Original Article

Positive impact of a long-running urban Aboriginal medical service midwifery program

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Background: The Winnunga Nimmityjah Aboriginal Health Service Aboriginal Midwifery Access Program (AMAP) was established in 2001 to provide antenatal care, birth support and postnatal care to clients in the Australian Capital Territory (ACT).
Aim: To describe the uptake and impact of AMAP services on access to antenatal care, behavioural risk factors and pregnancy outcomes and to compare the characteristics of AMAP clients with other women giving birth in the ACT.
Methods: A descriptive study of medical records for AMAP clients who gave birth in 2004–2008. Outcome measures: maternal and baby characteristics, antenatal visits, behavioural risk factors and complications. Characteristics of AMAP clients were compared with the ACT Maternal and Perinatal Collection.
Results: Of 187 women, 11.2% were aged <20 years, 50.3% presented in the first trimester and 94.7% attended five or more antenatal visits. Of 193 babies, 17.1% were born preterm and 18.1% had low birthweight. Compared with the ACT Maternal and Perinatal Collection, Aboriginal and Torres Strait Islander AMAP clients had a higher smoking rate (63.8 vs 49.0%), a lower caesarean delivery rate (20.0 vs 27.6%), a slightly lower proportion of preterm babies (18.8 vs 21.6%) and a slightly lower proportion of low-birthweight babies (18.8 vs 21.0%).
Conclusions: Aboriginal Midwifery Access Program provides high-quality antenatal care in a trusted environment. The high rate of smoking in pregnancy needs to be addressed.

Key words: clinical audit, Indigenous health services, pregnancy, prenatal care, smoking.

Introduction

Closing the gap in life expectancy between Aboriginal and Torres Strait Islander and non-Indigenous Australians requires improving prenatal, birth and postnatal outcomes. Health and lifestyle risk factors and limited access to quality antenatal care during pregnancy are thought to contribute to poorer overall outcomes among Aboriginal and Torres Strait Islander women when compared to non-Indigenous women.[1,2] A greater proportion of Aboriginal and Torres Strait Islander babies are born preterm or with low-birthweight and experience higher fetal and perinatal death rates than non-Indigenous babies.[3,4]

Risk factors of concern among Aboriginal and Torres Strait Islander women include maternal age, tobacco smoking and substance use. Teenage pregnancy is a recognised risk factor for low-birthweight and preterm delivery,[5,6] while advanced maternal age from 35 years is associated with an increased risk of pregnancy complications.[7,8] Tobacco smoking during pregnancy is a well-recognised risk factor for poorer pregnancy outcomes.[9–11] Aboriginal and Torres Strait Islander women also access antenatal care less than non-Indigenous Australians, presenting later during pregnancy with fewer visits.[2]

The Aboriginal Midwifery Access Program (AMAP) was established in January 2001 at the Winnunga Nimmityjah Aboriginal Health Service (Winnunga). Winnunga is the only Aboriginal community-controlled health service providing comprehensive primary health care for the Australian Capital Territory (ACT) and surrounding regions. AMAP aims to provide access to antenatal care and midwives in a culturally appropriate setting and to improve pregnancy and birth outcomes for Aboriginal and Torres Strait Islander women. It operates under the ACT Health Shared Care Guidelines.[12] AMAP offers full antenatal care from the first presentation in pregnancy, including home visits, assistance with appointments for antenatal investigations and specialist care, transport, birth support, postnatal follow-up and immunisations. High-risk pregnancies are not excluded. AMAP midwives work closely

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with, and provide support for, hospital obstetricians, the Fetal Medicine Unit at The Canberra Hospital, Winnunga general practitioners and the Winnunga social health team. The AMAP staff includes two full-time midwives and a full-time Aboriginal access worker.

Aboriginal Midwifery Access Program was evaluated once in 2002.[13] This evaluation concluded that the program had taken positive steps in the areas of community acceptance, access to antenatal care and early presentation to antenatal care. More recent data on AMAP clients had not yet been analysed. Therefore, in this study, we describe the maternal and baby characteristics, pregnancy risk factors, access to antenatal care services and pregnancy complications of clients who used AMAP services in 2004–2008 and compare the characteristics of AMAP clients with other women giving birth in the ACT.

