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Review Article

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# Gestational Diabetes and the Postpartum Gap: A Narrative Review of Why Follow-Up Screening Fails and What Recovers It

**Sinead Culhane[1*], Malin Ohlsson[2] and Piotr Sadowski[3]**

[1]*Department of Obstetric Medicine, Suir Valley University Hospital, Waterford, Ireland*
[2]*Department of Midwifery, Skane University Hospital, Malmo, Sweden*
[3]*Department of Epidemiology, Pomeranian Institute of Diabetes Research, Gdansk, Poland*

*Correspondence to: Sinead Culhane, Department of Obstetric Medicine, Suir Valley University Hospital, Waterford, Ireland

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## Abstract

*Women who have had gestational diabetes carry a lifetime risk of type 2 diabetes of roughly 40 to 70 per cent, and guidance recommends a glucose tolerance test four to twelve weeks after delivery. Fewer than half receive it. In a UK cohort of 607 women, 65 per cent attended, and among those tested 21.6 per cent had persistent dysglycaemia and 2.8 per cent had type 2 diabetes. The finding that should reshape how the problem is understood is what happened to the others: women who did not attend converted to type 2 diabetes by two years at 11.4 per cent against 2.5 per cent among those who did, so non-attendance selects the higher-risk group rather than the lower. Attending a postpartum appointment does not solve it either, since in one series 83 per cent attended a visit and about a third of those were tested. Reminders raise completion substantially, from 14.3 per cent without them to as much as 45.9 per cent, and a dedicated coordinator sustained 75.6 per cent over five years. This review sets out where the pathway loses people and what has been shown to recover them.*

**Keywords:** *Gestational diabetes; Postpartum screening; Glucose tolerance test; Non-attendance; Care transition*

## Introduction

Gestational diabetes identifies a group of women at high subsequent risk of type 2 diabetes, with reported lifetime progression of approximately 40 to 70 per cent and incidence in real-world data many times that of the general population [1,2,3]. The condition therefore functions as an unusually efficient screening test, delivered to the whole population and identifying future risk decades in advance [4].

Guidance from the obstetric and diabetes societies recommends a 75 g oral glucose tolerance test four to twelve weeks after delivery for every woman who had gestational diabetes [5,6,7]. Detecting impaired glucose regulation at that point matters because progression can be delayed or prevented [1,8,29]. Lactation has also been associated with lower subsequent progression in prospective follow-up [30].

The recommendation has been in place for years and is not followed. This review examines the size of the shortfall, which women are missed, and what has been shown to close it.

## Material and Methods

Search strategy: PubMed and the archives of the major obstetric, diabetes and primary care journals were searched for studies of postpartum glucose screening after gestational diabetes. Search terms combined gestational diabetes with postpartum screening, oral glucose tolerance test, uptake, attendance, reminders and follow-up. Reference lists of society statements [5,7] and systematic reviews [9,10] were screened by hand for primary sources.

Eligibility: Studies were included if they reported rates of postpartum glucose testing in defined populations, characterised the women who did not attend, or evaluated an intervention intended to raise uptake. Studies of longer-term follow-up are

included where they report testing beyond the recommended window and are identified as such.

Data extraction and handling: Design, setting, sample size, the testing window and the reported estimate were extracted as published. The denominator is stated alongside every completion figure, because rates calculated among women attending a postpartum visit differ substantially from rates calculated across all women with gestational diabetes. This review reports measured outcomes and makes no dietary, caloric or exercise recommendations. No pooling or re-analysis was performed. Figures 1 to 6 and Tables 1 to 3 reproduce published values only. This is a narrative synthesis and was not registered as a systematic review.

## Results

The size of the shortfall: Completion of postpartum glucose testing is consistently reported below 50 per cent, a shortfall large enough that a professional society has proposed it as a formal quality metric [5,9,11]. Systematic reviews report attendance under 50 per cent within three months in most studies, and in settings where gestational diabetes is common the figures range from 13.1 to 45.8 per cent within three to six months [10,12]. One retrospective series reported a rate of 38.9 per cent [13], and national and regional analyses report similar or lower figures [27,31,33]. Trends over time have shown little improvement [24].

