Women and Birth 37 (2024) 101591

Contents lists available at ScienceDirect

Women and Birth

journal homepage: www.sciencedirect.com/journal/women-and-birth

Clinical outcomes and financial estimates for women attending the largest private midwifery service in Australia compared to national data: a retrospective cohort study

Yu Gao [a], Liz Wilkes [a,b], Annabel Tafe [a], Andrea Quanchi [b], Lauren Ruthenberg [b], Michelle Warriner [b], Sue Kildea [a,*]

[a] Molly Wardaguga Research Centre, Faculty of Health, Charles Darwin University, Brisbane, Queensland 4000, Australia
[b] My Midwives, 29 Hill Street, Toowoomba, Queensland 4350, Australia

ARTICLE INFO

Keywords:
Midwifery
Endorsed midwives
Maternal health
Homebirth
Health policy and finance

ABSTRACT

Background and Problem: Multiple barriers to national scale-out of private midwifery practice in Australia exist.
Aim: To describe and compare maternal infant health outcomes of the largest private midwifery service in Australia with the national core maternity indicators and estimate the financial impact on collaborating public hospitals.
Methods: A retrospective cohort of 2747 maternal health records from 2014 to 2022 were compared to national indicators. Financial calculations estimated the impact on hospitals.
Findings: Compared to national data, women cared by private midwives were significantly: more likely to be 25–34 years and primiparous; less likely to be Indigenous, have diabetes, hypertension or multiple births. At birth, 5% required discussion with specialists, 25% required consultation and 39% were referred; 86% women had their primary midwife at birth; 12.5% birthed at home and 14.5% at a birth centre. Compared to national data, primiparous women had fewer inductions (22.9% vs 45.8%), caesarean sections (22.6% vs 32.1%), instrumental vaginal births (17.0% vs 25.7%), episiotomies (9.5% vs 23.9%) and more birthed vaginally after caesarean section (75.9% vs 11.9%). Significantly less babies were born with a birthweight <2750 g (0.5% vs 1.2%) and 83.7% babies were exclusively breastfed at six weeks. Collaborating hospitals would receive less DRG funding compared to public patients, require less intrapartum midwifery staff and receive a net benefit, even when bed fees were waived.
Conclusion: Women attending My Midwives had significantly lower intervention rates when compared to national indicators although maternal characteristics could be contributing. Multidisciplinary care was evident. Financial modelling shows positive impacts for hospitals.

Statement of Significance

Problem

There is limited evidence on the maternal and infant health outcomes of women receiving private midwifery care in Australia; or understanding of how they collaborate with other professionals. Little is known about the financial impact of this service on hospitals.

What is Already Known

Only 2.1% of women access private midwifery care in Australia, 0.5% birth at home and 2% birth at a birth centre. There are several identified barriers to national scale-out of this service.

What this Paper Adds

Private midwifery clinical outcomes compared favorably with national core maternity indicators. Discussion, consultation, or referral to other specialists occurred for 58.5% of women at

* Correspondence to: Level 2, 10 Grevillea Drive, Alice Springs, Northern Territory 0871, Australia.
E-mail address: sue.kildea@cdu.edu.au (S. Kildea).

https://doi.org/10.1016/j.wombi.2024.101591
Received 19 October 2023; Received in revised form 11 February 2024; Accepted 14 February 2024
Available online 23 February 2024
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booking and 68.9% at birth; 12.4% birthed at home and 14.5% at a birth centre. Financial benefits for public hospitals collaborating with private midwives were identified. Enabling factors should be addressed for wider scale-up and greater use of this workforce to increase continuity of carer for women regardless of risk factors.

Introduction

The Australian maternity system has been classified into eleven different models of care [1]. Private midwifery care is defined as *"antenatal, intrapartum and postnatal care provided by a private midwife or group of midwives in collaboration with doctors in the event of identified risk factors…care could be provided in a range of locations including the home"* [1]. Private midwifery care is a midwifery continuity of care(r) model. National policy in Australia [2] supports midwifery continuity of care(r) models that have, for over a decade, been recognised as gold standard [3]. Large randomised trials, several conducted in the public health system in Australia, show these models improve outcomes for mothers and babies, including women with [4], and without, risk factors in pregnancy [5]. Prospective cohort analysis found improved outcomes and cost-effectiveness when this model was provided for First Nations women [6,7]. Midwives also work in private practice as lead care professionals, have collaborative arrangements with other healthcare professionals and provide woman-centered care in the home, community locations or in hospitals [8]. Two small studies suggest this model is safe with good clinical outcomes; a clinical audit of 323 women attending one practice [9] and an evaluation that explored clinical outcomes from 529 women receiving care from 6-private midwives at one hospital [10].

