Changing trends in pregnancy registration for New Zealand women

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ABSTRACT

INTRODUCTION: Early pregnancy registration is recommended and provides an opportunity for screening, risk assessment and health promotion.

AIM: To determine the gestation at pregnancy registration for a cohort of pregnant New Zealand women who received maternity care from a midwife Lead Maternity Carer (LMC) and to determine if women are registering earlier in pregnancy.

METHODS: The gestation of pregnancy at registration was reviewed for the 81 821 women who registered with a midwife LMC between 2008 and 2010 and had data recorded in the New Zealand College of Midwives Clinical Outcomes Research Database (COMCORD).

RESULTS: Over the three-year period, there was a trend towards earlier registration with 22.0% of women registering before 10 weeks' gestation in 2008 increasing to 29.9% in 2010. Women of New Zealand European ethnicity were more likely to register before 10 weeks' gestation compared to women who identified as Māori or Pacific ethnicity. Women under 20 or over 40 years of age were more likely to register in the second or third trimester than other age groups.

DISCUSSION: Groups that were slower to register with a midwife LMC were women under 20 years or over 40 years of age and women of Māori or Pacific ethnicity. These groups have higher perinatal mortality rates, higher rates of smoking and lower uptake of antenatal Down syndrome screening. Further research is required to explore the barriers to earlier registration for these groups.

KEYWORDS: Midwifery; pregnancy; pregnancy trimester, first; prenatal care

Introduction

Antenatal care is universally recognised as important to maternal and neonatal health, although the optimum number and frequency of antenatal visits has been debated.[1–3] Care during pregnancy enables the promotion of health, through screening and early detection and management of ill health or pregnancy-related complications.[4]

In New Zealand, antenatal care is universally accessible and fully funded, with women having a choice of maternity provider nominated as the Lead Maternity Carer (LMC). This can be a midwife, obstetrician or general practitioner (GP).[5] The LMCs provide primary maternity care under a contract with the New Zealand Ministry of Health called the Maternity Services Section 88 notice. Once the woman has chosen an LMC, she 'registers' with that LMC. At registration, the LMC undertakes 'a comprehensive assessment of the woman's general health, family and obstetric history, and a physical examination'.[5] Since 2011, the Perinatal and Maternal Mortality Review Committee (PMMRC) have recommended that all women in New Zealand should commence and engage in maternity care before 10 weeks' gestation.[6,7] The reason for earlier engagement is to ensure the timely offer of screening for congenital abnormalities, sexually transmitted infections, family violence, and maternal mental health, along with an earlier assessment of risk

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and the opportunity to discuss optimal health and lifestyle. In the United Kingdom (UK), the current NICE guidelines also advise that engagement with maternity care should occur by 10 weeks' gestation.[8]

In New Zealand, first contact with a health professional appears to be with a GP for most women.[9,10] A consumer survey of 3235 women undertaken in 2010 found that 60% of women approached a GP when they thought they were pregnant.[10] However, the majority of women who registered with an LMC in 2010 did so with a midwife (91.6%), with 1.7% of women registering with a GP as an LMC.[11] Thus, the first contact in pregnancy for the majority of women is with a GP, but full engagement with a maternity care provider may occur at a later date.

The call for full engagement with maternity care providers before 10 weeks' gestation is a recent change to practice. Up until 2007, the Maternity Services Section 88 notice specified that pregnant women could only register with an LMC after 14 weeks gestation.[5] Prior to this, women could visit a health care provider who claimed a single service payment, with full registration with an LMC occurring after 14 weeks' gestation. In July 2007, the Section 88 contract was reviewed and women were able to register with an LMC at any time during pregnancy. A similar change has occurred in the UK, where traditionally women engaged with maternity care at 12 to 14 weeks of pregnancy.

The question arises as to whether the calls for earlier engagement and ability to register with an LMC earlier have had an impact on the registration behaviour of women. This paper examines gestation at registration for a cohort of pregnant women who registered with a midwife LMC from 2008 to 2010, to determine if registration behaviour has changed and identify which groups of women registered prior to 10 weeks' gestation.

Methods

Retrospective data was obtained from the New Zealand College of Midwives Clinical Outcomes Research Database (COMCORD).

Data source

The COMCORD provides maternity outcome data for women who had a midwife LMC who is a member of the Midwifery and Maternity Provider Organisation (MMPO). The MMPO provides practice management support for LMC midwives nationally, with information from the clinical health record of each woman summarised and entered onto an IT system. This data is provided to HealthPAC to support midwifery payment claims for maternity services provided. The data is also anonymised and aggregated, resulting in the COMCORD. Although a large proportion of LMC midwives from throughout New Zealand are members, membership is voluntary and there are other practice management organisations; so although the COMCORD is a large dataset, it does not provide data for the total maternity population in New Zealand.