What testing finds: In a UK cohort of 607 women whose test fell due between 2016 and 2019, 65 per cent attended (Figure 1). Among those tested, 21.6 per cent had persistent dysglycaemia at six to 13 weeks after delivery and 2.8 per cent had type 2 diabetes (Figure 3) [14]. Broader data are consistent: as many as one in three women have impaired glucose metabolism when screened postpartum, with over 30 per cent showing prediabetes and approximately 4 per cent frank diabetes [5,15].

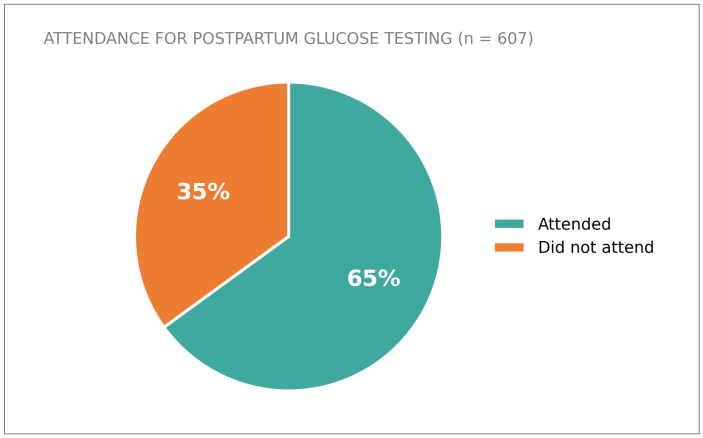


Figure 1: Attendance for postpartum glucose testing in a UK cohort of 607 women [14]

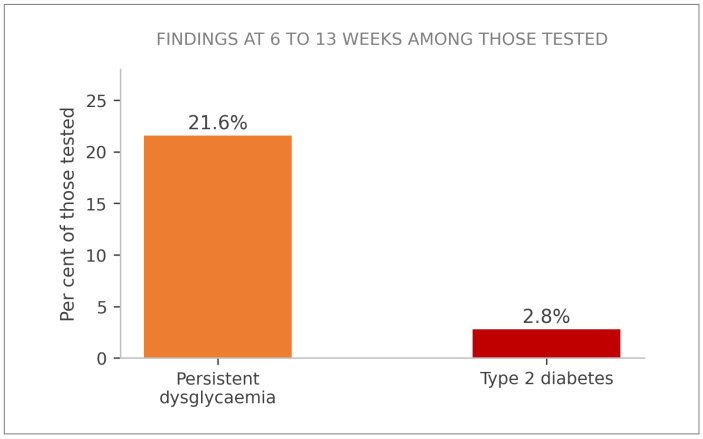


Figure 3: Findings at six to thirteen weeks among women who were tested [14]

Who is missed, and why it matters: Women who did not attend were younger, more often multiparous, more often obese, more likely to have continued smoking during pregnancy, and had higher fasting glucose at the antenatal test [14]. The consequence is the central finding of this review. Conversion to type 2 diabetes by two years occurred in 11.4 per cent of non-attenders against 2.5 per cent of attenders (p = 0.005) (Figure 2) [14]. Non-attendance is not random with respect to risk; it selects the women who most needed the test.

