

Screening for Gestational Diabetes Mellitus in a Predominantly Indigenous Population in Rural New Zealand



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Background

The rates of Gestational Diabetes Mellitus (GDM) have been increasing in New Zealand with the number of pregnancies associated with GDM rising from 1.3% in 2001 to 4.9% in 2012. GDM is strongly associated with BMI and increases from 10% to 25% for women whose BMI is >25 kg/m² and >35 kg/m² respectively. In New Zealand (NZ), 30% of adults are obese (body mass index (BMI) >30), and there is an increased risk of complications during pregnancy with increasing BMI and in women with GDM. Early identification and treatment of women with borderline and type 2 diabetes in early pregnancy and with GDM is associated with reductions in pregnancy and perinatal complications.

There were almost 58,000 births in NZ in 2014, with Pacific (2.7%) and Māori

(2.5%) women having higher fertility rates compared with European (1.9%) and Asian (1.7%) women. Of the total births, 3,000 to 4,000 women are diagnosed with GDM each year and prevalence is highest for Asian (8.1%) and Pacific (7.2%) women compared with European and Māori women (3.3%), although the latter is probably due to lower screening rates, as other reports show higher prevalence for Māori women. The prevalence of GDM would be expected to increase along with the 0.3% annual increase in people diagnosed with type 2 diabetes each year, largely due to the increased proportion of women who are overweight, changes in population demographics and increased fertility rates for Māori and Pacific women. The prevalence of GDM also varies across District Health Boards (DHBs) being highest for Auckland (8.2%), 3.7% in the Bay of Plenty region and lowest for Wairarapa (1.4%).

Conclusion:

Results from this study demonstrate a poor uptake of screening for GDM particularly in the indigenous population. In 2014 a dedicated diabetes in pregnancy clinic was established, based in the maternity unit, consisting of a Nurse Practitioner

in Diabetes, a dietician and midwife. This may explain the improvement in screening that year. However, increased effort is required to improve screening rates, especially for Maori and Pacific women who are at higher risk of developing GDM. Further research will help identify reasons for low screening rates in this population.

Aim

To identify the screening rate for Gestational Diabetes Mellitus in a region of New Zealand with a predominantly indigenous population.

Methods

An audit was undertaken of routinely collected hospital data from 656 women who gave birth over two six-month periods (June to December in 2013 and 2014) in two hospitals in the Bay of Plenty DHB, serving a predominantly Māori population. Maternal demographic and laboratory data are routinely collected on all women who book with a lead maternity carer (LMC) those who attend outpatient clinics or on admission to hospital. Data are entered into the patient management system. All laboratory tests are conducted through public funded laboratories whose tests results are accessed electronically through the software management program 'Éclair' by Primary Health Organisations (PHOs) and hospitals in the Bay of Plenty region.

The health related laboratory data of all women who had delivered in the two hospitals in the Bay of Plenty region were accessed to complete this audit. Data were cross-checked for accuracy and anonymised prior to data analyses.

Standard univariate and multivariate methods were used for analysing categorical and continuous outcome data, using PROC FREQ, PROC UNIVARIATE and PROC REGRES in SAS version 9.3 (SAS Institute, Cary, North Carolina, 2010).

Results: Of the 656 women who gave birth during this period, only 416 (63%) were screened for GDM. After controlling for age, screening was less common in Māori women (56%), and in Pacific women (50%) when compared with European women, (see Table 2). After adjusting for ethnicity, women aged 35-40 years were more likely to be screened compared with women aged 25-29 years (1.24, 95% CI 1.06-1.47, p=0.02) (see Table 3). Screening was associated with longer hospital stays following birth, with screened women more likely to stay >5 days compared with unscreened women <1 day, (1.44, 95% CI 1.25-1.66, p<0.0001). Screening was significantly higher in 2014 than 2013 (1.17 95% CI 1.04-1.32, p=0.008).

Summary points

- Maori and Pacific women are at greater risk of Gestational Diabetes Mellitus than their European counterparts
- Screening rates for Gestational Diabetes Mellitus were found to be unacceptably low among Maori in the population studied
- Further research is needed to identify reasons for the low screening rates in this population

