The clinical effectiveness of screening for gestational diabetes mellitus in primary versus secondary care: Results of a Randomised Controlled Trial.

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OBJECTIVES

The aim of this study was to investigate the clinical effectiveness of universal screening for gestational diabetes mellitus (GDM) in primary care versus secondary care.

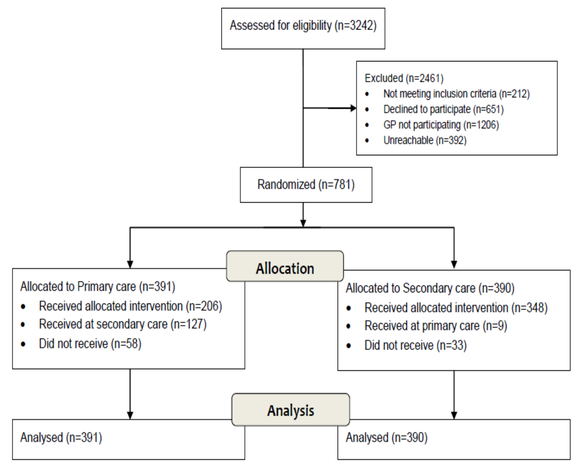
METHODS

A parallel group randomised controlled trial of universal screening for GDM in primary (GP) versus secondary (hospital) care. The primary outcome was uptake of screening at the GP versus the hospital. Here we report on the secondary outcomes of the trial: (i) GDM prevalence, (ii) timing of screening, (iii) time to access antenatal diabetes care, and (iv) maternal and neonatal outcomes.

Table 1. Secondary outcomes

Outcome variable	GP (n=215)	Hospital (n=475)	Difference (GP-H)	95% CI for Difference	p value
GDM prevalence – no. (%)	14 (6.5)	34 (7.2)	-0.7%	(-0.05, 0.03)	0.75
Timing of screening – mean no. weeks gestation (sd)	25.9 (1.7)	26.2 (1.8)	-0.22 weeks (0.5 days)	(-0.52, 0.09)	0.13
Time to access antenatal diabetes care (GDM only)- Mean no. days from screen to first visit (sd)	**23.6 (7.24)**	**18.9 (10.1)**	**4.76 days**	**(-0.85, 10.36)**	**0.09**
Maternal outcomes					
Caesarean section delivery – no. (%)	70 (32.9)	154 (32.8)	-0.1%	(-0.07, 0.07)	0.97
Assisted normal delivery – no. (%)	143 (67.1)	313 (67.0)	0.1%	(-0.07, 0.07)	0.97
Hypertension – no. (%)	16 (7.5)	25 (5.4)	2%	(-0.01, 0.06)	0.31
Preeclampsia toxemia (PET) – no. (%)	8 (3.8)	22 (4.7)	-0.9%	(-0.04, 0.02)	0.55
Antepartum haemorrhage (APH) – no. (%)	2 (0.9)	3 (0.6)	0.2%	(-0.01, 0.01)	0.69
Post-partum haemorrhage (PPH) – no. (%)	21 (9.9)	37 7.9)	1%	(-0.02, 0.06)	0.43
Composite maternal complications – no. (%)	40 (18.9)	64 (13.8)	5%	(-0.01, 0.11)	0.11
Neonatal outcomes					
Foetal death intrauterine (FDIU) – no. (%)	1 (0.4)	0 (0.0)	0.4%	(-0.00, 0.01)	0.32
Stillbirth – no. (%)	1 (0.4)	2 (0.4)	0.0	(-0.01, 0.01)	0.94
Gestational age in years – mean (sd	39.68 (1.64)	39.27 (1.76)	-0.02 years	(-0.31, 0.27)	0.87
Admission to neonatal intensive care unit (NICU) – no. (%)	18 (8.4)	40 (8.6)	-0.1%	(-0.04, 0.04)	0.93
Length of stay at NICU (days) – mean (sd)	0.74 (3.63)	0.78 (4.05)	-0.04 days	(-0.66, 0.57)	0.89
Baby weight (singleton births only) – mean (sd)	3.53 (5.29)	3.53 (5.36)	-1.01	(-81.3, 94.1)	0.89
Large of gestational age – no. (%)	**41 (20)**	**66 (14.77)**	**5.4%**	**(-0.00, 0.11)**	**0.09**
Congenital malformations – no. (%)	6 (2.9)	8 (1.7)	1.1%	(-0.01, 0.03)	0.37
Apgar scores 1 Min – mean (sd)	8.5 (1.54)	8.56 (1.50)	-0.09	(-0.34, 0.15)	0.44
Apgar scores 5 mins – mean (sd)	9.3 (1.08)	9.27 (0.73)	-0.00	(-0.16, 0.15)	0.99
Respiratory distress – no. (%)	4 (1.9)	12 (2.5)	-0.6%	(-0.03, 0.01)	0.58
Hypoglycemia – no. (%)	3 (1.4)	6 (1.3)	0.1%	(-0.01, 0.02)	0.87
Birth Trauma – no. (%)	1 (0.48)	2 (0.43)	0.05%	(-0.01, 0.04)	0.40
Shoulder distocia – no. (%)	1 (0.48)	0 (0)	0.4%	(-0.00, 0.01)	0.32
Premature – no. (%)	6 (2.90)	14 (3.02)	-0.1%	(-0.03, 0.03)	0.93
Jaundice – no. (%)	1 (.5)	1 (.2)	0.2%	(-0.00, 0.01)	0.61
Complications (Composite perinatal score including: neonatal hypoglycemia, respiratory distress, need for phototherapy, birth trauma, 5-minute Apgar score less than 7, or prematurity) – no. (%)	17 (8.1)	38 (8.1)	-0.04%	(-0.04, 0.04)	0.98

Figure 1. The flow of participants trough the trial



RESULTS

The prevalence of GDM was similar in women screened in primary care and secondary care. There was no difference in the timelinesss of screening between primary care and secondary care with both with both groups receiving screening at a mean of approximately 26 weeks gestation. For women diagnosed with GDM there was a considerable delay (in both groups) in the time to access antenatal diabetes care. For patients screened in secondary care the delay is 19 days, for those screened in primary care the delay is 24 days, a difference of 4.8 days (p=0.09). Further research is needed to understand the reasons for this delay. In addition the primary care screening group had a higher proportion of large for gestational age infants than the secondary care screening group (p=0.09). There were no differences between groups in maternal outcomes.

CONCLUSIONS

The evidence presented in this paper, shows that screening for GDM in secondary care is superior to screening in primary care in terms of time to access hospital based antenatal diabetes care, and associated neonatal outcomes. However, GPs have been shown to be skilled in performing the GDM screening test in a timely and effective manner. Limiting GDM screening to secondary care sites serves to exclude primary carers from treatment and management.

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Diabetes (to include obesity, pathophysiology & epidemiology)

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