During registration, maternal obstetric and medical history, along with estimated date of birth (EDB) and the date of registration, are documented.

In this study, the gestation at time of registration was examined for 81 821 women who registered with a midwife LMC over the three years 2008 to 2010 inclusive. Demographic information related to the number, proportion, age and ethnicity for the women in the COMCORD database compared to Ministry of Health data is provided in Table 1.[11]

Subgroup analysis determined the maternal demographics related to age, ethnicity, and gestation at registration. Descriptive statistical data techniques were undertaken with univariate and comparative analysis as required using SPSS Version 17.

Ethics approval for this study was obtained from the New Zealand Health and Disability Ethics Committee (Ref. URA/11/EXP/041).

Results

Over the three years of the study period, the number of midwives providing data increased

and there was a concomitant increase in cohort size each year. In 2008, 681 midwives provided complete data on 25 149 women; in 2009, 716 midwives provided data on 26 767 women, and in 2010, 819 midwives provided data on 29 905 women.

For the three years combined, the majority (69.7%) of women registered with a midwife LMC before 14 weeks of pregnancy (Table 2). Twenty percent of women registered in the second trimester (between 14 and 27 weeks), and 10% registered in the third trimester.

Women who were under 20 years of age, or over 40 years of age, were more likely to register in the second and third trimesters than other age groups (46.1% and 37.7% respectively for trimester 2 and 3 combined). Differences between ethnic groups were identified, with more women who identified as New Zealand European and Asian ethnicities registering in the first trimester (78.1% and 69.6% respectively) when compared to women who identified as Māori (51.3%) or Pacific (44.1%). The cohort was underrepresented for both Asian and Pacific women to a similar extent and had similar numbers of women; despite this, the results for these two groups demonstrate marked differences.

WHAT GAP THIS FILLS

What we already know: The majority of pregnant New Zealand women visit a general practitioner to confirm pregnancy, but then need to register with a Lead Maternity Carer (LMC) to access fully funded maternity care. Earlier registration with a maternity provider is being recommended as a means of supporting optimal health during pregnancy.

What this study adds: This study has examined the gestation at LMC registration for a cohort of pregnant women who had a midwife LMC. Women under 20 or over 40 years of age and women of Māori or Pacific ethnicity registered at a later gestation than other groups. There was a trend towards earlier registration (less than 10 weeks' gestation) over the three years 2008 to 2010.

Table 1. Comparison of COMCORD dataset with Ministry of Health Report on Maternity 2010 data tables 2008–2010

	2008				2009				2010			
	MOH*		COMCORD (38.5%†)		MOH*		COMCORD (42.3%†)		MOH*		COMCORD (46.4%†)	
Age (years)	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
<19	5289	8.1	2493	9.9	4871	7.5	2526	9.4	4582	7.1	2764	9.2
20–24	11 730	18.1	4913	19.5	11 931	18.5	5295	19.8	12 121	18.6	6060	20.3
25–29	15 698	24.3	6533	26.0	15 796	24.5	6983	26.1	16 113	24.9	7881	26.4
30–34	17 724	27.6	6869	27.3	17 577	27.6	7215	27.0	17 782	27.6	8041	26.9
35+	14 176	21.9	4341	17.3	14 050	21.9	4748	17.7	13 859	21.7	5159	17.3
Not stated	22	0.03	–	–	30	0.04	–	–	28	0.04	–	–
Total	**64 639**	**100**	**25 149**	**100**	**64 255**	**100**	**26 767**	**100**	**64 485**	**100**	**29 905**	**100**
Ethnicity												
Māori	16 650	25.8	5328	21.2	16 476	25.6	5667	21.2	16 348	25.4	6300	21.1
Pacific	7686	11.9	1195	4.8	7445	11.6	1304	4.9	7536	11.7	1844	6.2
Asian	6036	9.3	1220	4.9	6371	9.9	1421	5.3	6966	10.8	1894	6.3
Other	34 267	53.0	17 345	69.0	33 963	52.9	18 333	68.5	33 635	52.2	19 797	66.2
Not stated	–	–	61	0.2	–	–	42	0.2	–	–	70	0.2
Total	**64 639**	**100**	**25 149**	**100**	**64 255**	**100**	**26 767**	**100**	**64 485**	**100**	**29 905**	**100**

* Data drawn from the Ministry of Health Report on Maternity 2010 data tables

† Percentage of total cohort

Registration before 10 weeks' gestation

Trend data were examined for the years 2008 to 2010 (Table 3). Over this three-year period, the percentage of women registering between 5 and 9 weeks' gestation increased from 22.0% in 2008 to 29.9% in 2010. Concomitantly, the proportion of women registering between 10 and 14 weeks reduced from 44.5% to 41.6%. The proportion of women who registered in the second trimester (15 to 27 weeks) also reduced, from 23.3% to 18.2%.

