Findings of a nationwide survey of the diabetes education and training needs of midwives in the UK

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Abstract

Introduction: **The incidence and prevalence of diabetes is increasing in pregnant women. Midwives manage a substantial proportion of care of these women. Currently it is not known whether midwives have sufficient competence in managing these patients well. The Diabetes Care Trust commissioned a survey to assess the diabetes education and training needs of midwives who look after pregnant women with diabetes.**

Material and methods: **A freedom of information request was made to all the NHS Trusts in the UK to gather relevant information about the roles and responsibilities of midwives in the maternity units in the UK. This was followed by a Survey Monkey questionnaire to midwives in the UK who are members of the Royal College of Midwives to assess their education and training level, needs, desires and views preceded by a test survey on nine midwives.**

Results: **The survey revealed considerable variation in the roles and responsibilities, current levels of training and education needs of midwives. Over 85% of midwives expressed a desire to access additional education on diabetes management in different areas. Training in insulin initiation and titration, management during labour and ability to contribute to the antenatal clinic was desired by over 85% of midwives surveyed.**

Conclusions: **There is an unmet need for structured education and training programmes for midwives in the management of diabetes in pregnancy. We recommend further work in producing tailored and accredited training programmes at different levels to suit the differing needs of midwives and diabetes specialist midwives in the UK.**

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Key words: Nationwide, diabetes, education, training, midwives

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Introduction

It is estimated that each year up to 5% (32,100) of women who become pregnant in the UK have either pre-existing diabetes or develop gestational diabetes during their pregnancy.[1] Of these, 87.5% (28,100) have gestational diabetes, 7.5% (2,400) have type 1 and 5.0% (1,600) have type 2 diabetes.[1] The prevalence of diabetes and the incidence of gestational diabetes is increasing as a result of higher rates of obesity and more pregnancies in older women.[1] Diabetes of all types adversely affect the outcome of pregnancy.[2,3]

Many recent publications have highlighted suboptimal care, variable achievements and poor outcomes of pregnancy in patients with diabetes in the UK including poor preparation for pregnancy, high rates of ketoacidosis, maternal hypoglycaemia, stillbirths and neonatal hypoglycaemia.[4–8] Worryingly, the outcomes have largely remained unchanged since previous audits. Excellent national guidelines from the National Institute of Health and Care Excellence (NICE) and Joint British Diabetes Societies for Inpatient care (JBDs-IP) are already available for standardised care and support for pregnant women with diabetes.[1,9] However, their implementation would require widespread uptake, education and training.

Midwives are the key professionals in all pregnancies and are in an ideal position to build trusting relationships with the women they care for. Midwives developing areas of specialist interests and skills have been welcomed by the Royal College of Midwives (RCM).[10] However, they are not always able to access

training on important aspects of diabetes care in pregnancy.[1]

NICE Guidance 28 highlights the education criteria for insulin initiation,[11] and the NICE Quality Standards document focuses on the importance of multidisciplinary support to inpatients with diabetes.[12] Training and education required for midwives, however, remains unknown.

The Diabetes Care Trust (DCT) is a charity that promotes education for professionals of all disciplines who care for people with diabetes. Together with the RCM, the DCT believes that there may be a need for the development of a training programme for midwives. To understand this in more detail the DCT trustees commissioned a report on the education needs for midwives in caring for their patients with diabetes. The current article summarises the findings of this survey. A full report is available on ABCD Care website.[13]

Methodology

A working group was established to support the DCT in examining the need for a 'diabetes-in-pregnancy' education programme for midwives by undertaking an education needs analysis (see Appendix 1 at www.bjd-abcd.com). The working group advised on the questions for the Freedom of Information (FOI) request and the survey, promoted the uptake of the survey in their local areas and supported the analysis and interpretation of the responses.

Freedom of information (FOI) requests

As a precursor to the midwife survey, a FOI request was drafted and issued by email or via Trust websites to all 130 NHS Trusts in England with a midwifery unit between 15 May 2017 and 23 June 2017 (see Appendix 2 at www.bjd-abcd.com). The responses received from 110 of the NHS Trusts were helpful in informing the design of the survey and in targeting the survey.

Midwife survey

Survey design and testing

The survey was aimed at practising midwives (see Appendix 3 at www.bjd-abcd.com). It was designed in seven sections and comprised 33 questions covering the details of themselves and their role, expertise, training needs and views. The survey questions were initially based on a previous study undertaken with mental health nurses investigating their diabetes training needs.[14] The questions were further developed by the working group and by looking at the responses to the FOI request. The final questionnaire wording was agreed after testing the questions on nine midwives in three different NHS Trusts including three diabetes specialist midwives (DSMs), to ensure that the questions were clear, unambiguous and that the content was appropriate. The survey was uploaded to Survey Monkey and a link was sent out by the RCM to all 30,000 active members on their register and to all DSMs identified (83) through the FOI request. The survey was issued between 31 July 2017 and 4 August 2017 and reminders were sent out on 11 September 2017. Seven weeks were allowed for completion, with the survey closing on 25 September 2017.

Findings

Midwife survey responses

Following data validation, there were 698 completed responses to the survey (including 76 DSMs) which were eligible for inclusion. Only one question was mandatory and the respondents did not always complete every question.

