Diabetes in Pregnancy - West Midlands Report

Executive Summary – April 2009

This is a summary of the report of the West Midlands Diabetes in Pregnancy project 2002-03. Its purpose is to highlight the key findings and recommendations for the West Midlands, to improve clinical care and pregnancy outcomes for this group of mothers.

Data for this project were collected by the West Midlands Perinatal Institute for CEMACH [1] and for our own regional analysis. All 20 West Midlands (WM) maternity units participated, and all women with pre-existing type 1 and 2 diabetes in pregnancy were invited to participate. The analysis was based on a cohort study as well as confidential case reviews.

Key Finding 1 – Type 2 Diabetes: Different Needs

West Midlands has a higher incidence of type 2 diabetes in pregnancy than nationally.

36% of all pregnancies in the study cohort were to women with type 2 diabetes, and 57% of these were of non-European ethnicity. Compared to type 1 diabetic mothers, they were

- less likely to attend pre-pregnancy counselling,
- less likely to have had a pre-pregnancy glycaemic measurement, and
- less likely to have taken folic acid before or in early pregnancy

Suboptimal glycaemic control before pregnancy and in the 1st and 3rd trimesters is associated with adverse pregnancy outcomes. Women with type 2 diabetes are generally commenced on insulin in the 1st trimester and increased glycaemic testing is recommended. This presents a significant change in management for the woman and workload within the multidisciplinary clinic setting.

Deficiencies were apparent with the care of women with type 2 diabetes, which related particularly to glycaemic control and the planning and management of labour and delivery.

Recommendation:

- *There is an urgent need to improve health care access before and in early pregnancy. Education to highlight the importance of pre-pregnancy counselling and glycaemic control for women with type 2 diabetes should be addressed.*

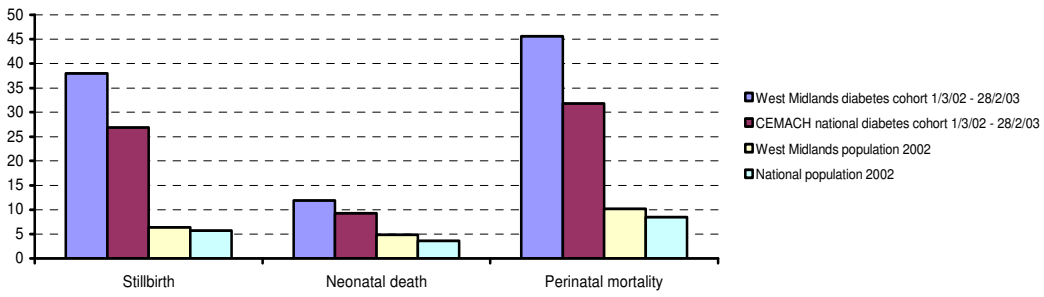
Key Finding 2 - Pregnancy Outcomes / Healthy Babies

Pregnancies with pre-gestational diabetes in the West Midlands have higher rates of adverse outcomes compared with diabetic women in the UK or the general WM maternity population.

High congenital malformation (82.1/1000 births) and perinatal mortality rates (45.6/1000 births) confirms that we are a long way from achieving the aims of the St Vincent's Declaration [2].

- **Major congenital malformations** occur twice as commonly in WM compared to the rest of the UK diabetic population; fetal congenital heart disease and CNS malformations account for more than half of these. The risk of congenital malformation is highest in Anglo-European type 2 women, but was not different for type 1 or type 2 diabetic women overall. The antenatal detection rate for malformations was 60%.
- **Perinatal loss** was 4-5 times higher than in non-diabetic mothers in the WM. Ethnicity and a history of previous premature delivery should be seen as risk factors for perinatal loss. Stillbirth occurred more frequently in women with infrequent hospital appointments or little/no fetal monitoring after 34 weeks gestation.

Figure 1: *Stillbirth, neonatal death and perinatal mortality rates*



Recommendations:

- *Type 1 & 2 diabetic women should have a detailed anomaly and cardiac scan performed by a trained professional at 20-22 weeks gestation.*
- *All diabetic women should be aware of an increased risk of stillbirth, and local services should provide antenatal monitoring of the fetus from 34 weeks gestation. Regional guidelines for monitoring should be developed, based on the available evidence.*

Key Finding 3 - Preconception Care

Women are often poorly prepared for pregnancy.

The uptake of pre-pregnancy counselling is currently low (28%) and this is reflected in:

- low usage of folic acid pre and periconceptually (41%) and
- low levels of glycaemic testing (41%)

Recommendations:

- *There is a need to increase education and public health awareness of the importance of pre-pregnancy care.*
- *New avenues should be explored on where and how pre-pregnancy care is provided*

Key Finding 4 - Clinical Care and Standards

West Midlands is in line with national performance on clinical standards of care in pregnancy and labour

For most clinical standards of care assessed, the WM was found to provide equivalent or better care than nationally; however there remains scope for improvement.