Age at registration, ethnicity and gestation of less than 10 weeks was examined for the three years 2008 to 2010 (Table 4). This was to determine whether the changing trends in registration were particular to an age group or ethnic group. The analysis explored the proportion of women registering before 10 weeks as a proportion for that particular age or ethnic group for each year.

We found increasing proportions of women registering before 10 weeks across all age groups for the three years 2008 to 2010 from 22% to 29.9% (Table 3), although there were lower proportions of women under 20 years and over 40 years who registered at less than 10 weeks' gestation in each year (Table 4).

Similarly, there were increasing proportions of women registering before 10 weeks' gestation across all ethnicities, with smaller proportional increases for women who identified as Māori or Pacific in each year.

Discussion

The registration data presented here provides some insights into the changes that are occurring in early pregnancy care in New Zealand. It would appear that the change to the Maternity Notice in 2007 is supporting earlier access to a midwife LMC, with increasing proportions of women registering earlier in pregnancy between the years 2008 and 2010.

The drive for women to engage earlier in pregnancy is due to the recognition that a woman's health and nutrition prior to, and during, pregnancy can have a major impact on the developing baby and the pregnancy outcome, and evidence that poor nutrition and smoking influence longer-term morbidity for the child.[12] Pregnancy is a time when parents are often willing and motivated to make lifestyle changes to ensure the health of the child.[13] It is also often the first contact with health services for many women

Table 2. Gestation at registration (total COMCORD cohort 2008 to 2010 combined)

	First trimester <14 weeks		Second trimester 14 to 28 weeks		Third trimester 29 to 42 weeks		Not stated	Total	
Age (years)	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**n**	**%**
<20	4194	53.8	2512	32.2	1077	13.8	0	7783	100
20–29	25 962	68.9	7785	20.7	3916	10.4	2	37 665	100
30–39	25 562	74.7	5730	16.7	2929	8.5	2	34 223	100
40+	1338	62.2	510	23.7	302	14.0	0	2150	100
Total	**57 056**	**69.7**	**16 537**	**20.2**	**8224**	**10.1**	**4**	**81 821**	**100**
Ethnicity									
NZ European	41 266	78.1	7861	14.9	3738	7.0	2	52 867	100
Māori	8868	51.3	5524	31.9	2902	16.7	1	17 295	100
Pacific	1917	44.1	1572	36.2	854	19.7	0	4343	100
Asian	3157	69.6	953	21.0	424	9.4	1	4535	100
Other	1736	66.6	575	22.0	297	11.4	0	2608	100
Not stated	112	64.7	52	30.0	9	5.3	0	173	100
Total	**57 056**	**69.7**	**16 537**	**20.2**	**8224**	**10.1**	**4**	**81 821**	**100**

and their families. More recently, improvements to antenatal Down syndrome screening have provided the opportunity for screening to be undertaken in the first trimester. The screening test is ideally undertaken between 9 weeks' and 14 weeks' gestation, although a later serum test can be undertaken in the second trimester for those who have missed the first trimester screening. The most recent monitoring report on antenatal screening for New Zealand found a 60.5% uptake of screening in the first trimester and an 8.6% uptake of screening in the second trimester.[14]

The move to earlier registration is being driven by the large volume and range of information that needs to be shared in early pregnancy.[8] Additionally, there is an increasing public health focus, with the expectation that earlier engagement will ensure earlier discussion about healthy lifestyles leading to lifestyle changes. Health screening and risk assessment during pregnancy is expected, with information provided to ensure informed consent. With these increased requirements in early pregnancy care, more appointments and time are necessary in the first trimester. It is now argued that the traditional 'pyramid of antenatal care' (in which the majority of visits occur in the last trimester) should be inverted, with more emphasis placed on first trimester care.[15] As yet, there is little evidence that earlier pregnancy registration results in better outcomes, and further research is required to explore this.

Earlier registration with an LMC has been possible since July 2007. Improvements to antenatal Down syndrome screening commenced in New Zealand in 2010.[16] The recommendation for registration prior to 10 weeks' gestation from the PMMRC started in 2011,[6] so the expectation that women should register with an LMC prior to 10 weeks' gestation has been a recent change in practice for maternity services in New Zealand. It has occurred ad hoc and without extensive planning or publicity. Despite this, our data demonstrates that between 2007 and 2010 there was a trend to earlier registration with a midwife LMC. The College of Midwives (supported by funding from the Ministry of Health) introduced a website (www.findyourmidwife.co.nz) in August 2013, designed to support women and primary health practitioners (in general practice) to find a midwife. The site has midwifery profiles for each region of New Zealand, along with availability data to support choice and ease of access for women.