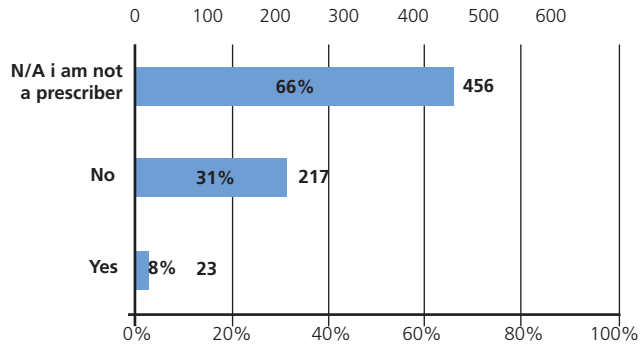
Information about the midwives surveyed

- Although a self-selected group, responses came from a good cross-section of midwives, bands, length of service as a midwife, midwife role in diabetes care, working area and additional responsibilities. 90% of respondents worked in England, 5% in Scotland and the remaining 5% in Wales and Northern Ireland.
- Responses were received from bands 5, 6, 7 and 8 with 66% of responses coming from band 6 midwives. Half of the midwives (49%) had been qualified for over 15 years. There was a similar number of midwives who had previously trained as a nurse prior to becoming a midwife and those who had entered midwifery without nurse training.
- Eighty (11%) were DSMs, diabetes link midwives, midwives with special interest in diabetes or similar (DSM), a further 11% wanted to become a DSM and over half (55%) wanted to know more about diabetes.
- Nearly half of the midwives (44%) worked in more than one area of maternity services, with 18% working across three or more areas. Just over a third of the midwives (36%) worked in the labour ward and birth centre. Midwives who were DSMs were proportionally less likely to be working in the community than other midwives.
- Between 8% and 12% of midwives had additional responsibilities in audit, staff management, safety, quality improvement and risk. Three per cent had additional responsibility for finance/budget management, 21% for teaching/training and 18% had no additional responsibilities. Midwives were more likely to have additional responsibilities with higher grading and increased length of service as a midwife. DSMs had proportionally more responsibility in audit and quality improvement and a slightly increased focus on safety and teaching/education than the other midwives who were not DSMs.

Midwives' role in managing diabetes in pregnancy

- Two-thirds of the midwives provide both high-risk and low-risk care. DSMs and those wanting to be DSMs are more likely to be providing high-risk and low-risk care. Those who do not want to be DSMs are more likely to be providing low-risk care or no care to women with diabetes. The definition of high and low risk was individually judged by the respondents and might have varied.
- Two-fifths of the midwives had undertaken a course which included diabetes in pregnancy, with 5% of these having undertaken more than one course.
- The most commonly mentioned university course was from

Figure 1. Prescribing role of midwives



Warwick University followed by King's College London. Warwick[15] and Cardiff[16] were the only universities cited that had offered specific standalone 'diabetes in pregnancy' courses.

- Only 3% of midwives included diabetes medications as part of their prescribing practice. This is made up of 13 DSMs, six midwives who would like more knowledge about diabetes management in pregnancy, one midwife who would like to become a DSM and three who do not wish to be a DSM. Fifty-three DSMs (66%) are not prescribers (Figure 1).

Midwives' expertise and training needs

- The survey questioned midwives about a number of topics related to diabetes (see Box 1), their previous training, current level of expertise and desire for training in a range of subject areas (Figures 2 and 3).
- 61% of the 110 Trusts who responded (out of a total of 130 Trusts with midwifery units where questionnaires were sent) provided training to ensure competent and safe management of pregnant women with diabetes.
- The percentage of midwives who had accessed at least one form of training (on the ward or in clinic from colleagues, via in-house statutory training, self-directed learning, e-learning module, a study day, a short course, a university accredited course or as part of student midwifery training) ranged from just under one quarter (JBDS Guidance 2017) to 91% (monitoring babies' glucose levels after birth). Just under one-third (30%) had accessed 'insulin initiation' training and just over one-third (36%) 'insulin titration' training.
- The most commonly cited form of learning was 'on the ward or in clinic from my colleagues' (31%) followed by 'as part of my midwifery training' (24%). The least cited ways of learning were 'via e-learning' and 'on a university accredited course' (both 5%), followed by 'on a study day or short course' (8%).
- The percentage of midwives who rated themselves as satisfactory in each of a number of competencies ranged from 15% (insulin initiation) to 56% (managing variable rate intravenous insulin infusion in pregnancy and delivery).
- The percentage of midwives who rated their knowledge as 'excellent' or 'very good' ranged from 6% (JBDS Guidance) to 52% (monitoring babies' glucose levels after birth), increasing to 18–84%, respectively, when including 'good'.
- There is a strong desire for formal accredited training among midwives, ranging from 71% wanting training in 'insulin initiation' to 88% wanting education about 'medical aspects of glucose metabolism during pregnancy and the postnatal period'.

Box 1 Diabetes in pregnancy topics used in questionnaire

Awareness of diabetic ketoacidosis
Awareness of the psychological effect that diabetes can have on pregnant women
Blood ketone testing
Causes and physiology of gestational diabetes
Conducting an antenatal review appointment with an insulin user
Diagnosis including the importance and understanding of the Glucose Tolerance Test
Dietary advice for gestational diabetes
Educating women on the future risk of gestational diabetes and type 2 diabetes
Future pregnancy planning
Gestational diabetes prevention
Importance of breast feeding for mother and baby
Initiation of treatment, including diet, for high glucose levels
Inpatient management of diabetes during pregnancy (excluding birth)
Insulin initiation
Insulin titration
Joint British Diabetes Societies (JBDS) guidance on diabetes management during pregnancy, labour and birth
Management of gestational diabetes – including types of insulin
Management of glucose levels after steroid treatment in women with diabetes
Management of hypos
Management of oral diabetes medication
Managing variable rate intravenous insulin infusion in pregnancy and delivery
Medical aspects of glucose metabolism during pregnancy and postnatal period
Monitoring babies' glucose levels after birth
Monitoring of gestational diabetes
NICE guidance on diabetes management during pregnancy, labour and birth
Postnatal assessment including insulin management and long-term diabetes status
Providing pre-conception advice for women with diabetes
Risks and complications of diabetes during pregnancy, labour and birth
Screening for gestational diabetes
Understanding of different types of diabetes
Understanding the legal aspects of driving (insulin use and hypos)

Figure 2. Perceived competence of midwives

Q10: How would you rate your competence in the following areas of diabetes treatment, medicines management and diet in pregnancy?

