Pre-conception care: Getting ready before the event

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Following the publication of the Confidential Enquiry into Child and Maternal Health report in 2007, the authors decided to redesign their pre-conception service to incorporate the recommendations for pre-conceptual care for women with type 1 or type 2 diabetes. In this article, the authors discuss the implementation of a group education programme focusing on reducing the recognised risk factors associated with diabetes and pregnancy, thus enabling women to prepare for pregnancy prior to conception.

Article points

1. The Confidential Enquiry into Maternal and Child Health (CEMACH) report (2007) highlighted the importance of pre-conception care for women with diabetes.
2. Significant improvement in outcomes for both the mother and the baby can be achieved with appropriate pre-conception care and planning.
3. An integrated approach between obstetric and diabetes services was initiated. The authors implemented a facilitated learning approach within a group setting covering diabetes control, factors that influence pregnancy and ongoing care while pregnant.

Key words

- Integrated service provision
- Group sessions
- Pre-conception care
- Pregnancy

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The management of pregnancy in women who have type 1 or type 2 diabetes remains a challenge. The 2007 Confidential Enquiry into Maternal and Child Health (CEMACH) report identifies that women with diabetes do not seem to be prepared adequately for pregnancy.

Women with diabetes are a high-risk group. They are five times more likely to have a baby that is stillborn, the infant is three times more likely to die in the first month of life, twice as likely to have a congenital malformation and a birth weight of over 4 kg compared with pregnancies that are not complicated with diabetes (CEMACH, 2005). The 2007 CEMACH report further highlights an association between poor diabetes control and the risk of stillbirth or fetal abnormality.

Only one third of women with diabetes had their blood glucose control examined in the 6 months prior to conception (CEMACH, 2007), and although high-dose folic acid is recommended, only one third of women with diabetes have been shown to be taking folic acid at any dose prior to conception (Pierce, 2006). Standard 9 of the National Service Framework for diabetes (2001) states that:

"The NHS will develop, implement and monitor policies that seek to empower and support women with pre-existing diabetes and those who develop diabetes during pregnancy to optimise the outcomes of their pregnancy."

The authors believe that due to the risks to both the mother and the fetus, it is important that women with diabetes are supported to plan their pregnancies and optimise blood glucose control, and receive the correct care, advice and information prior to conception.

The Oxford Radcliffe NHS Trust

In response to the 2007 CEMACH report, the authors' multidisciplinary team (consultant obstetrician, consultant diabetologist, diabetes specialist midwife and diabetes specialist nurse) reviewed the pre-conception care within their unit. Although a formal audit was not undertaken, the service review highlighted several concerns.

A formal programme was not in place and there was too little emphasis on care prior to pregnancy. There was little structured liaison between midwifery and diabetes

services for this patient group, and women with diabetes had little access to the diabetes specialist midwife and the DSN to discuss preconception issues.

Studies have shown that good glycaemic control prior to conception can reduce congenital malformations. Such overwhelming evidence of the advantages of pre-conceptual care promoted a need for change (Franz, 2003), and a desire to provide the best possible service and care for patients motivated the development for the new service at the authors' Trust.

Rationale

Over a 6-month period, the multidisciplinary team redesigned service provision at the Oxford Radcliffe Hospitals NHS Trust. To control initial service demands, it was decided to target women who were planning a pregnancy in the next 6–12 months. The women were identified via medical referral, with leaflets and posters clearly displayed and visible at the central diabetes clinic, enabling women to gain further information and self-refer if desired.

At the Oxford Radcliffe Hospital, implementation of a structured approach that was resource-efficient and evidence-based was planned. Following discussion and research it was decided that seeing the women in small groups would optimise learning and use resources more effectively, as described by the NICE (2003) guideline on patient education.

A group initiative was decided on, which would involve four to six women with diabetes who were planning to become pregnant, and would run for one and a half hours. The sessions were run by the DSN and the diabetes specialist midwife, with secretarial support. Group sessions took place once there were an appropriate number of women wishing to attend, usually every 6–8 weeks (being mindful that there may only be a finite amount of time available for the women before they became pregnant). Individual follow-up appointments were available following group attendance, or as an alternative if requested. To date, there have not been any requests from anyone for an individual appointment.

Pre-conception groups

The group session comprises four stages:

- Welcome and identifying participants' expectations and agenda.
- The DSN addresses blood glucose control and other diabetes issues.
- The diabetes specialist midwife addresses obstetric issues. The midwife also provides the link for women with diabetes through the antenatal services.
- Information is provided regarding the direct line to maternity services as soon as pregnancy is confirmed to ensure optimum care is received promptly.

The objectives of the pre-conceptual group session, as identified by CEMACH (2007) and NICE (2008), are to ensure that:

- Optimum blood glucose control is facilitated.
- The correct dose of folic acid is discussed and the woman attends her GP surgery to receive a prescription.
- Medications that may be harmful to the fetus are discontinued, for example angiotensin-converting enzyme inhibitors.
- An up-to-date retinopathy screen is arranged.
- Women are aware of the latest health promotion initiatives, such as alcohol advice.
- Participants have an opportunity to learn from others in the group.
- Participants have information regarding the service once pregnant.

Page points

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Box 1. An example of the patient pre-conception proforma.

