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Missed opportunities for diabetes prevention:

post-pregnancy follow-up of women with gestational diabetes mellitus in England

Abstract

Background

Women with gestational diabetes mellitus (GDM) should be followed-up to exclude ongoing diabetes and for prevention of type 2 diabetes. The National Institute for Health and Clinical Excellence (NICE) diabetes in pregnancy guideline recommends checking fasting plasma glucose (FPG) at 6 weeks postpartum (short term), and annually thereafter (long term).

Aim

To examine the reported practice regarding GDM follow-up.

Design and setting

Nationwide postal survey in England 2008–2009.

Method

Questionnaires were distributed to a consultant diabetologist and obstetrician in all maternity units, and to a random sample of general practices (approximately 1 in 5).

Results

Response rates were: 60% (915/1532) GPs, 93% (342/368) specialists; 80% of GPs and 98% of specialists reported women with GDM had short-term follow-up. More GPs (55%) than specialists (13%) used a FPG test to exclude ongoing diabetes; 26% of GPs versus 89% of specialists thought the hospital was responsible for ordering the test. Twenty per cent of GPs had difficulty in discovering women had been diagnosed with GDM in secondary care. Seventy-three per cent of specialists recommended long-term follow-up; only 39% of GPs recalled women with GDM for this. A minority of GPs and specialists had joint follow-up protocols.

Conclusion

Follow-up of GDM in England diverged from national guidance. Despite consensus that short-term follow-up occurred, primary and secondary care doctors disagreed about the tests and responsibility for follow-up. There was lack of long-term follow-up. Agreement about the NICE guideline, its promotion and effective implementation by primary and secondary care, and the systematic recall of women with GDM for long-term follow-up is required.

Keywords

British National Health Service; diabetes mellitus; diabetes, gestational; prevention and control; follow-up studies; survey

INTRODUCTION

Gestational diabetes mellitus (GDM) is carbohydrate intolerance first recognised in pregnancy.¹ GDM affects approximately 3.5% of pregnancies in England and Wales.² Following pregnancy, women with GDM may have ongoing diabetes and have increased risk of developing impaired glucose tolerance or type 2 diabetes. Estimates of the risk of developing type 2 diabetes after GDM vary from 2% to 70%, reflecting differences in the population tested, the diagnostic criteria used, and the length of follow-up.³ Progression to type 2 diabetes among high-risk groups (including women with GDM) can be prevented or delayed,^{4–6} and detecting impaired glucose tolerance or impaired fasting plasma glucose (FPG) in often asymptomatic individuals permits intervention such as dietary counselling, weight management, and exercise. Women who have had GDM should have regular lifelong follow-up for diabetes. The 2008 National Institute for Health and Clinical Excellence (NICE) diabetes in pregnancy guideline (England) recommends that FPG should be done at a 6-week postnatal check, and if not diagnostic of diabetes, repeated annually.²

Follow-up of GDM crosses the primary/secondary care divide and involves two separate specialties within secondary care: diabetes and obstetrics. Evidence from the management of other conditions

requiring multidisciplinary input emphasises the importance of cooperation between the various agencies to optimise outcomes. There is little published research on the current practice of GDM follow-up in primary and secondary care. A recent paper suggested that Canadian physicians are not following national guidance that recommends an oral glucose tolerance test (OGTT) after pregnancy.⁷

This study aims to examine the reported practice of primary care (GPs) and secondary care (obstetricians and diabetologists) doctors in England at the time of publication of the NICE diabetes in pregnancy guideline, with regard to:

- the initial test used to exclude ongoing diabetes after a GDM pregnancy (short-term follow-up);
- tests used to screen for type 2 diabetes in women whose GDM resolved after the index pregnancy (long-term follow-up); and
- differences in views about the management of GDM between primary and secondary care, between diabetologists and obstetricians, and between obstetricians and diabetologists working in the same unit.