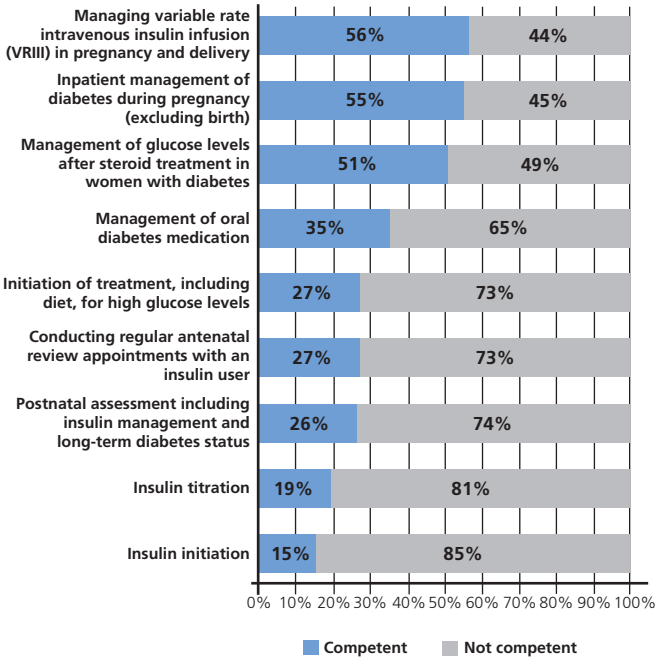
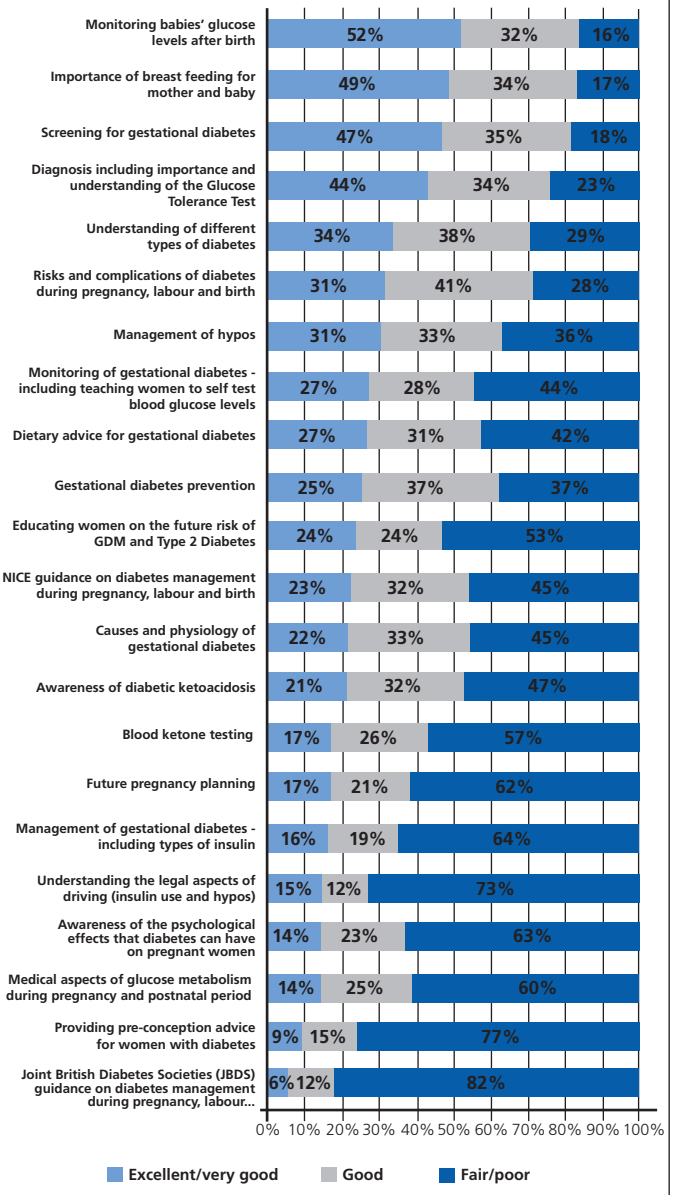


Figure 3. Expertise and knowledge

Q13, Q16, Q19: How would you rate your expertise/knowledge in the following areas?



- Previous training and level of competence do not appear to impact significantly on the midwives' desire for training.
- Midwives who would like to become DSMs and those who want to know more about diabetes are the groups who said 'yes' most often to training. The current DSMs have a slightly different focus on what training they would like, which could be characterised as more specialist and less 'routine'.

Insulin initiation and training in more depth

The characteristics of those who would like formal training in insulin initiation and titration were analysed in more depth (Figure 4). The findings were:

