceived the year before.

Locally, these measures have been trialled in an inner-city practice of 4500 patients from many ethnicities. A feedback form was included in the initial mailing containing information about preconception care. As many of the women contacted were of Asian ethnicity, with poor English language and literacy, each letter was followed up by a phone call by a bilingual staff member, ensuring an 100% response rate. In all cases, the women reported that the information had been helpful. Although few took up the opportunity of having the 30-minute appointment, the mailing at least provided them all with information to which they could refer.

In the same borough, clinical study days focusing on long-term conditions are regularly provided. After an email was sent to those responsible for providing the study days, preconception care was included in the next meeting. A request was made for a short presentation on the subject, and this was received very enthusiastically, demonstrating an eagerness among healthcare professionals to develop their skills.

#### Conclusions

While Government standards and frameworks have been developed to improve preconception care in women with type 2 diabetes, implementation of these has been poor nationally. More work needs to be undertaken to raise awareness among women of childbearing age who have type 2 diabetes. Likewise, healthcare professionals, including PNs, need to work collegiately to facilitate preconceptual care. A protocol can promote and enhance standardisation of care.

Audit is also integral to quantifying the effectiveness of a service, and the PN would be ideally placed to lead on this evaluation. ■

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