METHOD

Questionnaires were designed for primary

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How this fits in

Gestational diabetes mellitus (GDM) is a risk factor for persistent diabetes or diabetes in later life. NICE recommended that women who have had GDM should have a test for diabetes at the 6-week postnatal check and if that is negative, they should have life-long follow-up for diabetes. In this national survey of both hospital and general practice it was found that primary and secondary care disagreed about the tests and responsibility for short-term follow-up, and that there was a lack of long-term follow-up. Agreement about the NICE guideline, its promotion and effective implementation by primary and secondary care, and the systematic recall of women with GDM for long-term follow-up is required.

care and secondary care by the authors (GP, diabetologist, and obstetrician). Shortness and simplicity were considered essential for increasing the likelihood that busy clinicians would complete it. Closed-ended questions with response categories were used, with space provided alongside for optional additional responses. Guidelines for writing good questions were followed.⁸ The questionnaires were piloted by eight diabetologists and eight obstetricians in eight maternity units, and 100 GPs. Following GP responses, the primary care questionnaire was modified, but these changes did not affect the ability to compare responses from the primary and secondary care questionnaire. The final survey questions asked are given in the results tables. The relevant questionnaire (with a covering letter and stamped addressed envelope) was posted to:

- the diabetologist and obstetrician with responsibility for the diabetes maternity service in all remaining 176 consultant-led maternity units in England; and
- a random one in five sample of all general practices in England ($n = 1532$), addressed to the practice manager asking them to

pass it to the appropriate GP.

All questionnaires were sent out after 25 April 2008, subsequent to the NICE guideline (March 2008). As these NICE recommendations might have resulted in changes in practice during the course of the survey, the results from primary care questionnaires received within the first 5 months after publication of the guideline were compared with those received in the second 5 months. It was not possible to do this for secondary care, as 85% of the responses were received within 4 months.

Non-responding GPs were sent up to four postal reminders with blank questionnaires enclosed and prepaid envelopes. A further questionnaire was delivered to non-responding practices by representatives of Novo Nordisk UK. Finally, 260 of the remaining 671 (39%) non-responding GPs were telephoned by members of the Primary Care Diabetes Society and three of the authors, and personally invited to complete the questionnaire.

Non-responders to the secondary care questionnaire were sent two postal reminders with new questionnaires. Then 30 diabetologists and 27 obstetricians were emailed, and the final 17 diabetologists and obstetricians were telephoned by one of two researchers.

Statistical methods

All analyses were done using STATA 8. Means were reported for normally distributed continuous data, and proportions (%) for discrete data. χ^2 tests of significance were used to compare proportions for unpaired data, and Stuart Maxwell tests for the paired data.

RESULTS

Response rates and characteristics of responding units

Primary care. Sixty per cent (915/1532) of GP practices responded to the survey. Compared with English general practices as a whole, responding GPs were working in larger practices. More than 40% were training practices (Table 1).

Table 1. Characteristics of responding primary care practices compared with practices in England

| Characteristic | Responding practices, $n = 915$ | Practices in England, ^a $n = 8320$ |
|------------------------------------|------------------------------------|--------------------------------------------------|
| Average practice list size | 7325 | 6555 |
| Average number of GPs per practice | 4.5 | 4.1 |
| Training practices ($n = 908$) | 383 (42.2%) | |

^a<http://www.ic.nhs.uk/webfiles/publications/nhsstaff2008/gp/Bulletin%20Sept%202008.pdf>.

Table 2. Characteristics of service in secondary care (responses from 171 consultant diabetologists and 171 consultant obstetricians from 184 units)

| Characteristic | Number of doctors replying yes (%) |
|--------------------------------------------------------------------------------|------------------------------------|
| Type of hospital (n = 342) | |
| District general | 245 (71.6) |
| Teaching | 95 (27.8) |
| Other | 2 (0.6) |
| Has a joint diabetes/obstetric clinic (n = 342) | 336 (98.2) |
| If joint clinic, is this a consultant-led service? (n = 326) | 325 (99.7) |
| If joint clinic, is it a multidisciplinary team (n = 326) | 324 (99.4) |
| If joint clinic, is the multidisciplinary team complete ^a (n = 336) | 255 (78.2) |

^aA complete team includes an obstetrician, diabetes physician, diabetes specialist nurse, dietician, and midwife.