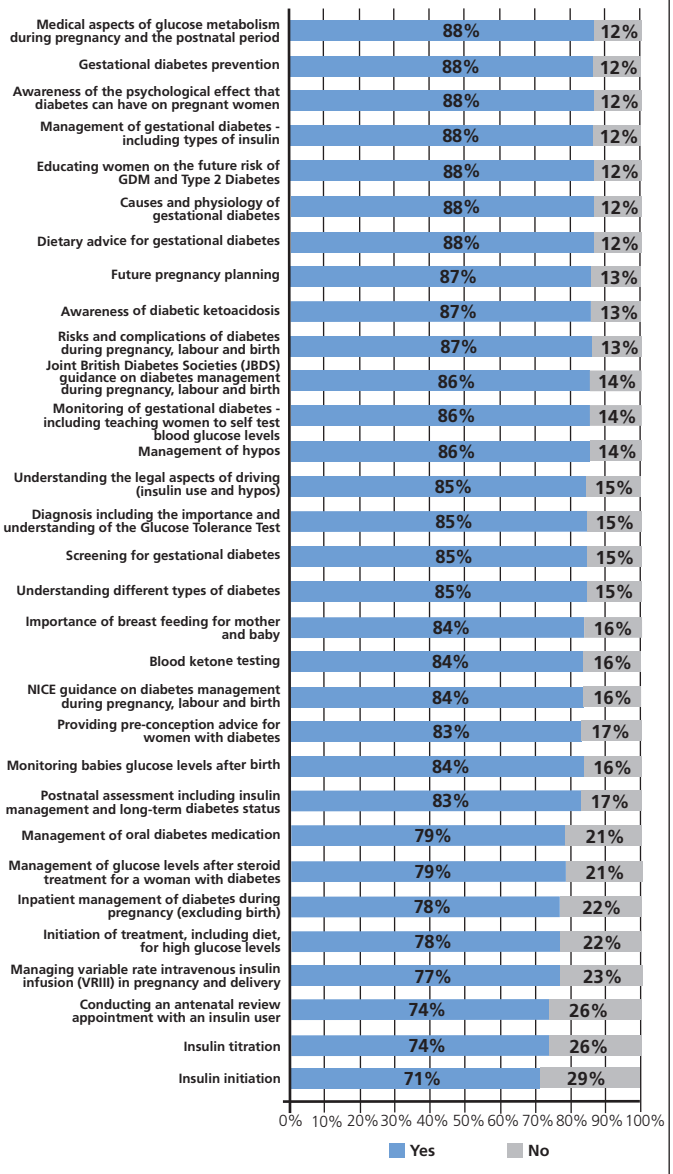
- Of the DSMs, 79% wanted training in insulin initiation; 92% of midwives who wanted to be a DSM wanted training in insulin initiation.
- Of those who have a Masters degree and university-accredited training that includes diabetes management in pregnancy, 77% would like training in insulin initiation and 79% training in titration.
- Of those who have diabetes medications as part of their prescribing practice, 59% want training in insulin initiation and titration.
- Of those who rated themselves as 'competent', 75% would like training in insulin initiation and 78% would like training in insulin titration.
- Of those who rated themselves as 'not competent', 70% would like training in insulin initiation and 73% would like training in insulin titration.

Support given by the Diabetes Specialist Team (DST) to midwives

- 70% of the midwives find it easy or very easy to obtain advice from the DST. However, 10% reported that it was 'difficult' or 'very difficult' to obtain advice, including 8% of the DSMs who found it 'difficult'.
- 40% of the midwives reported not receiving any training from their DST. This includes 22% of DSMs. Of those who

Figure 4. Desire for formal training

Q12, Q15, Q18, Q21: Would you like formal (accredited) training in the following areas?



did receive training, this was mostly received on an annual basis with the training lasting generally 30 minutes or one hour.

Other comments on training

- Two-thirds of the midwives reported that they could use study leave to attend the training. This increased to 71% for DSMs and 82% for those who do not want to be DSMs, but was lower for those who want to become a DSM/want to know more about diabetes in pregnancy (63% and 64%, respectively).
- The midwives reported that they would go to a range of professionals for advice, with the most frequently cited being a DSM (26%) followed by a consultant obstetrician (21%). DSMs would more often seek advice from a consultant diabetologist/endocrinologist (27%) than other midwives would (13%), as would higher bands.

Discussion

The survey was completed by 698 respondents, a response rate of 2.3% from a broad cross-section of midwives. There are currently 21,900 practising midwives in the UK and 3.18% responded to the questionnaire.

Midwives are supported by a range of professionals who they appear happy to contact for advice. Although it is a little concerning that a small proportion of them reported that it was 'difficult' or 'very difficult' to obtain advice, this may be a 'system' problem rather than a training issue.

It is evident from the responses that midwives are very interested in knowing more about diabetes in pregnancy. There is a strong desire for formal accredited training among the midwives.

Midwives who would like to become DSMs and those who want to know more about diabetes are the groups which said 'yes' most often to training. The current DSMs have a slightly different focus on what training they would like compared with non-DSMs, and this tends to be at the more specialist end of the spectrum. It is clear that there is considerable heterogeneity nationally in the availability of DSMs and the activities they perform. This could be historical in some Trusts and would vary depending upon the support available from the DSTs locally.

Only 23 midwives (3%) include diabetes medications as part of their prescribing practice; 13 of them are DSMs, leaving 53 DSMs who are not prescribers. It would be beneficial to understand in more detail the benefits of midwives being able to prescribe and how midwives obtain prescribing status, in order to decide if this would be an essential element of a training programme.

The availability of study leave for training was variable and how to enable midwives to access the training programme will need to be considered in any future design stage. The barriers to engage with the training (time, content, relevance or any other factor) can be explored in more detail as the programme is rolled out. By an iterative process, it is possible to refine the education and training programme individualised to local needs. Areas like pre-conception advice were identified as needing attention and can be addressed as a priority as the programme content develops.

The midwives' responses show how important they believe it is to have a DSM or similar taking an active role in diabetes management, particularly for pregnant women with diabetes, but also for midwives and NHS Trusts.

Forty percent of midwives reported having attended a university course that includes diabetes in pregnancy. The most commonly cited course attended was from Warwick University. Warwick and Cardiff were the only universities cited that had offered specific standalone 'diabetes in pregnancy' courses. It

would be helpful to have more information about these courses in terms of curriculum, cost and location.

Limitations in carrying out the survey in this way are recognised. The response rate was quite low and may reflect the training desires of a group of midwives who are already interested in diabetes and want to upskill further. It could be argued that results from a survey with such a low response rate cannot be used to drive major changes. It must be pointed out that the survey was sent to all the midwives on the database of the RCM, many of whom were not active and may explain the poor response rate. The writing group strongly feels that, given the large absolute number of responses received, the conclusions drawn are justified. Further education and training of midwives will undoubtedly improve patient care of pregnant women with diabetes. The danger of providing courses to an unwilling group can always be mitigated by assessing the uptake of initial e-learning courses before developing more elaborate courses. The survey validity is also compromised by some possible duplicates in entries and the self-selecting respondents which may bring a certain level of bias. There were also a few technical issues immediately after the launch of this survey which resulted in difficulties in progressing beyond questions 28 and 33 for some respondents. This may have resulted in fewer completed survey responses from those who could not progress beyond these questions until these issues were fully resolved.