Recommendation:

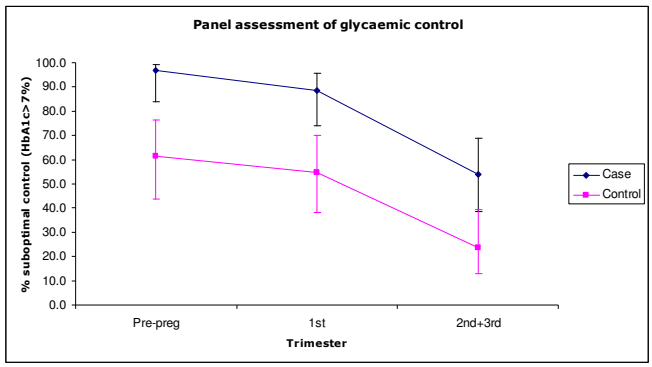
- *Regional guidelines should be produced to improve adherence to standards of 'best practice'*

Key Finding 5 - Optimising Glycaemic Control

Maternal hyperglycaemia / sub-optimal glycaemic control is strongly associated with adverse pregnancy outcomes, especially major fetal malformations and/or perinatal death.

In WM, 13% of mothers with pre-gestational diabetes commenced pregnancy with optimal glycaemic control (HbA1c <7.0%). There is a significant association between suboptimal glycaemic control and adverse perinatal outcomes, both in the case-control study and in comparison with the whole WM cohort. This association is most marked pre-pregnancy and in the 1st and 3rd trimesters.

Figure 2: *Suboptimal glycaemic control (>7% HbA1c) was related to poorer pregnancy outcome*



Recommendations:

- *All health professionals looking after women with pre-gestational diabetes should be actively involved in promoting tight glycaemic control before and during pregnancy.*
- *Women must be encouraged to plan pregnancies to optimise their glycaemic status.*
- *Optimal blood sugar control throughout pregnancy should be achieved through effective target setting, close home glucose monitoring and good communication*

Key Finding 6 - High Preterm Delivery and Caesarean Section Rate

Pre-gestational diabetic women in the WM have a high preterm delivery rate (32%) and a high caesarean section rate (72%)

Table 1: *Modes of delivery - WM compared to National dataset and general maternity population*

MODE	Type 1 (n=247) %	Type 2 (n=135) %	All (n=382) %	National * (n=3,474) %	General Population** %
Vaginal	23.5	36.3	28.0	32.1	78
Spontaneous	17.8	33.3	23.3	24.4	67
Instrumental	5.7	3.0	4.7	7.7	11
Caesarean Section	76.1	63.7	71.7	67.4	22
Emergency	43.3	30.4	38.7	37.6	13
Elective	32.8	33.3	33.0	29.8	9

*Pregnancy in women with type 1 and type 2 diabetes in 2002-2002, CEMACH 2005
** NHS Maternity Statistics, England 2002-2003, bulletin 2004/10

Recommendations:

- *Women should be made aware of the increased risk of preterm and/or operative delivery.*
- *Obstetricians and midwives should consider induction of labour on an individual basis, providing the woman with the most accurate evidence of risks to her and her baby. Avoiding 'routine' induction at 38 weeks will allow more women to labour spontaneously.*

Key Finding 7 - Large Babies / Complications of Labour

Type 1 & 2 diabetic women gave birth to larger babies than the general maternity population.

Over half of birthweights were over the 90th customised centile. The incidence of shoulder dystocia was the same as nationally (7.4%) but represents a two-fold increase compared to the general maternity population. Non-European groups were also more likely to have growth restricted babies (<10th customised centile). Complications of delivery such as shoulder dystocia and Erb's palsy also occurred more commonly in this population.

Recommendations:

- *health professionals need to be aware of the increased risk of these complications;*
- *senior obstetricians should discuss and plan delivery with the mother; and*
- *they should be involved when labour deviates from the norm, to avoid birth trauma and intrapartum asphyxia/stillbirth.*

Key Finding 8 - Neonatal Care

Many admissions to neonatal care are unnecessary

60% of babies born in WM were admitted to a neonatal unit; 20% of term babies were admitted for special care for 'routine/observation only'. This occurred more commonly in babies of mothers with type 1 diabetes. Overall, 20-33% of all admissions to NNU could be avoided. This would reduce neonatal expenditure on this group of neonates and free up cot space within NNUs.

Recommendation:

- *Maternity units should provide transitional care wards with expertise in management of diabetic mothers and babies, to minimise separation of babies to those needing active neonatal care.*

Key Finding 9 - Breastfeeding

The West Midlands cohort had a lower rate of breastfeeding than nationally

Formula milk was more popular in the WM both as an intended and an actual feeding method. This was particularly the case in non-European type 2 diabetic women

Recommendations:

- *There needs to be greater awareness of the importance of breastfeeding, both by mothers and health professionals. This message needs to be promoted in effective ways throughout pregnancy.*
- *Breast milk and breastfeeding confers particular advantages to the diabetic mother and her newborn. It should be encouraged as soon as possible following delivery, and additional support provided. Barriers to breastfeeding, such as maternal drugs, separation of baby, lack of arrangements on NNU's for expressed milk, should be reduced where possible.*

Key Finding 10 - Communication between Health Professionals

Confidential Enquiry panels found a number of instances of poor clinical care which resulted from a breakdown in communication between health professionals.