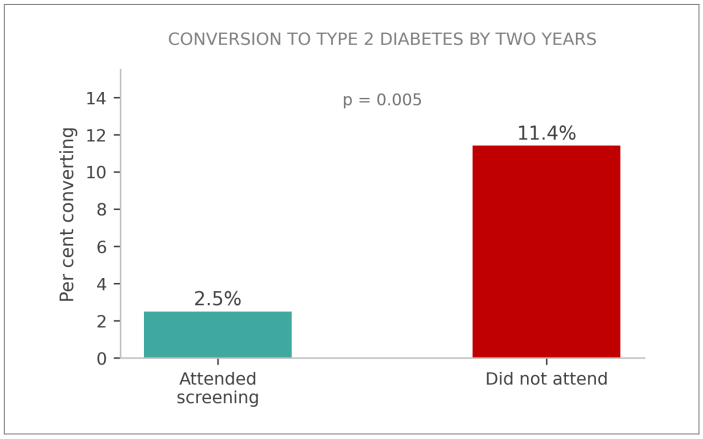


Figure 2: Conversion to type 2 diabetes by two years, by attendance [14]

Attending a visit is not the same as being tested: In a retrospective series, 83 per cent of women attended a postpartum visit and about one third of those received glucose screening, and attendance at the visit did not translate into higher testing rates (Figure 5) [13,16]. The failure is therefore not confined to women not coming back; it also occurs in women who did come back and were not tested.

Table 1: Principal studies reviewed, with the finding as reported by the original investigators

Table 2: Interventions evaluated to raise postpartum testing and what each supports

Table 3: Where the pathway loses women, and what each stage implies

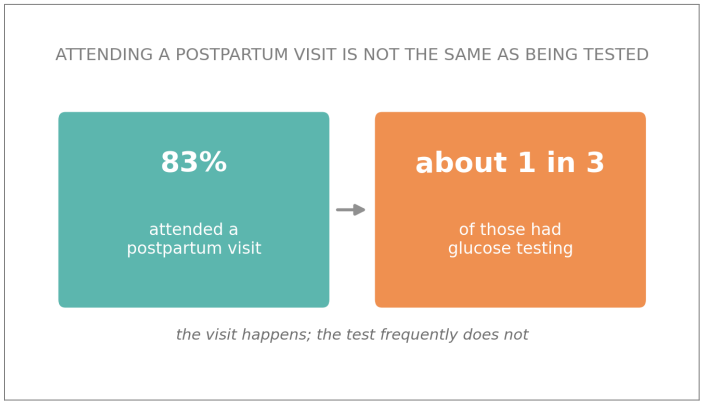


Figure 5: Attending a postpartum visit against being tested at it [13,16]

Follow-up beyond the window: Even where early uptake is good, longer-term testing collapses. In a Dutch cohort, 79 per cent attended the six-week postpartum visit and 93 per cent of those had glucose testing, yet only 20 per cent of general practitioners reported performing a follow-up glucose test within 12 to 14 months (Figure 6) [17]. In the UK cohort, 38.4 per cent attended any subsequent test within two years of delivery, and 24 per cent of those had dysglycaemia [14].

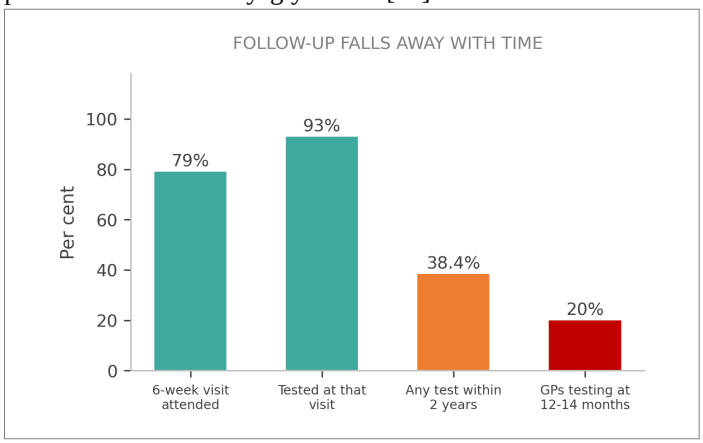


Figure 6: Attrition of follow-up testing with time since delivery [14,17]