Methods

Study design

A descriptive study was performed retrospectively on medical records held at Winnunga. Records were identified from the Communicare electronic database based on the presence of clinical notes, reported pregnancy outcomes, client lists and/or paper records. Data were collected from all four data sources.

Pregnancies were included if they involved at least one visit to AMAP and resulted in a birth between 2004 and 2008 calendar years. Of these pregnancies, those indicating that the services of the program were 'cancelled' or 'not required' because of miscarriage, termination, transfer of antenatal care to another service or moving away, and records in which the year of birth could not be determined were excluded from all analyses. Babies were included on the same basis as pregnancies.

Outcome measures

Outcome measures were divided into maternal characteristics (maternal age, maternal and paternal Aboriginal and Torres Strait Islander status, usual place of residence), antenatal care (first presentation to antenatal care, number of antenatal visits, investigations during pregnancy), pregnancy characteristics (behavioural risk factors, pregnancy complications, mode of delivery) and baby characteristics (gestational age, birthweight, stillbirths, death within first year of life). Pregnancy risk factors included were tobacco smoking, alcohol consumption and other substance use. Pregnancy complications included were gestational diabetes, pre-eclampsia and maternal deaths.

Comparison with ACT Maternal and Perinatal Collection

Maternal, pregnancy and baby characteristics of AMAP clients were compared with data on Aboriginal and Torres Strait Islander and non-Indigenous women in the ACT Maternal and Perinatal Collection for the period 2004–2008. Because Aboriginal and Torres Strait Islander status in the ACT Maternal and Perinatal Collection is defined only for women giving birth, not the father or the baby, AMAP clients for which the mother did not identify as Aboriginal or Torres Strait Islander were additionally excluded for these comparisons. The 2008 ACT Maternal and Perinatal Collection data were preliminary.

Ethics

This study was approved by the ACT Health Human Research Ethics Committee (HREC), the Australian National University HREC and the Winnunga Board.

Results

Descriptive data

Maternal characteristics are summarised in Table 1. Of 187 women, 85.0% were ACT residents. The average maternal age was 25.9 years, with 11.2% of women aged <20 years. There were 77 women excluded from analysis. Of these women, eleven transferred to interstate antenatal care services because they moved to a different state and two transferred to antenatal care services at The Canberra Hospital during the pregnancy for unknown reasons.

Most women first presented to AMAP at <13 weeks of gestation (94 women, 50.3%), with 51 presenting between 13 and 20 weeks (27.3%) and 42 presenting at 20 weeks or more (22.5%). The majority of women attended five or more antenatal visits (177 women, 94.7%), with seven attending 2–4 visits (3.7%) and three attending a single visit (1.6%). Most

Table 1 Maternal characteristics, Winnunga Aboriginal Midwifery Access Program, 2004–2008†

	Number of women (%)
Total	187 (100.0)
Maternal age	
<20 years	21 (11.2)
20–24 years	65 (34.8)
25–29 years	53 (28.3)
30–34 years	28 (15.0)
>35 years	20 (10.7)
Aboriginal and Torres Strait Islander‡	
Mother	130 (69.5)
Father	25 (13.4)
Baby	135 (72.2)
Not recorded for mother	1 (0.5)
Not recorded for father	156 (83.4)
Usual place of residence	
ACT	159 (85.0)
Outside ACT	28 (15.0)

ACT, Australian Capital Territory.
†Percentages may not add up to 100% because of rounding.
‡Percentages in this stratification do not add up to 100% because categories overlap.