The CE demonstrated that failures in communication between health professionals and the woman, or between health professionals, occurred in both the confidential enquiry cases and controls. This was a recurring theme in each of three key areas:

- glycaemic management & target setting
- diabetic care
- maternity care: planning/management of labour and delivery

Recommendations:

- *Health professionals caring for diabetic women in pregnancy should work together within a single clinic setting as a multidisciplinary team.*
- *Members of the antenatal diabetes team should regularly discuss management protocols, cases and service improvements.*
- *All staff, particularly medical staff working on delivery suite, should recognise that these women are at high risk of pregnancy and delivery complications: advice from medical, obstetric and anaesthetic senior staff charged with antenatal diabetes care should always be sought.*

Key Finding 11 - Quality of Care

There were major differences in the quality of diabetic/obstetric care provided in WM.

The Confidential Enquiry panels examined the quality of clinical care provided and the individual unit protocols, and found a number of discrepancies in management, especially in the areas of

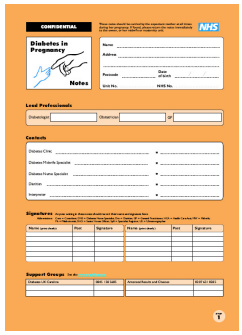
- glycaemic control / target setting
- investigation of diabetic complications
- timing and mode of delivery
- monitoring for fetal wellbeing
- antenatal steroid administration
- use of glucagons in pregnancy

Recommendation:

- *There is a need for a regional approach to standardise diabetes care in pregnancy, including the production of regionally agreed guidelines.*

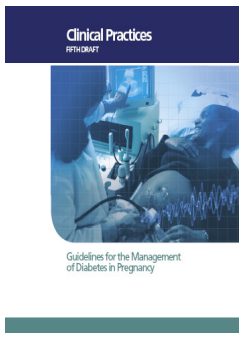
Regional Developments

The WM confidential enquiry and cohort study has stimulated a number of regional initiatives.



DiPAG – The 'Diabetes in Pregnancy Advisory Group' was formed in June 2007 and meetings are held 3-4 times a year at the Perinatal Institute. DiPAG is a multi-professional group from around the region with representation from diabetologists, obstetricians, diabetic specialist midwives, dieticians and patient representatives. Its main aims are to advise WMPI on current clinical priorities and guidelines for improving the care of diabetes in pregnancy; to make regional recommendations; and to assist with projects which seek to facilitate the delivery of better care and improved pregnancy outcomes.

Hand-held Notes - The new Diabetes in Pregnancy notes have been developed following the WM Confidential Enquiry and were launched formally in June 2008 after a successful pilot. Their aim is to standardise and improve care and communication by developing a better and clearer record of the care received and planned, and to make relevant information accessible for women. The contents are consistent with national and regional recommendations and the recently published NICE guidelines [3] They are already in use in many units in the WM and other regions, alongside PIs hand-held Pregnancy Notes.



Protocols - *West Midlands Clinical Practices: Guidelines for the Management of Diabetes in Pregnancy* have been developed by members of DiPAG as a response to findings of the Confidential Enquiry. During this enquiry process it was evident that there was great diversity across the region with regards to protocols and the management of diabetic/maternity care during the antenatal, intrapartum and postnatal period. Comments included local NHS Trust protocols/guidelines being too basic, not providing sufficient guidance, or being poorly set out. Standardisation of care was felt to be an important issue in order to improve care and outcomes. This Clinical Practice document/CD-rom provides detailed, referenced management plans and background information for health professionals to use at any stage of pregnancy or the puerperium.

Diabetes in Pregnancy Register – Interest in creating a region-wide Diabetes in Pregnancy register has grown recently, and the Perinatal Institute with DiPAG is advancing the possibility of providing this type of a register. The collection of standardised data goes hand-in-hand with the documentation and recording of this information in the Diabetes in Pregnancy Notes, now in established use in WM.

Patient Information leaflets – This is another ongoing WM project, taking examples of good practice and written information from around the region and nationally, for the development of high-quality leaflets to inform patients and improve care during all periods before/during/after a pregnancy.

Website - www.pi.nhs.uk/diabetes
As part of PI's website a section has been developed for Diabetes in Pregnancy. This will provide access to information on past and future meetings, protocols and other educational resources. The site will be updated regularly to highlight regional and national developments, meetings and ongoing projects. Address for correspondence:diabetes@pi.nhs.uk

References

1. Pregnancy in women with type 1 and type 2 diabetes in 2002 – 2003, CEMACH 2005
2. Diabetes Care and research in Europe: The Saint Vincent Declaration. *Diabet Med 1990:7;360*
3. NICE guidelines Diabetes in Pregnancy www.nice.org.uk/nicemedia/pdf/DiabetesFullGuidelineRevisedJULY2008.pdf

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April 2009