While a majority of midwives with experience of insulin initiation and titration rated themselves as competent and confident, they also expressed a desire for more training. This may reflect the quality of some aspect of the training they had received or the need for more formal training and accreditation to demonstrate competence in these areas in order to re-validate their prescribing practice. Alternatively, the question might have been differently interpreted by these respondents who might have wanted to train in actual injection teaching and practical aspects of insulin treatment in addition to their competency in selecting the type of insulin and dose adjustments for a particular patient.

Conclusion

The recent National Pregnancy in Diabetes Audit and MBRRACE-UK perinatal confidential enquiry into stillbirths have found significant deficiencies in the care received by pregnant women with diabetes in spite of excellent guidelines from NICE and JBDS-IP.

Midwives play a pivotal role in the care of pregnant women with diabetes from pre-conception to antenatal care with support from the DST. Midwives are in the ideal position to support pregnant women with diabetes, to ensure they are on the correct pathway of care at the right time and to empower the women to self-care and manage the risks associated with diabetes in pregnancy.

Ensuring that all midwives have an appropriate level of training in diabetes may be one of a number of actions needed to support the reduction in stillbirths, complication rates and poor outcomes.

The survey responses confirm that midwives are well supported by the DST and their DSM colleagues. They report higher competency levels where they have had access to training. However, regardless of previous training and competency rating, there is a strong desire for training across all the areas of diabetes care.

Consideration will need to be given to the details of course content and competency, but initial conclusions are that it could be divided into a programme of three levels rather than the two originally hypothesised:

- Level 1: General diabetes training – for all midwives. General diabetes management including early diagnosis of gestational diabetes (GDM), risk factors, early referral and follow-up.
- Level 2: Extended diabetes training – for those midwives wanting more depth or who wish to become a DSM.

Key message

- Over 85% of midwives recognise the need for education to improve their care of pregnant women with diabetes.
- The need for education is felt by all midwives, and not only by those who work in a more specialised role with women with diabetes. The educational needs of the various groups require courses with different content, even when dealing with the same subject matter.
- Some midwives have completed a range of different diploma, degree and masters level courses, which included elements on the management of diabetes in pregnancy.
- Many midwives felt they need further accredited training, especially in insulin initiation and titration. The perceived need for further training was independent of their self-expressed confidence and competence.
- Midwives of all backgrounds believe that diabetes specialist midwives provide a higher standard of care and improved outcomes, as well as giving better continuity and consistency of care.
- A strong case can be made for three levels of training: (a) general training on the principles and diagnosis of diabetes as well as initial management; (b) extended diabetes training suitable for midwives working in high-risk areas who are not specialists in diabetes; (c) in-depth training for diabetes specialist midwives in the supervision and management of diabetes management including insulin initiation and treatment, which would give them accredited qualifications in the non-medical prescribing of diabetes medications including insulin and supporting joint diabetes antenatal clinics.

- Level 3: Specialist DSM diabetes training – in-depth specialist training for those who are DSMs or have completed level 2, and would like to supervise diabetes management including insulin initiation and titration.

Each of these may require a different approach to provision, with Level 1 potentially offered as a set of accredited e-learning modules, Level 2 training potentially offered as a mix of face-to-face course and e-learning and Level 3 being university accredited requiring attendance and a local mentor/supervisor. The DCT should work with the RCM to ensure that all courses fulfil the requirements for RCM accreditation.

Each level of the training could be provided by a different education provider – the DCT, the RCM, existing training organisations or universities, all of which will have different benefits and financial implications and will need to be explored in detail.

When considering how to take this forward, it is important to ensure that the midwives and their NHS Trusts will see a clear benefit/impact. It is also important to take into account the current financial climate in the NHS and ensure that the programme is developed, provided and funded in a way that supports NHS Trusts to enable their midwives to access it.

Recommendations

1. Undertake further research arising from the results of the survey including:
   a. The availability of existing diabetes in pregnancy courses. This should include university-accredited modules, both standalone modules and those that are part of a degree/Masters course as well as non-accredited courses.
   b. Find out more about the process for midwives to become non-medical prescriberd. Ascertain the benefits for midwives being able to prescribe diabetes medications: the benefits for the midwives themselves, the mothers and babies, the wider team/s, the Trust and in terms of outcomes.
2. Develop a competency framework for diabetes that is specific to the midwife role in caring for women with pre-existing or gestational diabetes throughout the care pathway from pre-conception to antenatal care. Work with RCM and TREND-UK to ensure accreditation.
3. Develop a specification for a midwife training programme for diabetes management in pregnancy, taking into account an appraisal of the options of potential design and delivery methods, course content including refresher, cost appraisal, funding options, accreditation options, intellectual property considerations and benefits/impact appraisal.

Conflict of interest None
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Appendix 1 Working group for a diabetes education programme for midwives

Dr Huw Alban Davis, Chair, Diabetes Care Trust.

Umesh Dashora, Consultant Diabetologist, Conquest Hospital, Hastings. Umesh is the first lead author of the Joint British Diabetes Society's guidelines on perinatal diabetes management.

Shelley Bennett, founder of Circle D, a support network for people aged 18–30 with diabetes that operates through Facebook, the website, meetings and events.

Anne Goodchild, Diabetes Specialist Nurse. Anne is the founder of PITstop and designed this highly successful course to accredit nurses in initiating injectable treatments for people with diabetes.