Table 3. Primary care and gestational diabetes mellitus (GDM) diagnosis

| Question | n (%) |
|-------------------------------------------------------------------------------------------------------------------|------------|
| How do you usually find out that a woman has GDM? (n = 915) | |
| A letter from the hospital | 718 (78.5) |
| From the maternity notes | 354 (38.7) |
| The patient informs me | 352 (38.5) |
| Other | 198 (21.6) |
| Don't know | 15 (1.6) |
| In your experience, have you had difficulties finding out that your patients have gestational diabetes? (n = 900) | |
| Yes | 167 (18.6) |
| No | 733 (81.4) |
| What are these difficulties due to? (n = 167) | |
| Lack of communication from the hospital | 143 (85.6) |
| The patient doesn't inform you | 61 (36.5) |
| The glucose tolerance test is not done at the practice | 62 (37.1) |
| Other | 18 (10.8) |
| Don't know | 6 (3.6) |

Secondary care

Ninety-three percent (342/368) of specialists (171 diabetologists and 171 obstetricians from 184 maternity units) responded to the

survey. In 158/184 units both the obstetrician and the diabetologist responded. As there were no differences between the pilot and the main secondary care questionnaires, these responses were combined. Most specialists were working in district general hospitals and ran a consultant-led joint clinic for women with GDM, with a multidisciplinary team (Table 2).

Follow-up of GDM in primary care

Protocols. Thirty nine per cent (353/915) of GPs had an agreed protocol for the management of women with GDM, but it was most likely to be limited to the individual practice. One-third of these protocols had been agreed with secondary care (Figure 1).

Primary care and diagnosis of GDM.

Seventy-nine per cent (718/915) of GPs were made aware via hospital letters that women had GDM. However, 19% of GPs reported difficulties in identifying that a woman had been diagnosed with GDM, mostly due to poor communication from the hospital (Table 3).

Primary care and postnatal short-term follow-up.

Forty-seven per cent of GPs reported that women with GDM had their postnatal checks in general practice. Eighty per cent reported that women had tests to exclude ongoing diabetes (short-term follow-up), most commonly within 3 months of delivery. There was some variation in the type of tests that GPs requested, with 55% requesting FPGs and 31% requesting OGTTs. Forty-five per cent of GPs thought that primary care had responsibility for

Figure 1. Protocols in primary and secondary care.

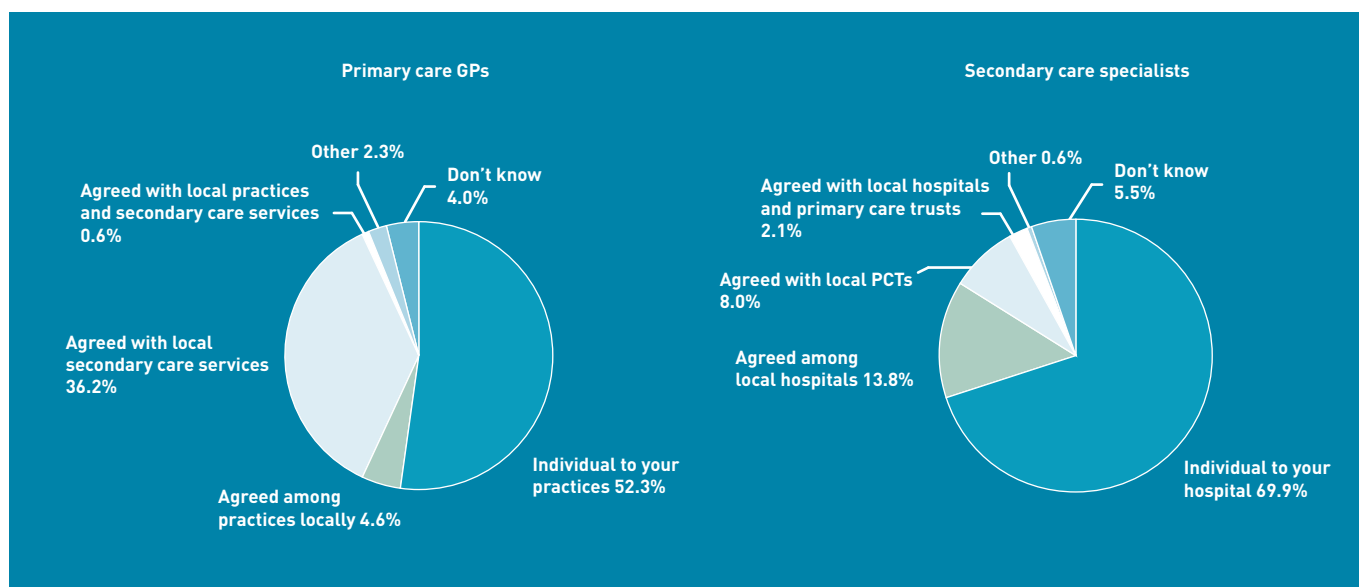


Table 4. Primary care GPs' and secondary care specialists' responses to questions relating to the postnatal short-term follow-up of women diagnosed with gestational diabetes mellitus

