Disappointing findings of the National Pregnancy in Diabetes audit

Su Down
Nurse Consultant, Diabetes, Somerset Partnership NHS Foundation Trust, Somerset

Up to 4375 women with pre-existing diabetes give birth each year. Pregnancy poses many risks not only to these women but also to the developing fetus. These risks include miscarriage, congenital malformation, stillbirth and neonatal death. The poor pregnancy outcomes seen in women with diabetes compared with the general population have been highlighted for many years (Confidential Enquiry into Maternal and Child Health [CEMACH], 2005), and steps to reduce the risks have been recommended in the recent NICE guideline NG3 and the quality standard QS109 (NICE, 2015; 2016).

The National Pregnancy in Diabetes audit

The National Pregnancy in Diabetes (NPID) audit assesses the quality of care and outcomes for women with pre-existing diabetes who are pregnant in England and Wales. It aims to support quality improvement using the NG3 guideline as a reference. The latest report, published on 21 October, details the outcomes of 3044 pregnancies completed in 2015 from 155 participating units (NHS Digital, 2016). The audit reviewed three key areas of care:

1. Were women adequately prepared for pregnancy?
   - Use of folic acid supplements.
   - Achievement of an HbA_{1c} <48 mmol/mol (6.5%) without problematic hypoglycaemia.
   - Substitution of oral diabetes medications, except metformin, for insulin.
   - Stopping angiotensin-converting enzyme inhibitors/angiotensin receptor blockers and statins.
2. Were appropriate steps taken during pregnancy to minimise adverse outcomes to the mother?
   - Early first contact at a joint diabetes and antenatal clinic.
   - Monitoring of HbA_{1c} to assess the level of pregnancy risk.
   - Retinal screening.
3. Did any adverse outcomes occur?
   - What was the timing of birth and was the birth elective?
   - Did the baby stay with the mother after birth?
   - Was there clinical need for the baby to receive intensive, high-dependency or special care following birth?

Key findings

It has to be acknowledged that there was huge variation in all aspects of care across both services and geographical regions. The audit identified that all aspects of preparation for pregnancy remained poor. Only 16% of women with type 1 diabetes and 38% with type 2 diabetes had achieved an HbA_{1c} of <48 mmol/mol (6.5%) prior to conception. Regarding folic acid supplementation, 46% of women with type 1 diabetes were taking the recommended higher dose of 5 mg/day, but only 23% of those with type 2 diabetes reported taking this dose prior to pregnancy. Interestingly, women with type 1 diabetes from deprived areas were less likely to be on folic acid or to have the target HbA_{1c} level in their first trimester, and there was wide variation in these outcomes between services (*Figures 1* and *2*).

Equally concerning was the discovery that barely a third of women with type 2 and half of those with type 1 diabetes had any contact with the antenatal diabetes team in the first 8 weeks of pregnancy. Almost 10% of women with type 1 diabetes had at least one admission to hospital for hypoglycaemia during the pregnancy.

The majority of births in 2015 were by caesarean section. This included both elective and emergency caesarean sections, and rates were similar between the types of diabetes (66% for type 1 and 56% for type 2). This is despite previous efforts to reduce the caesarean rate to match that of the background population.

"This audit is a stark notice to all service providers of the continuing improvement that will be required if pregnancy outcomes in women with diabetes are to match those of the general population."

On a positive note, there has been a significant reduction in the stillbirth rate from the CEMACH (2005) report. However, the risk remains considerably elevated, at 10.7 and 10.5 per 1000 births for women with type 1 and type 2 diabetes, respectively, compared with 4.7 per 1000 births in the general population.

Not surprisingly, among women who did not have good glycaemic control at 24 weeks, there were much higher rates of large-for-gestational-age babies, preterm delivery (birth before 37 weeks) and neonatal unit admission. A staggering 40% of singleton births to women with type 1 diabetes were preterm, while the rate was lower in those with type 2 diabetes, at 22%.

Conclusions and recommendations

The 2015 NPID audit captured the outcome of 3044 pregnancies to 3036 women. This covers a significant proportion of the potential 4375 pregnancies that would be expected each year in this population, and it can therefore be considered an insightful representation on which to base recommendations for service improvement.

The audit did demonstrate a significant reduction in the number of stillbirths over the last decade, and this is positive news indeed. However, there is still much to be done to reduce the rates of all adverse outcomes. The main issue that has remained unchanged from previous years is the low number of women who receive adequate pre-pregnancy preparation, particularly with regard to achievement of HbA_{1c} targets and taking folic acid supplementation at 5 mg/day.

It is, therefore, imperative that all services, in particular primary care services, develop clear plans to inform women of the value of pregnancy preparation and the risks associated with having poorly controlled diabetes at the point of conception. Discussions regarding contraception that is both safe and effective are essential with all women of child-bearing potential. Primary care registers that identify such women and the recording of such discussions need to be an integral part of the annual review process.

The percentage of women with type 2 diabetes captured in this audit is a real change from the numbers that would have been seen in the

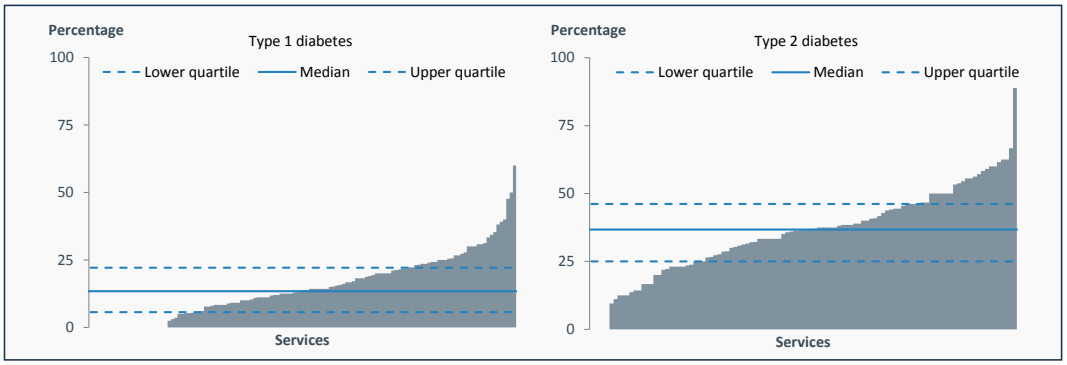

Figure 1. Proportions of pregnancies in which mothers had a first-trimester HbA_{1c} of <48 mmol/mol (6.5%), by service.