Table 2

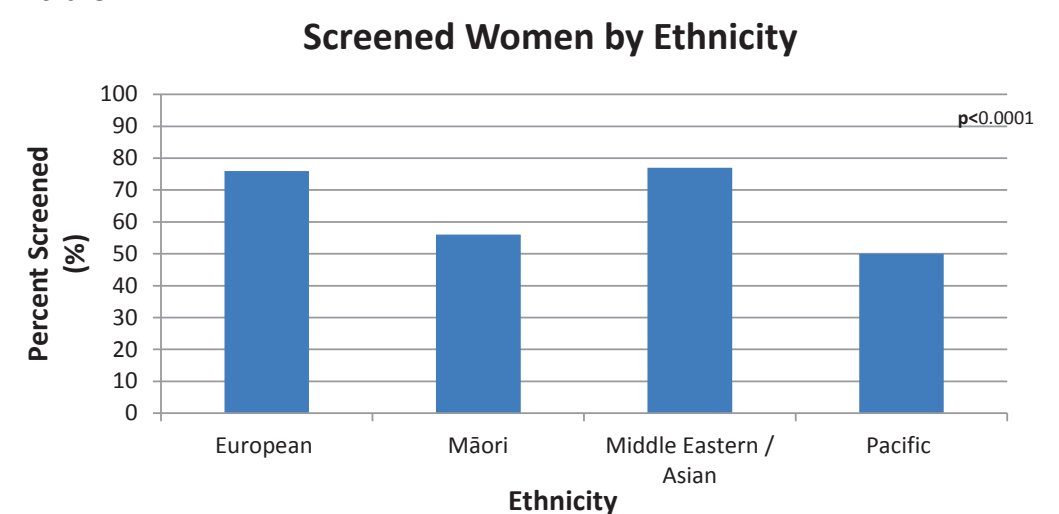


Table 3

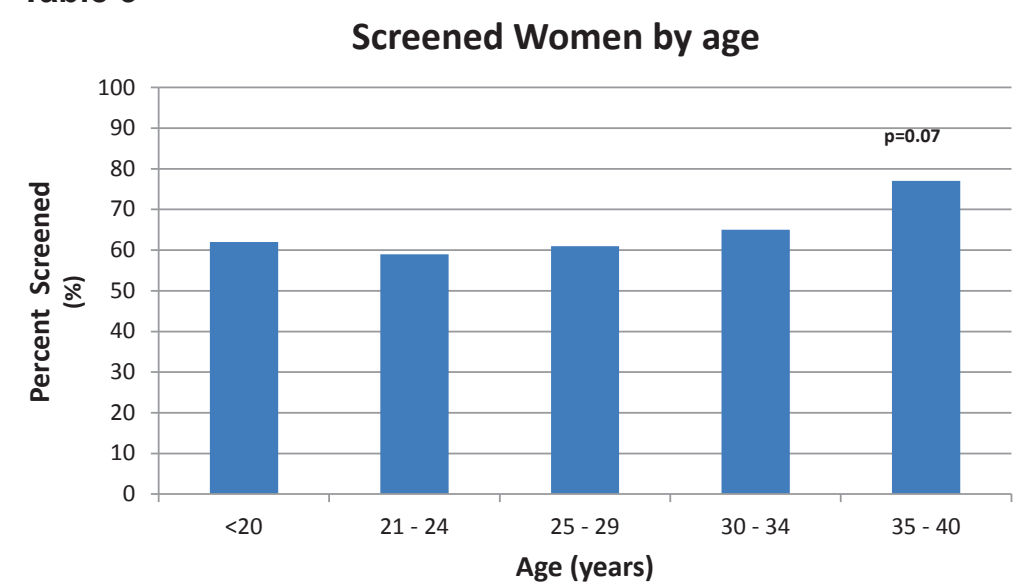
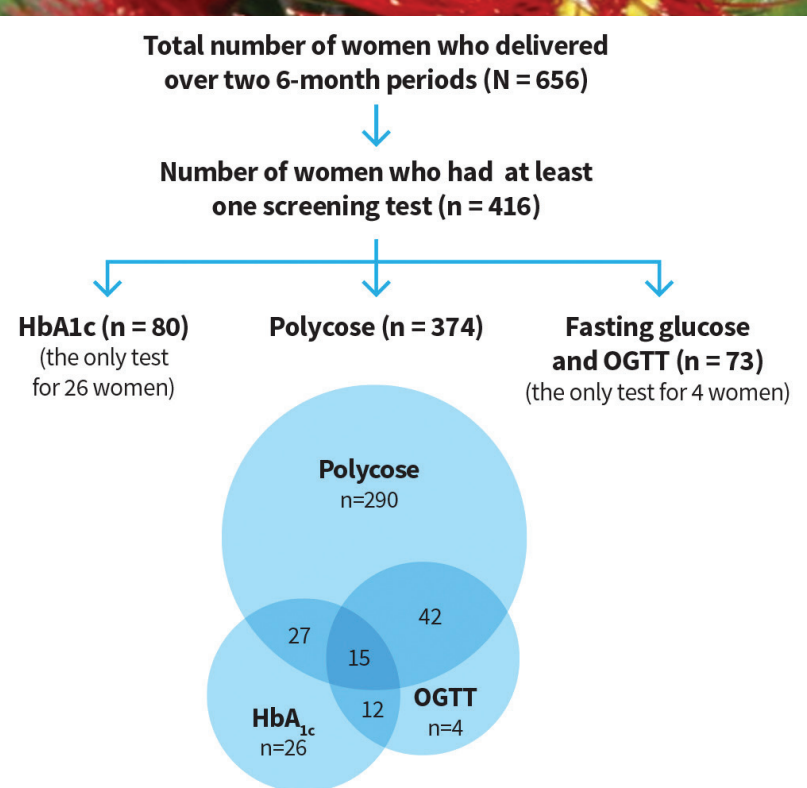


Table 4

Multivariate relative risk (RR) for factors associated with screening for Gestational diabetes mellitus in pregnancy (n=656) – adjusted for age & ethnicity as appropriate.

Variable and Level	Screened N	Screened (%)	RR (95% CI) Adjusted*	P-value Adjusted*
Age (years) 25 – 29	112	61	1.00	
≤ 20	59	62	1.15 (0.92 – 1.44)	0.21
21 – 24	99	59	1.05 (0.88 – 1.25)	0.59
30 – 34	85	65	1.04 (0.87 – 1.23)	0.68
35 – 40	61	77	1.24 (1.06 – 1.47)	0.02
Ethnicity European	157	76	1.00	
Māori	231	56	0.73 (0.65 – 0.83)	<0.0001
Asian	23	77	1.01 (0.81 – 1.26)	0.91
Pacific	5	50	0.67 (0.36 – 1.27)	0.11
Year 2013 (July – Dec)	177	58	1.00	
2014 (July – Dec)	239	68	1.17 (1.04-1.32)	0.008



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