| | Primary care GPs | Secondary care specialists | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------------------|----------------------|
| Question | n [%] | n [%] | P-value ^a |
| Where do your patients with gestational diabetes usually have their 6-week postnatal check? (n = 896 GPs and 336 specialists) | | | |
| Hospital | 140 (15.6) | 164 (48.8) | <0.001 ^b |
| General practice | 417 (46.5) | 108 (32.1) | |
| Either hospital or general practice | 264 (29.5) | 57 (17.0) | |
| Don't know | 75 (8.4) | 7 (2.1) | |
| Do your patients with gestational diabetes usually have a test to check for ongoing diabetes after pregnancy? (n = 900 GPs and 341 specialists) | | | |
| Yes | 718 (79.8) | 335 (98.2) | <0.001 ^c |
| No | 61 (6.8) | 4 (1.2) | |
| Don't know | 121 (13.4) | 2 (0.6) | |
| If yes, what type of test do they have? (n = 709 GPs and 333 specialists) | | | |
| Random blood glucose | 28 (3.9) | 7 (2.1) | <0.001 ^b |
| Fasting blood glucose | 396 (55.2) | 43 (12.8) | |
| Glucose tolerance test | 221 (30.8) | 271 (80.9) | |
| >1 type of test | 58 (8.1) | 6 (1.8) | |
| Other | 6 (0.8) | 6 (1.8) | |
| If yes, how soon after pregnancy do your patients with gestational diabetes usually have an appointment for this test? (n = 707 GPs and 328 specialists) | | | |
| Within 6 weeks | 239 (33.8) | 206 (62.8) | <0.001 ^c |
| 7 weeks to 3 months | 307 (43.4) | 118 (36.0) | |
| After 3 months | 73 (10.3) | 4 (1.2) | |
| Don't know | 88 (12.5) | — | |
| If yes, who is responsible for ordering this test? (n = 716 GPs and 323 specialists)^d | | | |
| Hospital | 181 (25.5) | 295 (89.4) | <0.001 ^c |
| General practice | 317 (44.6) | 27 (8.2) | |
| No clear responsibility | 188 (26.4) | 7 (2.1) | |
| Don't know | 25 (3.5) | 1 (0.3) | |
| Who do you routinely inform of the results of this test? (n = 317 GPs and 295 specialists) | | | |
| Patient | 286 (90.2) | 19 (6.4) | <0.001 ^c |
| Hospital | — | — | |
| GP | — | 21 (7.1) | |
| Patient and hospital | 28 (8.8) | — | |
| Patient and the GP | — | 247 (83.7) | |
| Don't know | — | 7 (2.4) | |
| Do you have a system in place to follow-up women who fail to attend their postnatal test to check for ongoing diabetes after pregnancy? (n = 284 specialists) | | | |
| Yes | — | 214 (75.4) | <0.001 ^c |
| No | — | 70 (24.6) | |

^aP-value for difference between specialists and GPs ^bPearson's χ^2 or ^cFisher's exact test. ^dThere were significant differences between responses from obstetricians and diabetologists to this question.

short-term follow-up and 26% thought secondary care held that responsibility; another 26% reported that there was no clear responsibility. Ninety per cent of GPs routinely reported the test results to the patient, but <10% informed the hospital (Table 4).

Primary care and long-term follow-up.

Thirty-nine per cent of GPs recalled women for long-term follow-up, and a further 35% advised women to attend for future follow-up. GPs who recalled women usually did so annually and did FPGs (73%) rather than OGTTs (11%) (Table 5).

Comparing responses in the first

5 months of the survey and those received later, no differences were found in the proportions of GPs ordering FPGs rather than OGTTs for short-term or long-term follow-up, or in the proportion of GPs actively recalling women for long-term follow-up.

Follow-up of GDM in secondary care

Protocols. While 96% (330/342) of secondary care responders had an agreed protocol for the postnatal follow-up of women with GDM within their unit, this was not generally shared outside the unit. Ten per cent had this agreed with local primary care trusts (Figure 1).