| Study | Setting and cohort | Principal reported finding |
|---|---|---|
| UK cohort [14] | 607 women, tests due 2016-2019 | 65% attended; non-attenders converted at 11.4% vs 2.5% |
| Same cohort [14] | Those tested at 6-13 weeks | Persistent dysglycaemia 21.6%; type 2 diabetes 2.8% |
| US series [13,16] | Retrospective, postpartum visits | 83% attended a visit; about a third were tested |
| Dutch cohort [17] | Six-week clinic follow-up | 79% attended, 93% tested; only 20% of GPs tested at 12-14 months |
| Reminder trials [18,19] | Randomised and quality improvement | Completion 51.6-60.5% with reminders against 14.3% without |
| Coordinator initiative [20] | Five-year service evaluation | Testing rate 75.6% sustained over five years |

What raises uptake: Reminders are the intervention with the most consistent support. Across reminder groups in one evaluation, completion ranged from 51.6 to 60.5 per cent against 14.3 per cent without reminders [18]. Combining education with reminders made women two to three times more likely to complete a test within the first year, while education alone achieved 19.2 per cent against 31.2 to 45.9 per cent where reminders were also sent (Figure 4) [19,20]. Appointment of a dedicated coordinator raised testing by 12 percentage points on the previous year, sustained over four further years, with 75.6 per cent of women tested across five years [20]. A randomised trial of a single text message against repeated messages did not produce a significant difference, so the effect is not simply proportional to the number of reminders [21]. Cochrane review of reminder systems reached a similarly cautious conclusion [28]. Continuous glucose monitoring has been examined as an alternative to the tolerance test in this window [25].

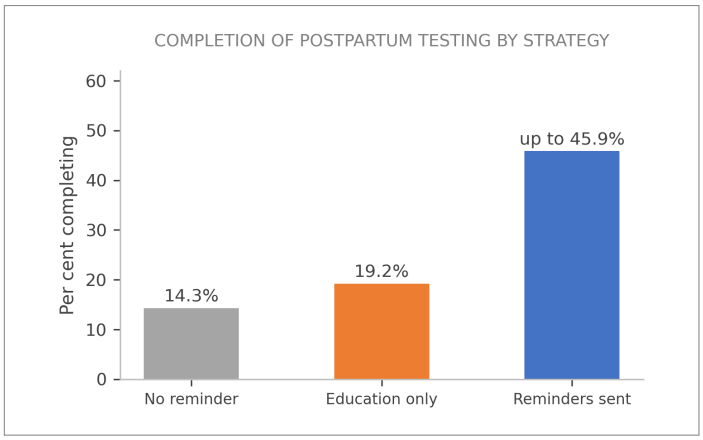


Figure 4: Completion of postpartum testing by strategy [18,19]

| Strategy | Reported effect | Caveat |
|---|---|---|
| No reminder | 14.3% completion | Baseline in the same evaluation [18] |
| Education alone | 19.2% completion | Modest gain over baseline [19] |
| Reminders to women | 31.2% to 45.9% | Most consistent single measure [19] |
| Education plus reminders | 2 to 3 times more likely | Within the first year [19] |
| Dedicated coordinator | 75.6% over five years | Service-level, not randomised [20] |
| Early in-hospital testing | Excludes diabetes reliably | Less sensitive for milder states [5] |

Barriers described by women: Reported obstacles include fragmentation between pregnancy-focused and primary care, childcare demands, low perceived risk, fear, guilt and stigma associated with the diagnosis, and a lack of motivation in the months after delivery [10,22,23]. Rates are lowest among women with low health literacy, limited education and public insurance, which are the same characteristics associated with subsequent progression [9,24]. Disparities in follow-up persist across systematic review [34], and quantitative barriers have been examined directly [26,32].