To do	Nurse comments	Your comments
Rubella vaccination (if not already had it)	It is important that you do not get rubella	
Blood tests – HbA_{1c} – Thyroid – Haemoglobin	It is important that these results are as optimum as possible	
Start taking folic acid (ideally 3 months before conception)	Please ask your GP for a prescription	
Medication review	Some medicines may need to be stopped during pregnancy	
Eye screening	Have a retinal scan unless you have done so in the last 6 months	

Page point

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Pre-conception programme for women with type 1 or type 2 diabetes

One of the main aspects of the pre-conception programme is addressing individual needs and concerns while facilitating group support, enabling information to be given in a supportive environment. The contents of the programme include both lifestyle and food choices that may affect the outcomes of the pregnancy. Specific aspects discussed include dietary topics such as healthy eating, un-pasteurised cheese, eggs, caffeine, nuts and allergies, alcohol and folic acid supplements. Food models are used to facilitate discussion, and participants are encouraged to

Figure 1. The poster used to facilitate discussion around diet and lifestyle topics in the pre-conception group session.

divide the various foods into categories relating to pregnancy and diabetes.

Lifestyle topics, such as exercise, smoking, infection, pets and immunisation against rubella, are also discussed. A poster is used to emphasis the pertinent points, aid discussion and act as a visual aid (*Figure 1*).

A review of diabetes control is undertaken, and optimum blood glucose levels are discussed. NICE (2008) states that women with diabetes should aim to keep fasting blood glucose levels between 3.5 and 5.9 mmol/L and 1-hour postprandial blood glucose levels below 7.8 mmol/L during pregnancy. Participants are encouraged to ensure retinopathy screening is up-to-date, and if not, they are encouraged to get their GP to arrange screening. A medication review is undertaken to ensure any medication will not be detrimental to the fetus, and assessment of possible associated medical conditions, such as poor renal or thyroid function, is also undertaken. The results of this are passed on to the GP and diabetes team to make any necessary adjustments.

Expectations of the dedicated maternity service are explored, and cover the frequency of antenatal appointments, screening tests and ultra sound scanning, as well as mode of delivery and care following birth.

An empowerment approach, as described by Anderson and Funnel (2000) is taken, and a pro-forma (*Box 1*) is given to support the individual to fulfil their own agenda, liaise with GPs and begin their pregnancy with increased knowledge for decision-making and the resources to implement them.

Page points

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Box 2. Course feedback form

As this is a new group, we would really value your thoughts, to enable us to provide a session that gives the information you would like, and which benefits you.

For example:
Something good ...

Something that we could do better ...

Something we missed out, or you would like to add ...

	How helpful has the course been? Please tick box		Any other comments
Influencing factors of pregnancy	Very helpful	❑	
	Helpful	❑	
	Unhelpful	❑	
	Very unhelpful	❑	
Glucose control	Very helpful	❑	
	Helpful	❑	
	Unhelpful	❑	
	Very unhelpful	❑	
What to expect from the service	Very helpful	❑	
	Helpful	❑	
	Unhelpful	❑	
	Very unhelpful	❑	

Page points

1. The participants were asked to complete a feedback form after each session, for the purposes of course development.
2. Women require specialist advice prior to pregnancy, and in the authors' hospital they are now given the opportunity to access a group education programme.

When members of the group have delivered their baby, we ask for a photo of it to show future women attending the group. This appears to encourage and reinforce the main objective of pre-conception care.

Initial evaluation

The participants were asked to complete a feedback form (*Box 2*) after each session, for the purposes of course development. Feedback included the following comments:

> *"Reassuring in the sense that okay, I am a diabetic, but not completely different."*

> *"A bit more detail about* [glycaemia] *management during pregnancy but a very positive and useful session."*

> *"After my experience of the service I think you should sing the praises of it more loudly."*

> *"Could we have 'mentor mums'?"*

> *"It was absolutely brilliant, you learn most from groups like these."*

Box 3. NICE (2008) recommendations for pre-conception care in diabetes.

Offer:
- Folic acid supplements (5 mg/day).
- Blood glucose meter for self-monitoring.
- Ketone testing strips to women with type 1 diabetes and advise on use if hyperglycaemic or unwell.
- Diabetes structured education programme.
- Monthly HbA_{1c} tests.
- Retinal assessment by digital imaging with mydriasis using tropicamide (unless carried out in previous 6 months).
- Renal assessment (including microalbuminuria) before stopping contraception.

Consider:
- Referral to a nephrologist if serum creatinine is ≥120 µmol/L, or the estimated glomerular filtration rate is less than 45 ml/minute/1.73 m^2.

Review:
- Current medications for diabetes and complications of diabetes.
- Glycaemic targets and glucose monitoring.

Future initiatives and audit plan

To ensure the aims of this group are met, there are plans in progress to commence a case-control study comparing those who have attended pre-conceptual group with those who have not. An audit is currently in progress, and the results will be published in a future issue of this journal.

The following benchmarks will be used to evaluate effectiveness:
- HbA_{1c} at first antenatal appointment.
- Folic acid 5 mg taken 3 months prior to conception.
- Miscarriage rate.
- Fetal anomalies.

Conclusion

Women require specialist advice prior to pregnancy, and in the authors' hospital they are now given the opportunity to access a group education programme. Feedback from participants has, so far, all been positive. The pro-forma (*Box 1*) has worked as a vehicle to enable discussion between women planning pregnancy and their GPs to ensure proactive measures are in place.

In implementing pre-conceptual care at the authors' Trust, NICE (2008) recommendations (*Box 3*) have been addressed, and the hope is that adverse outcomes will be reduced to an absolute minimum, and that women with diabetes will have the best opportunity of delivering a healthy baby. ■

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