Table 5. Primary care GPs' and secondary care specialists' responses to questions relating to long-term follow-up of women who have had gestational diabetes mellitus but do not have ongoing diabetes after pregnancy

| Question | n (%) | | P value ^a |
|--------------------------------------------------------------------------------------------------------|------------------|----------------------------|----------------------|
| | Primary care GPs | Secondary care specialists | |
| Do you ask the GP to recall the woman to check for diabetes?^b (n = 337 specialists) | | | |
| Yes | — | 246 (73.0) | |
| No | — | 79 (23.4) | |
| Don't know | — | 12 (3.6) | |
| Does your practice usually recall a woman to check if she has developed diabetes? (n = 904 GPs) | | | |
| Yes | 356 (39.4) | — | |
| Not recalled, but patient is advised to come back | 316 (35.0) | — | |
| No | 162 (17.9) | — | |
| Don't know | 70 (7.7) | — | |
| If yes, how often should she be recalled? (n = 353 GPs and 246 specialists) | | | |
| Annually (NICE) | 303 (85.8) | 224 (91.1) | 0.30 |
| Every 2 years | 13 (3.7) | 9 (3.7) | |
| After one year and then every 2 years (Diabetes UK) | 9 (2.6) | 3 (1.2) | |
| After one year and then every 3 years (ADA) | 17 (4.8) | 6 (2.4) | |
| Other | 11 (3.1) | 4 (1.6) | |
| Which test do you recommend to the GP?^b (n = 242 specialists) | | | |
| Random blood glucose | — | 15 (6.2) | |
| Fasting blood glucose | — | 168 (69.4) | |
| Glucose tolerance test | — | 33 (13.6) | |
| >1 type of test | — | 11 (4.5) | |
| Other | — | 15 (6.2) | |
| When a woman returns to see if she has developed diabetes, which test do you do? (n = 669 GPs) | | | |
| Random blood glucose | 45 (6.7) | — | |
| Fasting blood glucose | 489 (73.1) | — | |
| Glucose tolerance test | 76 (11.4) | — | |
| >1 type of test | 50 (7.5) | — | |
| Other | 9 (1.3) | — | |

^aP-value for difference between specialists and GPs using Fishers exact test. ^bThere were significant differences between responses from obstetricians and diabetologists to this question, detailed in Table 6. ADA = American Diabetes Association. NICE = National Institute of Health and Clinical Excellence.

Secondary care and postnatal short-term follow-up. While there was some variation in specialists' responses as to where women with GDM usually had their postnatal checks, the commonest option (49%) was the hospital. Ninety-eight per cent of specialists said that these women should have a check for ongoing diabetes after delivery, and 81% reported doing OGTTs, usually within 3 months of delivery. Ninety per cent said responsibility for ordering this test lay with the hospital; 84% reported informing both the GP and the patient of the test result. Three-quarters reported having a system in place to follow-up women who failed to attend for their postnatal diabetes test (Table 4).

Secondary care and long-term follow-up. Almost three-quarters of consultants reported asking GPs to carry out long-term follow-up. Ninety-one per cent of consultants who asked GPs to recall women thought that follow-up should be on an annual basis (Table 5).

Similarities and differences between obstetricians and diabetologists. There was marked agreement between the obstetricians and diabetologists for most of the questions. Their responses only differed significantly (χ^2 $P < 0.05$) with respect to the following (Table 6):

- more diabetologists than obstetricians thought that GPs were responsible for ordering the 6 week test (12% versus 5%);
- more diabetologists than obstetricians (83% versus 63%) reported asking GPs to recall women for long-term follow-up; and
- more diabetologists than obstetricians (75% versus 62%) recommended a fasting blood glucose (as recommended by the NICE guideline) for long-term follow-up.