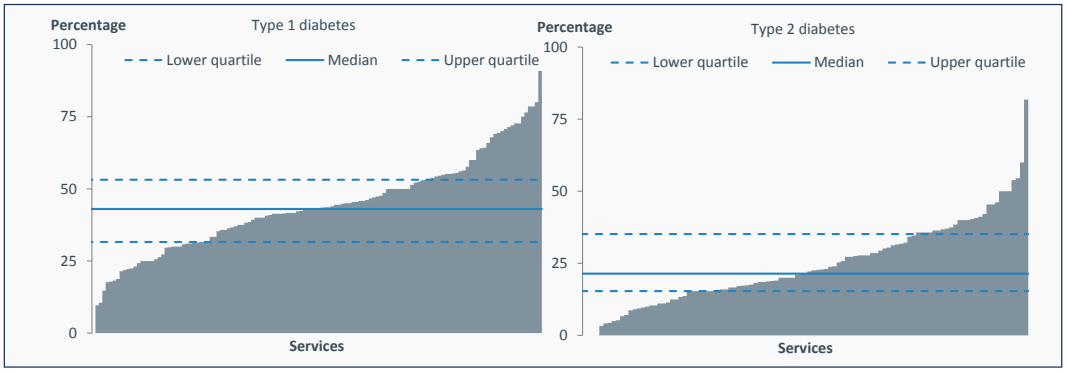

Figure 2. Proportions of pregnancies in which mothers were taking folic acid 5 mg/day prior to pregnancy, by service.

antenatal service two decades ago. Overall, 46% of the women audited had type 2 diabetes, and this proportion has reached over 70% for some ethnic groups and 50% within some regions (*Figure 2*). Most women with type 2 diabetes receive their diabetes care solely from primary care services. Consideration of the medications used to manage their glycaemic, lipid and blood pressure levels is paramount if they are of child-bearing potential and not taking adequate contraception.

It is essential that, once pregnant, women have early contact with specialist services. Therefore, clear, rapid referral pathways must be in place and well publicised to primary care teams and family planning services. Specialist services must also have access to the latest technologies in order to achieve the tight glucose control that is necessary to reduce the risk of adverse outcomes to the fetus whilst safeguarding the mother from problematic hypoglycaemia.

This audit is a stark notice to all service providers of the continuing improvement that will be required if pregnancy outcomes in women with diabetes are to match those of the general population. ■

Confidential Enquiry into Maternal and Child Health (2005) *Pregnancy in women with type 1 and type 2 diabetes 2002–2003*. Healthcare Quality Improvement Partnership, London. Available at: http://bit.ly/2fvNxnS (accessed 31.10.16)

NHS Digital (2016) *National Pregnancy in Diabetes Audit Report – 2015*. NHS Digital, Leeds. Available at: http://bit.ly/2fmec7j (accessed 31.10.16)

NICE (2015) *Diabetes in pregnancy: management from preconception to the postnatal period* (NG3). NICE, London. Available at: www.nice.org.uk/guidance/ng3 (accessed 31.10.16)

NICE (2016) *Diabetes in pregnancy* (QS109). NICE, London. Available at: www.nice.org.uk/guidance/qs109 (accessed 31.10.16)

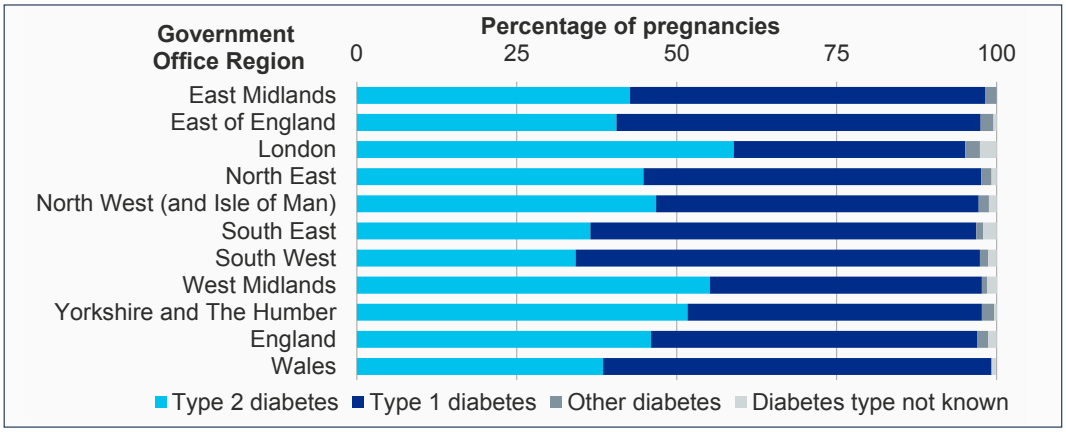

Figure 3. Proportions of pre-existing diabetes types in pregnancy, by Government Office Region.

The National Pregnancy in Diabetes Audit is available to read in full at: **http://bit.ly/2fmec7j**