Table 2 Pregnancy characteristics, Winnunga Aboriginal Midwifery Access Program, 2004–2008†

	Number of women (%)
Total	187 (100.0)
Behavioural risk factors‡	
Tobacco smoking	111 (59.4)
Alcohol consumption	12 (6.4)
Other substance use§	38 (20.3)
Pregnancy complications‡	
Gestational diabetes	8 (4.3)
Pre-eclampsia	4 (2.1)
Maternal deaths	0 (0.0)
Mode of delivery	
Normal vaginal	145 (77.5)
Caesarean section	33 (17.6)
Instrumental	7 (3.7)
Not recorded	2 (1.1)

†Percentages may not add up to 100% because of rounding.
‡Percentages in this stratification do not add up to 100% because categories overlap.
§Other substance use includes amphetamines, marijuana, methadone and opiates.

Table 3 Baby characteristics, Winnunga Aboriginal Midwifery Access Program, 2004–2008

	Number of babies (%)
Total	193 (100.0)
Plurality	
Singleton	181 (93.8)
Twins	12 (6.2)
Gestational age	
Preterm (<37 weeks)	33 (17.1)
Term (37–41 weeks)	159 (82.4)
Post-term (42 weeks or greater)	1 (0.5)
Birth weight	
<1500 g	8 (4.1)
1500–2499 g	27 (14.0)
2500–3999 g	141 (73.1)
4000 g or more	15 (7.8)
Not stated	2 (1.0)
Stillbirths	2 (1.0)
Death within first year of life	2 (1.0)

women attended routine antenatal investigations during their pregnancy, including glucose load testing (161 women, 86.1%), maternal serum screening (160 women, 85.6%) and ultrasonography of the baby (181 women, 96.8%).

Pregnancy characteristics are summarised in Table 2. The smoking during pregnancy rate was high at 59.4%, but the caesarean delivery rate was low at 17.6%.

Baby characteristics are summarised in Table 3. Of 193 babies, 17.1% were born preterm, and the mean gestational age was 38.7 weeks. There were 18.1% low-birthweight babies (<2500 g) born. The mean birthweight was 3085 g.

Comparison with the ACT Maternal and Perinatal Collection

To assess whether AMAP clients differed from other women giving birth in ACT, we compared Aboriginal and Torres Strait Islander women attending AMAP to Aboriginal and Torres Strait Islander and non-Indigenous women with recorded births in the ACT Maternal and Perinatal Collection (Table 4). In this comparison, 57 additional women and 60 additional babies of AMAP clients were excluded because the mother did not identify as Aboriginal and Torres Strait Islander.

Aboriginal and Torres Strait Islander women who were AMAP clients accounted for 130 of 471 (27.6%) Aboriginal and Torres Strait Islander women with recorded births in the ACT. A greater proportion of AMAP clients were ACT residents (83.8 vs 73.9%). The smoking during pregnancy rate was higher (63.8 vs 49.0%), but the caesarean delivery rate was lower (20.0 vs 27.6%), and the proportion of preterm babies and low-birthweight babies were slightly lower (18.8 vs 21.6%, and 18.8 vs 21.0%). The smoking during pregnancy rate for Aboriginal and Torres Strait Islander women was much higher than non-Indigenous women (49.0 vs 13.4%). Because AMAP clients represent a subset of women recorded in the ACT Maternal and Perinatal Collection, no statistical analysis could be performed.

Discussion

Our study sought to describe data on maternal, pregnancy and baby characteristics for women who attended AMAP between 2004 and 2008. The majority of women presented to antenatal care in their first trimester, attended a total of five or more antenatal visits and had routine investigations performed. Our results underestimate the actual proportion of women attending five or more antenatal visits and investigations because some women utilised other antenatal care programs. The caesarean delivery rate for AMAP clients was lower than the rate in the ACT Maternal and Perinatal Collection. It is unclear why this is the case, but it may be partially explained by complicated pregnancies within New South Wales being referred to the ACT.[2]