| Component | What is reported | Implication |
|---|---|---|
| Recommended window | 4 to 12 weeks after delivery | Competing with newborn care [5,6] |
| Completion | Typically below 50% | Proposed as a quality metric [5,9] |
| Non-attenders | Convert at 11.4% vs 2.5% | Highest risk are least tested [14] |

| Component | What is reported | Implication |
|---|---|---|
| Attending a visit | 83% attend; a third tested | Attendance is not the barrier [13] |
| Beyond one year | 20% of GPs test at 12-14 months | Long-term follow-up collapses [17] |

## Discussion

The central finding here inverts the usual framing of a screening shortfall. Missing half of a population would be a problem even if the missing half were a random sample. It is not. Women who did not attend converted to type 2 diabetes at more than four times the rate of those who did, 11.4 against 2.5 per cent by two years, and they differed at baseline in ways that predict progression: higher body mass index, higher antenatal fasting glucose, continued smoking [14]. The test is missing the people it exists to find.

That has a direct consequence for how completion rates should be read. A service reporting 65 per cent uptake has not identified 65 per cent of its at-risk population; it has identified a group enriched for lower risk and lost a group enriched for higher risk. Any estimate of postpartum dysglycaemia prevalence derived from women who attended is therefore an underestimate of the true burden, and the size of that underestimate is unknown.

The second observation is that attendance and testing are separate failures. Eighty-three per cent of women in one series attended a postpartum visit and roughly a third were tested [13,16]. Interventions aimed at getting women to come back address only part of the problem, because a substantial share of the loss occurs in women who are physically present in a clinic. That failure sits with services rather than with patients, and it is the more tractable of the two.

On what works, reminders have the most consistent evidence, and the magnitude is large relative to the effort: 14.3 per cent without them against up to 45.9 per cent with [18,19]. But the honest reading of the intervention literature is that none of it reaches the recommended standard. The best sustained result, 75.6 per cent over five years, required a dedicated coordinator post, was a service evaluation rather than a randomised comparison, and still leaves a quarter of women untested [20]. And a randomised trial of repeated text messages against a single message found no significant difference, which suggests the mechanism is not simply prompting [21].

The longer-term picture is worse than the headline suggests and receives less attention. Risk after gestational diabetes accumulates over decades, so a single negative test at eight weeks establishes very little [1,2]. Yet only 20 per cent of general practitioners in one cohort had tested at 12 to 14 months, and 38.4 per cent of the UK cohort had any test within two years [14,17]. The pathway is built around a single appointment for a risk that lasts a lifetime.

## Study limitations

The limitations belong to the underlying literature. Completion rates are drawn from different denominators, some from all women with gestational diabetes and some from those attending a postpartum visit, which makes figures across studies not directly comparable [9,13]. The principal cohort is single-centre and retrospective, with conversion ascertained from routine records, so diabetes diagnosed elsewhere may be missed and the difference between attenders and non-attenders may be affected by differential ascertainment [14]. Diagnostic criteria for gestational diabetes differ between settings, which alters both the population screened and the subsequent risk [2,7]. Intervention studies are heterogeneous in design, and the coordinator evaluation was not randomised [20]. Reminder trials report varying effect sizes and one found no significant benefit from additional messages [21]. Barriers are largely described qualitatively without quantifying how much of the shortfall each explains [10,22]. And the evidence comes predominantly from high-income settings with organised maternity follow-up [12,17].

## Conclusion

Fewer than half of women with gestational diabetes complete the recommended postpartum glucose test, and the women who miss it are the ones at highest risk: they converted to type 2 diabetes at 11.4 per cent by two years against 2.5 per cent of those who attended. That inverts what a completion rate means, since the untested group carries more of the disease than the tested one. Two further points follow. Attendance is not the whole problem, because a third of women who came to a postpartum visit were tested at it. And a single test at eight weeks answers a question that recurs for the rest of a woman's life, while only a fifth of practices were still testing at a year. Reminders and a named coordinator both help, and neither closes the gap.

## Acknowledgements

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## Conflict of Interest

The authors declare no competing interests.

## Ethics Statement

This article reviews previously published studies only. No new patient data were collected and no participants were recruited, so ethical approval was not required.

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