Julia Hugason-Briem, project manager and Director of Briem Consulting Ltd. Julia has extensive experience in the health commissioning and service improvement, including the diabetes commissioning field as well as audit and survey.

Gail Johnson, Education Advisor, Royal College of Midwives. Gail has a particular interest in the provision of e-learning.

Abigail Kitt, Senior Quality Improvement Lead (Diabetes), South East Clinical Network, NHS England

Annette Schreiner, Consultant Obstetrician and Medical Director at Darent Valley Hospital (recently retired). She contributed to and taught the University of Brighton Masters module in diabetes in pregnancy.

Diane Todd, Diabetes Specialist Midwife, Leicester University Hospitals. Di is a member of the NICE Guideline Group for Diabetes in Pregnancy and was a contributing member of NHS Diabetes' report on "Lead Midwife in Diabetes: Standard Role and Competencies".

Dr Jennifer Yiallouros, a researcher and Director of Qualjenuity, a research consultancy analysing qualitative health data. Jen is also a Research Associate at the University of Leicester.

Appendix 2 Freedom of Information questions

1. How many midwives does your Trust employ?

Please state number of individuals and WTEs for each grade of midwife you employ including vacancies.

Grade/ Band	WTE	Individuals

2. How many midwives are involved in the care of pregnant women with diabetes? *Please state number of individuals and WTEs for each grade of midwife you employ including vacancies.*

Grade/ Band	WTE	Individuals

3. Is there a joint clinic for management of pregnant women with diabetes?

Y / N

Continued..

Appendix 2 Freedom of Information questions continued

If yes, which healthcare professionals are involved?

Health Care Professional	***Y/N***
Consultant obstetrician	
Consultant diabetologist	
Diabetes Specialist Nurse	
Diabetes Specialist Midwife	
Diabetes specialist Dietician	

Other (Please specify) ……

4. What competencies are those midwives caring for pregnant women with diabetes working towards? Please describe/ attach details

5. Do you have any training in place to ensure these competencies?

Y / N

Continued..

Appendix 2 Freedom of Information questions continued

If yes, please can you provide details of the training

- What is covered in the training?

- Who provides the training?

- Is the training university accredited?

- How many midwives attended the training in each of the last three years?

- Please provide documentation if available

Training course/ event?	***What is covered in the training?***	***Who provides the training?***	***Is the training university accredited? Y/N***	***How many midwives attended the training?***		
				2014/15	*2015/16*	*2016/17*

6. Are any midwives involved in

	Y/N
Management of oral diabetes medication	
Insulin initiation	
Insulin titration	

Continued..

Appendix 2 Freedom of Information questions continued

7. We would like to contact the diabetes specialist midwife or the midwife responsible for the overall care of pregnant women with diabetes. Please provide contact details:

Name ……..

Title ……..

Email ……..……

Phone ……..……

Appendix 3 Full text of Midwife Survey

Training Needs Survey

Understanding the training needs of midwives in relation to the care of pregnant women with diabetes
(Please note where diabetes is stated this includes Type 1, Type 2 and GDM unless otherwise indicated)

Welcome to our survey – this survey is open to all qualified midwives

Thank you for participating in our survey, your feedback is important.
We would welcome responses from all qualified midwives. We would also welcome responses from those working as a Diabetes Specialist Midwife, a midwife with a special interest in diabetes or similar, or a midwife who would like to develop this expertise.

Please tell us more about yourself
1. How many years have you been qualified as a midwife?
0–4 years
5–9 years
10–14 years
15+ years

2. Did you train as a nurse prior to becoming a midwife?
Yes
No

3. What band are you employed at?
Band 5
Band 6
Band 7
Band 8a
Band 8b
Band 8c
Band 8d

4. Which areas do you work in? (Please tick all that apply)
Antenatal clinic
Antenatal ward
Labour ward and birth centre
Community
Education and research
Other (please specify)

5. What additional responsibilities do you have in your role as a midwife? Please tick all that apply.
Staff management
Finance/ budget management
Quality improvement

Continued..

Appendix 3 Full text of Midwife Survey continued

Safety
Risk
Teaching/training
Audit
I do not have any additional responsibilities
Other, please specify

Please tell us more about your role in managing diabetes in pregnancy

6. At what level do you currently provide care to pregnant women with diabetes?
I do not currently provide care to pregnant women with diabetes
Providing high risk and low risk care
Providing low risk care only
Other (please specify)

7. Are you currently or would like to become a Diabetes Specialist Midwife, Link Midwife, High Risk Midwife, Midwife with a special interest in diabetes or similar?

Yes, I am a DSM or similar
No, I am not a DSM or similar, but I would like to be
No, I am not a DSM or similar, but I would like more knowledge about diabetes management in pregnancy
No, I am not DSM or similar, and do not wish to be

8. Have you completed a university course that includes diabetes management in pregnancy?

	Yes	No
Masters Level qualification		
Degree Level qualification		
Other university accredited course or module		
If yes, please give further details including: name of university, title of course, number of credits		

Please tell us about your expertise and training need in diabetes treatment and medicines management

9. Are diabetes medications in pregnancy part of your current scope of prescribing practice?
Yes
No
N/A - I am not a prescriber

10. How would you rate your competence in the following areas of diabetes treatment, medicines management and diet in pregnancy?

Continued..

Appendix 3 Full text of Midwife Survey continued

	Competent	Not Competent
Conducting regular antenatal review appointments with an insulin user		
Initiation of treatment, including diet, for high glucose levels		
Management of oral diabetes medication		
Insulin initiation		
Insulin titration		
Management of glucose levels after steroid treatment in women with diabetes		
Inpatient management of diabetes during pregnancy (excluding birth)		
Managing variable rate intravenous insulin infusion (VRIII) in pregnancy and delivery		
Postnatal assessment including insulin management and long-term diabetes status		

11. Have you had any training in the following areas? (Please tick all boxes that are relevant)

	Yes, on the ward or in clinic from my colleagues	Yes, via in-house statutory training	Yes, via self-directed learning	Yes, via an e-learning module	Yes, on a study day or short course	Yes, on a university accredited course	Yes, as part of my student midwifery training	No
Conducting an antenatal review appointment with an insulin user								
Initiation of treatment, including diet, for high glucose levels								
Management of oral diabetes medication								
Insulin initiation								
Insulin titration								
Management of glucose levels								

Continued..