The proportions of preterm babies and low-birthweight babies born to AMAP clients were slightly lower compared with the ACT Maternal and Perinatal Collection. Poorer outcomes recorded in the ACT may reflect complicated pregnancies in New South Wales being referred to ACT to access specialist maternity services.[2] National data report 13.3% preterm babies and 12.3% low-birthweight babies born to Aboriginal and Torres Strait Islander women, which are both lower than ACT data.[3] This difference should be interpreted with caution, because the ACT represents <1% of all Aboriginal and Torres Strait Islander births in Australia.[14] Additionally, our data on babies born <2500 g cannot distinguish between prematurity and growth restriction. ACT and national data also do not make this distinction.[3,4]

Table 4 Comparison of maternal and baby characteristics for births to Aboriginal and Torres Strait Islander women between the Winnunga AMAP and the ACT Maternal and Perinatal Collection, 2004–2008†

		ACT Maternal and Perinatal Collection	
	Winnunga AMAP	Aboriginal and Torres Strait Islander	Non-Aboriginal and Torres Strait Islander
Women who gave birth	130	471	25 614
Babies born	133	487	26 250
ACT residents (%)	83.8	73.9	84.2
Mean maternal age (years)	26.1	26.8	30.7
Mothers aged <20 years (%)	10.0	12.3	2.3
Smoking during pregnancy (%)	63.8	49.0	13.4
Caesarean section (%)	20.0	27.6	28.9
Preterm babies (%)	18.8	21.6	9.0
Low-birthweight babies (%)	18.8	21.0	7.7

ACT, Australian Capital Territory; AMAP, Aboriginal Midwifery Access Program.
†Fifty-seven Winnunga AMAP clients and sixty babies, where the mother does not identify as Indigenous or whose Indigenous status is not known, are excluded from this analysis. ACT Maternal and Perinatal Collection data include all women who have given birth in the ACT.

The rate of tobacco smoking during pregnancy was high in our study, even when compared to the ACT Maternal and Perinatal Collection. A possible explanation for this is that women may feel more comfortable disclosing smoking when interacting with a service they trust than in the hospital system where perinatal data are collected. Overall, high rates of tobacco smoking during pregnancy must be addressed to improve perinatal outcomes.

A complete analysis of pregnancy outcomes of Aboriginal and Torres Strait Islander people should include Aboriginal and Torres Strait Islander babies, as our study does. However, national, state and territory reporting of Aboriginal and Torres Strait Islander perinatal outcomes only include births to Aboriginal and Torres Strait Islander mothers. This excludes Aboriginal and Torres Strait Islander babies born to non-Indigenous mothers.[1,3,4] Information on the Indigenous status of the father was not collected at Winnunga over the entire study period but is now routine. Routine collection of this information in state, territory and national datasets would improve the quality of reporting on Aboriginal and Torres Strait Islander births.

The limitations of our study included small numbers of pregnancies and babies, which limited the analysis of trends. Additionally, there was some incomplete recording of information in electronic records held at Winnunga. In particular, there were two omissions of delivery mode and two omissions of birthweight in our information sources. There was no pattern for the omission of data, but these are likely to be small oversights as the information would have been recorded elsewhere in the patients' antenatal records, such as in hospital records. Nevertheless, a system to promote consistency between paper and electronic records both at Winnunga and the shared care hospitals would improve quality and efficiency in data collection and analysis.

Aboriginal Midwifery Access Program implements an overall model of antenatal care that contains elements common to many other Aboriginal and Torres Strait Islander mother and baby programs in Australia.[15,16] Fear of discrimination, lack of trust and negative past experiences with health services may limit acceptance and uptake of antenatal care by Aboriginal and Torres Strait Islander women. These issues are addressed by the structure and protocols utilised by AMAP. AMAP is part of an Aboriginal community-controlled health service governed by an elected Aboriginal Board. The delivery of holistic, culturally appropriate and comprehensive primary health care in one location improves access, acceptance and trust. Additionally, collaboration between AMAP staff and other health professionals provides a link through which trust in other services can be developed.

This study was initiated by Winnunga and was approved by its Board. It has demonstrated the positive impact of this long-running program on delivering high-quality antenatal care in a trusted environment. An ongoing focus of AMAP will be to address risk factors such as smoking and further improve pregnancy outcomes in this high-risk population.

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