A matched pairs analysis comparing the responses from obstetricians and diabetologists working in the same unit ($n =$

Table 6. Differences between specialties

| Question | n (%) | |
|------------------------------------------------------------------------------------------------------------------------------|---------------|--------------|
| | Diabetologist | Obstetrician |
| Who is responsible for requesting this test?^a (n = 165 diabetologists and 165 obstetricians) | | |
| Hospital | 146 (88.5) | 149 (90.3) |
| General practice | 19 (11.5) | 8 (4.8) |
| No clear responsibility | — | 7 (4.2) |
| Don't know | — | 1 (0.6) |
| Is the GP asked to recall the woman to check for diabetes?^a (n = 169 diabetologists and 168 obstetricians) | | |
| Yes | 140 (82.8) | 106 (63.1) |
| No | 25 (14.8) | 54 (32.1) |
| Don't know | 4 (2.4) | 8 (4.8) |
| Which test do you recommend to the GP?^a (n = 140 diabetologists and 102 obstetricians) | | |
| Random blood glucose | 3 (2.1) | 12 (11.8) |
| Fasting blood glucose | 105 (75.0) | 63 (61.8) |
| Glucose tolerance test | 19 (13.6) | 14 (13.7) |
| >1 type of test | 7 (5.0) | 4 (3.9) |
| Other | 6 (4.3) | 9 (8.8) |

^aThere were also significant differences when looking at the differences in responses between consultants working in the same unit.

158 units) also showed significant disagreement (Stuart Maxwell test $P < 0.05$) with respect to these three questions. There were also within-unit differences in the awareness of novel initiatives to improve the postnatal care of women with GDM, with more diabetologists than obstetricians reporting novel initiatives (data not shown).

Differences between primary and secondary care

Protocols. Of those with protocols regarding the follow-up of women with GDM, more specialists (70%) than GPs (52%) had protocols that were individual to their practices or units. Thirty-seven per cent of GPs with protocols had agreed these with secondary care, and 10% of specialists with protocols had agreed these protocols with their local primary care trusts (Figure 1).

Short-term follow-up. There were significant differences (χ^2 $P < 0.05$) between primary and secondary care in the responses to questions about short-term follow-up.

More GPs (47%) than specialists (32%) reported that women with GDM had their 6-week postnatal check in primary care. More specialists (98%) than GPs (80%) reported that women with GDM had a test after pregnancy to exclude ongoing diabetes. More GPs (55%) than specialists (13%) reported using a FPG, whereas more specialists (81%) than GPs (31%) used an OGTT. There was little agreement about who was responsible for ordering the test: 89% of specialists thought that the hospital

was responsible for this, whereas only 26% of GPs thought the hospital held that responsibility (Table 4).

Long-term follow-up. Seventy-three per cent of specialists reported asking GPs to recall women with GDM for long-term follow-up; however, only 39% of GPs reported actively recalling women, with a further 35% only advising women to attend for long-term follow-up in the future. In contrast to the NICE guidelines, 14% of specialists recommended that GPs should use OGTTs for long-term follow-up, and a similar percentage of GPs (11%) reported doing so (Table 5).

DISCUSSION

Summary

This national survey of post-pregnancy follow-up of women with GDM in England shows that at the time of its publication, current NICE guidance was not consistently being followed in secondary care or primary care, and over the following 10 months it was shown there was no change in GPs' reports to suggest they were bringing their practice into line with the NICE recommendations. While there was consensus that women had short-term follow-up after delivery to exclude ongoing diabetes, there were considerable differences between primary and secondary care about the type of test used and the venue for follow-up. In contrast with the NICE recommendations, 80% of specialists and 30% of GPs were using OGTTs rather than FPGs for short-term follow-up, and

>10% of specialists and GPs reported using OGTTs for long-term follow-up.

Strengths and limitations

A major strength of this study is that it is national, whereas previous research in this area has studied local populations.⁹ Both primary and secondary care sectors were surveyed and a variety of strategies were used to achieve high response rates (93% of specialists and 60% of GPs).¹⁰ A possible limitation is that primary care responders were more likely to be interested in diabetic pregnancy than non-responders, making the primary care results likely to represent a 'best-case' scenario. The survey collected information on self-reported and not actual practice, to investigate health professionals' views on their current practice in the context of the NICE diabetes in pregnancy guideline (England) published in 2008. The survey was sent out at the time of the publication of the NICE guidance, and all the secondary care responses came in promptly. It would be interesting to repeat this survey in a couple of years to see whether the guidance has altered the reported practice of secondary care. However, the primary care questionnaires were sent out over many months and no evidence was detected of increased compliance with the guidance over the first 10 months following the publication of the guidance.