Appendix 3 Full text of Midwife Survey continued

after steroid treatment in women with diabetes								
Inpatient management of diabetes during pregnancy (excluding birth)								
Managing variable rate intravenous insulin infusion in pregnancy and delivery								
Postnatal assessment including insulin management and long-term diabetes status								
Other (please specify)								

12. Would you like formal (accredited) training in the following areas:

	Yes	No
Conducting an antenatal review appointment with an insulin user		
Initiation of treatment, including diet, for high glucose levels		
Management of oral diabetes medication		
Insulin initiation		
Insulin titration		
Management of glucose levels after steroid treatment for a woman with diabetes		
Inpatient management of diabetes during pregnancy (excluding birth)		
Managing variable rate intravenous insulin infusion in pregnancy and delivery		
Postnatal assessment including insulin management and long-term diabetes status		
If you answered no to any of the above, please specify why not		

13. How would you rate your expertise/knowledge in the following areas of general diabetes management in pregnancy?

	Excellent	Very Good	Good	Fair	Poor
NICE guidance on diabetes management					

Continued..

Appendix 3 Full text of Midwife Survey continued

during pregnancy, labour and birth					
Joint British Diabetes Societies (JBDS) guidance on diabetes management during pregnancy, labour and birth.					
Understanding of different types of diabetes					
Medical aspects of glucose metabolism during pregnancy and postnatal period					
Blood ketone testing					
Awareness of diabetic ketoacidosis					
Management of hypos					
Understanding the legal aspects of driving (insulin use and hypos)					

14. Have you had any training, as a midwife, in the following areas? (Please tick all boxes that are relevant)

	Yes, on the ward or in clinic from my colleagues	Yes, via in-house statutory training	Yes, via self-directed learning	Yes, via an e-learning module	Yes, on a study day or short course	Yes, on a university accredited course	Yes, as part of my student midwifery training	No
NICE guidance on diabetes management during pregnancy,								

Continued..

Appendix 3 Full text of Midwife Survey continued

labour and birth								
Joint British Diabetes Societies (JBDS) guidance on diabetes management during pregnancy, labour and birth.								
Understanding of different types of diabetes								
Medical aspects of glucose metabolism during pregnancy and postnatal period								
Blood ketone testing								
Awareness of diabetic ketoacidosis								
Management of hypos								
Understanding the legal aspects of driving (insulin use and hypos)								

Other (please specify)

15. Would you like formal (accredited) training in any of the following areas?

	Yes	No
NICE guidance on diabetes management during pregnancy, labour and birth		
Joint British Diabetes Societies (JBDS) guidance on diabetes management during pregnancy, labour and birth.		
Understanding of different types of diabetes		
Medical aspects of glucose metabolism during pregnancy and postnatal period		
Blood ketone testing		
Awareness of diabetic ketoacidosis		
Management of hypos		
Understanding the legal aspects of driving (insulin use and hypos)		

Continued..

Appendix 3 Full text of Midwife Survey continued

If you answered no to any of the above, please specify why not

Please tell us about your expertise and training in gestational diabetes management

16. How would you rate your expertise/knowledge in the following areas of gestational diabetes management?

	Excellent	Very Good	Good	Fair	Poor
Causes and physiology of gestational diabetes					
Gestational diabetes prevention					
Screening for gestational diabetes					
Diagnosis including importance and understanding of the Glucose Tolerance Test					
Monitoring of gestational diabetes - including teaching women to self-test blood glucose levels					
Management of gestational diabetes - including types of insulin					
Dietary advice for gestational diabetes					

17. Have you had any training, as a midwife, in the following areas of gestational diabetes management? (Please tick all boxes that are relevant)

	Yes, on the ward or in clinic from my colleagues	Yes, via in-house statutory training	Yes, via self-directed learning	Yes, via an e-learning module	Yes, on a study day or short course	Yes, on a university accredited course	Yes, as part of my student midwifery training	No
Causes and physiology of gestational diabetes								
Gestational diabetes prevention								
Screening for								

Continued..

Appendix 3 Full text of Midwife Survey continued

gestational diabetes								
Diagnosis including importance and understanding of the Glucose Tolerance Test								
Monitoring of gestational diabetes - including teaching women to self-test blood glucose levels								
Management of gestational diabetes - including types of insulin								
Dietary advice for gestational diabetes								

Other (please specify)

18. Would you like formal (accredited) training in any of the following areas of gestational diabetes management:

	Yes	No
Causes and physiology of gestational diabetes		
Gestational diabetes prevention		
Screening for gestational diabetes		
Diagnosis including importance and understanding of the Glucose Tolerance Test		
Monitoring of gestational diabetes - including teaching women to self-test blood glucose levels		
Management of gestational diabetes - including types of insulin		
Dietary advice for gestational diabetes		

If you answered no to any of the above, please specify why not

Please tell us about your expertise and training needs

19. How would you rate your expertise/knowledge in the following areas?

	Excellent	Very Good	Good	Fair	Poor
Providing pre-conception advice for women with diabetes					
Awareness of the psychological effect that diabetes can have on pregnant women					
Risks and complications of diabetes during pregnancy, labour					

Continued..