Women less likely to engage in early pregnancy care

Our data has determined that the women less likely to register in the first trimester of pregnancy were those of Māori and Pacific ethnicity, and women under the age of 20 years and over the age of 40 years. These are the same groups

Table 3. Trend data: gestation at registration from 2008 to 2010 (COMCORD data)

	2008		2009		2010	
Gestation at registration	**n**	**%**	**n**	**%**	**n**	**%**
<10 weeks	5554	22.0	7447	27.8	8963	29.9
10–14 weeks	11 202	44.5	11 458	42.8	12 432	41.6
15–27 weeks	5865	23.3	5234	19.6	5438	18.2
28 weeks to term	2524	10.0	2628	9.8	3072	10.3
Not stated	4	0.02	0	0.0	0	0.0
Total	**25 149**	**100**	**26 767**	**100**	**29 905**	**100**

Table 4. Early registration: trends for age and ethnicity 2008 to 2010 (COMCORD data)

Registration at less than 10 weeks' gestation						
	2008		**2009**		**2010**	
	<10 weeks		**<10 weeks**		**<10 weeks**	
Age (years)	**n**	**%**	**n**	**%**	**n**	**%**
<20	347	13.9	466	18.7	551	19.9
20–29	2635	23.0	3420	27.8	4319	30.9
30–39	2471	23.2	3424	30.3	3916	31.7
40+	101	16.8	137	20.0	177	20.4
Ethnicity						
New Zealand European	4376	26.4	5769	32.9	6842	36.5
Māori	709	13.3	985	17.4	1079	17.1
Pacific	101	8.5	125	9.6	221	12
Asian	231	18.9	360	25.3	525	27.7
Other	130	17	199	25.4	281	26.5
Not stated	7	11.5	9	21.4	15	21.4

of women reported to have increased risk of perinatal-related mortality,[7] and higher rates of smoking during pregnancy.[17] Similarly, antenatal Down screening uptake was lowest or later in women under 20 years of age, Māori and Pacific women, and women from the most deprived socioeconomic deciles.[14] The determinants known to predispose to late initiation of antenatal care are ethnicity, parity, teenage pregnancy, unwanted pregnancy, maternal age, smoking and having medical risks.[18–21] In their review of barriers to antenatal care for marginalised women, Downe et al. identified several different factors that led to delayed initiation of antenatal care.[22]

It is now argued that the traditional 'pyramid of antenatal care' (in which the majority of visits occur in the last trimester) should be inverted, with more emphasis placed on first trimester care

These included chaotic lifestyles and unplanned pregnancies, and a lack of resources and money to get to appointments. Young teenage women often delay access to care due to a failure to recognise pregnancy symptoms or denial of the pregnancy, along with fear of parental response. The need for cultural, emotional and physical safety has also been identified as important, with some women in the UK having a high level of mistrust of health care providers. Additionally, if cultural values were ignored, some marginalised groups were less likely to maintain antenatal appointments.[22]

Recommendations for further research

There may be a multitude of reasons preventing women from registering with LMCs early in pregnancy in New Zealand. These could include a lack of understanding or knowledge within general practice about the need for earlier registration; the need for women to have time to explore their LMC options; or difficulty for women in finding an LMC to meet their requirements within their area. Alternatively, some women may consider that pregnancy is not a medical problem and see no necessity in registering with an LMC earlier in pregnancy. This research has identified the groups of women who, for whatever reason, register later in pregnancy. Further research is needed to identify and understand the barriers that prevent earlier registration. Similarly, research is needed to understand what influences women to register earlier, along with an exploration of whether earlier registration results in improved outcomes for women and their babies.

Strengths and limitations

The strength of this study is the large sample used and the ability to determine trends over a three-year period. A limitation of the research is that the data was limited to that collected by midwife LMCs who are members of the MMPO and, therefore, can only be generalised to women who have a midwife LMC. It was not possible to determine whether changes to pregnancy registration are also occurring for women registering with other (obstetric, GP) LMCs. Reasons for the timing of registration and the outcome of late registration have also not been investigated in this study.

Final comments

This study has shown that, in this cohort, there has been a trend to earlier registration since 2007, although the majority of women continue to register between 10 weeks and 14 weeks of pregnancy. Our data demonstrates that ethnicity and age have an effect on timing of registration. Women who identified as of Māori or Pacific ethnicity were more likely to register in the second and third trimester when compared to New Zealand European or Asian women. Additionally, women under the age of 20, or over the age of 40, were more likely to register in the second trimester. These are the same groups that have been identified as having higher perinatal mortality rates, higher rates of smoking and lower uptake of antenatal Down syndrome screening. The results provide important insights and understanding of engagement in maternity care for New Zealand women. Further research is required to explore the barriers to earlier registration for these groups.

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COMPETING INTERESTS
None declared.