Comparison with existing literature

The NICE diabetes in pregnancy guideline was published just prior to this survey and it is possible that its recommendations had not yet led to changes in practice, although no change was found in GPs' reported practice over the 10 months of the study period. Other possible reasons for divergence from the NICE guideline may be lack of awareness and ineffective guideline implementation. It is known that publishing guidelines does not necessarily change practice. In Canada, a guideline recommending OGTT for follow-up of GDM did not increase the number of women having an OGTT, although there was a significant increase in the number of women having random serum glucose and HbA_{1c} (glycosylated haemoglobin) tests. The authors interpreted this as being due to increased awareness of the need for follow-up but ignorance of the precise detail of the guidance.⁷ There may also be genuine evidence-based scientific disagreements regarding the NICE guideline's recommendations. This is echoed by international differences in guidance about short-term and long-term follow-up of

GDM: the 2007 Fifth International Workshop Conference on GDM recommended an OGTT at 6 weeks postpartum;¹¹ the American College of Obstetricians and Gynecologists (ACOG) noted in 2009 that the OGTT demonstrated greater sensitivity than the fasting glucose test, but that fasting glucose was acceptable;¹² and the American Diabetes Association (ADA) guidelines recommended a FPG in general practice but recognised the OGTT as a valid diagnostic method.¹³ For long-term follow-up, the ADA suggests an annual OGTT.^{13,14} NICE's decision to recommend a FPG rather than an OGTT for short-term follow-up was an economic one,² and using FPGs may be inappropriate for ethnically-mixed populations.¹⁵

This study's reported rates of short-term follow-up of women with GDM (98% from specialists and 80% from GPs) may be higher than the actual follow-up rates. At a time when 75% of the fellows of the ACOG reported routinely performing postpartum glucose testing in GDM, Smirnakis *et al* found that only 38% of women in two large US academic centres had such follow-up.¹⁶ Internationally, rates of short-term follow-up vary dramatically: 38–54% in the US,^{16–18} and 70–73% in Australia.^{19,20} In the UK, two hospitals (Southampton²¹ and London, J Modder, 2008, personal communication) have quoted short-term follow-up rates of ≤79%. However, these reports were part of research and service development projects respectively, and are unlikely to reflect wider practice.

There are very limited published data on the long-term follow-up of women who had GDM. One study showed that 40% of women who delivered in the US were not tested at all in the 5 years after delivery.²²

The present survey has shown clear evidence that opportunities are being missed with regard to long-term follow-up of women with GDM, with less than half of the GPs proactively recalling women for screening tests. While one-third of GPs said that they advised the woman to return for follow-up, this strategy has been shown to be ineffective in other areas of screening.²³

The study found a lack of agreed protocols between specialists and their local GPs. About one-third of GPs had protocols for follow-up of women with GDM, suggesting this is not a high-priority area. To compound the issue, one-fifth of GPs reported difficulties in determining that a diagnosis of GDM had been made in secondary care. There was disagreement between diabetologists and obstetricians, even in the same maternity unit, regarding

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Provenance

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Competing interests

The authors have declared no competing interests.

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responsibilities for postpartum follow-up. This concurs with a previous study showing the need for more uniform and evidence-based criteria for postpartum follow-up of GDM to reduce confusion and wide variation in clinical practice.²⁴

Implications for practice

Early detection of ongoing diabetes and the prevention of type 2 diabetes requires systematic and complete follow-up of women who have had GDM. This study points to the need for a clear plan of action to improve short-term and long-term follow-up of women with GDM, which is centrally supported and agreed across primary and secondary care. There is an issue about who is responsible for short-term postpartum FPG testing. It is important that local specialists and GPs reach agreement on who is responsible. To do this, there will need to be an agreed shared-care protocol, which could usefully be reflected in the patient-held maternity records. This record could indicate what test will be done, when, where, and by whom.

Robust systems for transfer of information are needed, particularly with respect to letting the GP know that a woman has been diagnosed with GDM. Perhaps the postnatal note could be redesigned to facilitate recording GDM in a checklist linked to short-term and long-term follow-up actions. Long-term follow-up of women with previous GDM can only occur in primary care and GPs should be encouraged to recall these women for diabetes screening annually. Including women with previous GDM on the diabetes registers of the general practices, Read coding GDM, and setting up computer alerts to facilitate annual recall for FPG tests might be a straightforward way to do this. Making it a Quality and Outcomes Framework point might also be helpful. Education of both women and healthcare professionals about the need for follow-up and annual review after a diagnosis of GDM and how it should be done, is important, as is joint ownership of follow-up strategies by primary and secondary care sectors, and their patients.

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