Appendix 3 Full text of Midwife Survey continued

and birth					
Importance of breast feeding for mother and baby					
Monitoring babies' glucose levels after birth					
Future pregnancy planning					
Educating women on the future risk of GDM and type 2 diabetes					

20. Have you had any training, as a midwife, in the following areas of gestational diabetes management? (Please tick all boxes that are relevant)

	Yes, on the ward or in clinic from my colleagues	Yes, via in-house statutory training	Yes, via self-directed learning	Yes, via an e-learning module	Yes, on a study day or short course	Yes, on a university accredited course	Yes, as part of my student midwifery training	No
Providing pre-conception advice for women with diabetes								
Awareness of the psychological effect that diabetes can have on pregnant women								
Risks and complications of diabetes during pregnancy, labour and birth								
Importance of breast feeding for mother and baby								
Monitoring babies' glucose levels after birth								

Continued..

Appendix 3 Full text of Midwife Survey continued

Future pregnancy planning								
Educating women on the future risk of GDM and type 2 diabetes								

Other (please specify)

21. Would you like formal (accredited) training in any of the following areas of gestational diabetes management?

	Yes	No
Providing pre-conception advice for women with diabetes		
Awareness of the psychological effect that diabetes can have on pregnant women		
Risks and complications of diabetes during pregnancy, labour and birth		
Importance of breast feeding for mother and baby		
Monitoring babies' glucose levels after birth		
Future pregnancy planning		
Educating women on the future risk of GDM and type 2 diabetes		

If you answered no to any of the above, please specify why not

Please tell us about the support you receive from your local Diabetes Specialist Team

22. How easy is it to obtain advice from the Diabetes Specialist Team (Consultant Obstetrician, Consultant Endocrinologist/ Diabetologist, Specialist Diabetes Nurse, Specialist Diabetes Midwife, Specialist Diabetes Dietician)?
Very easy
Easy
Neither easy nor difficult
Difficult
Very difficult

Please provide further details

23. Do you receive training from members of your local Diabetes Specialist Team?
No
Yes - less than once a year
Yes - annually (once a year)
Yes - biannually (twice a year)
Yes - more than twice a year
Yes - on an ongoing basis

Continued..

Appendix 3 Full text of Midwife Survey continued

Yes - on an ad hoc basis
Other (please specify)

24. If you do receive training from your Diabetes Specialist Team, how long is this training usually?
Up to 30 minutes
Up to one hour
Between one and two hours
Half a day
One day
N/A

25. If you do receive training from the Diabetes Specialist Team, can you use study leave to attend?
Yes
No
N/A

Please comment

26. Does your Trust have a Multi-Disciplinary Team Meeting (MDM/ MDT) or planning meeting where difficult pregnancy cases including those with diabetes are discussed involving the wider healthcare team (including, for example, paediatrics, anaesthetics)?
Yes
No
Don't know

If yes, who attends from the midwifery team?

27. Who would you go to for advice about a pregnant woman with diabetes? (Please tick all that apply)
Diabetes Specialist Midwife (or similar)
Midwife colleague
Consultant Obstetrician
Consultant Diabetologist/Endocrinologist
Diabetes Specialist Nurse
Diabetes Specialist Dietician
Other (please specify)

Please tell us about any benefits of midwives taking an active role in diabetes management

28. Are there advantages for pregnant women if midwives are more knowledgable about diabetes management in pregnancy?
No
Yes, please specify

Continued..

Appendix 3 Full text of Midwife Survey continued

29. In your opinion, what is the importance to pregnant women of having a Diabetes Specialist Midwife or similar taking an active role in diabetes management?

	Very important	Quite important	Neither important nor unimportant	Not very important	Unimportant
Improved continuity of care					
Lower likelihood of need for inpatient stay before birth					
Reduced stress for pregnant women					
Easy access to information and support to midwife with specialist knowledge of both diabetes and pregnancy					
Improved outcomes for babies including fewer macrosomic babies					
Improved outcomes for pregnant women including fewer complications					
Improved patient experience					
Improved consistency of care					

30. In your opinion, what is the importance to midwives of having a Diabetes Specialist Midwife or similar taking an active role in diabetes management?

	Very important	Quite important	Neither important nor unimportant	Not very important	Unimportant
Improved control of diabetes during pregnancy and birth					
Personalised care for each woman					
Empowering women to control their glucose levels					
Confidence and knowledge to reassure women					
Spread knowledge of diabetes management in pregnancy across the midwifery team					
Improved achievement of own education goals					

Continued..

Appendix 3 Full text of Midwife Survey continued

Improved job satisfaction					
Improved links to the Diabetes Specialist Team					

31. In your opinion, what is the importance to NHS Trusts of having a Diabetes Specialist Midwife or similar taking an active role in diabetes management?

	Very important	Quite important	Neither liportant nor unimportant	Not very important	Unimportant
Reduced number of hospital admissions					
Reduced hospital length of stays					
Providing a high standard of care					
Reduced cost for providing diabetes care					
Financial benefits from reducing complaints and litigation costs					
Reduced demand on high cost care for mother and/or baby					
Improved workforce loyalty					

32. Do you have any other comments you would like to share about managing pregnant women with diabetes and receiving training in this aspect of care? (Please do NOT mention any names)
No
Yes (please specify)

Please tell us about where you work

33. Where do you work?
England - North of England
England - Midlands and East of England
England - London
England - South of England
Wales
Northern Ireland
Scotland

Contact details and prize draw! Please scroll down to the bottom of the page to complete the Survey

34. If you are interested in being contacted for further research or to support the development of a training course, please provide your contact details

Continued..

Appendix 3 Full text of Midwife Survey continued

below. The survey is anonymous and any contact information we collect from you will be kept separately from your responses. If you agree to be contacted for a follow-up, you can always decline the request when contacted.

Name
Email address
Telephone number (optional)

35. If you would like to take part in the prize draw to win a £100 Amazon gift voucher, please provide your contact details below. Any contact information we collect from you to participate for the draw will be stored separately from your answers to the survey questions, and will be deleted once the draw is complete.

Name
Email address