In Australia in 2010, midwives were granted access to Medicare provider numbers to enable women to claim Medicare reimbursement (national health insurance) for services as the admitting or primary clinician [10,11]. To qualify, midwives are required to complete an accredited postgraduate prescribing qualification and 5000 hours of clinical practice (three years full time experience) to obtain endorsement from the Nursing and Midwifery Board of Australia (NMBA) [12] for prescribing scheduled medicines and access to the Pharmaceutical Benefits Scheme (PBS). Endorsed midwives can access insurance under the Midwife Professional Indemnity Scheme (MPIS) which is currently provided by the Medical Indemnity Group of Australia (MIGA) [11]. A Medicare provider number enables Medicare rebated clinical, pathology and radiology services, and midwives can refer to obstetricians and paediatricians. Endorsed midwives can apply to hospitals to admit women as private patients and provide antenatal, intrapartum and postnatal care.

The introduction of Medicare provider numbers for midwives was expected to attract a significant number of midwives into private practice. Over a decade has passed however, and only 2.1% of Australian women access private midwifery care compared to other models [13]. Midwives report barriers when trying to obtain admitting rights to hospitals [8]. Two jurisdictions are yet to develop policy and guidelines (Tasmania; Australian Capital Territory) to enable this service model access to the public health system. Another two have only recently enabled access agreements for admitting rights to hospitals (NT; NSW). Some jurisdictions require collaborative arrangements with an individual obstetrician, yet there is a lack of obstetricians willing to engage in these arrangements. Together these issues are preventing scale-out.

In this paper we refer to 'scale-out' rather than 'scale-up'. Scale-up refers to the 'deliberate effort to broaden the delivery of an evidenced based intervention with the intention of reaching larger numbers of a target audience' [14]. Often a scale-up will target the same, or similar settings, under which the intervention has already been tested [14]. A 'scale-out' is a more deliberate strategy to implement, test, improve, and sustain the evidence-based practice in this case 'continuity of midwifery carer' as it is delivered to new populations for example Aboriginal and Torres Strait Islander or remote communities, and/or through new delivery systems, such as private midwifery, that differ from those in effectiveness trials [3,14].

A recent paper reports on barriers to adapting continuity of midwifery care services into Aboriginal and Torres Strait Islander Community-Controlled Health Services. These included: a lack of an affordable insurance product for the health care services; educational and regulatory barriers preventing new graduate midwives working to full scope of practice (including prescribing rights and Medicare-billing); and, concern by local hospitals that visiting endorsed midwives could lead to hospital funding reductions [15]. The paper also identified the lack of implementation of recommendations from a Review of Medicare for Midwives in 2018 as a barrier. Recommendations included introducing or increasing: the payment schedule, particularly for women without health insurance, for telehealth and for lactation support; longer billing sessions; Medicare payments and Insurance cover to support women to birth in any setting.

Funding Australia's maternity care system

Funding for Australia's maternity care system is complex and achieved through a mix of Federal, jurisdictional and private funding [16]. Maternity care in the public system is generally provided by hospital employed midwives and doctors free of charge. In the private system, care is provided by private obstetricians funded by Medicare, private insurance, gap fees (paid by women) and the option to self-fund [16]. Public hospitals are funded by the Federal Government through block funding where a fixed amount is provided based on the service population, previous year funding, and activity based funding (ABF) based on the number and casemix of the patients they treat [16]. The Federal Government subsidises private health care for out-of-hospital and in-hospital medical care through the Medicare Benefit Scheme (MBS). Upon discharge from a public hospital, each inpatient episode will be coded according to the Diagnostic Related Group (DRG) classification system. The DRG, together with the National Weighted Activity Unit (NWAU) (a measure of health service activity based on complexity of patients and additional adjustors) and the National Efficient Price (NEP), are used to determine the reimbursement rates for the episode of care [17].

All women with a Medicare number are entitled to free treatment in public hospitals which does not allow women to choose their own doctors. Women with private insurance can choose to be a public patient in a public hospital or as a private patient in a private or public hospital. If women choose to be a private patient in a public hospital, hospital costs will be covered by ABF, MBS, private insurance and possible out-of-pocket expenses [16].

In May 2020, the Commonwealth, State and Territory governments signed the Addendum to the National Health Reform Agreement 2020–25, to equalise revenue at the hospital level for public and private patients. Thus, when private patients are admitted in public hospitals an adjustment to account for private insurance benefits paid for activity in public hospitals was made [17]. The amount of funding for the same DRG among different hospitals varies by hospital location (jurisdiction and remoteness), women's characteristics (Indigenous status, age, insurance status and remoteness residence) and length of stay.

The aim of this paper is to describe maternal and neonatal clinical outcomes for a cohort of women attending My Midwives, the largest private midwifery service in Australia. We compare the My Midwives outcomes to the Australian national core maternity indicators and estimate the financial impact on public hospitals collaborating with private midwives.

Methods

Study design

A retrospective cohort study of maternal health records across My Midwives operating sites from 2014 to 2022 was compared to the latest national data.

Setting

My Midwives was established in 2010 and operates in seven practice locations across urban and regional settings: Toowoomba and Brisbane in Queensland; Melbourne and Goulburn Valley in Victoria; and Alice Springs in the Northern Territory. In December 2022, their midwifery workforce was 38 midwives across six sites: 29 with and nine working towards a Medicare provider number. Currently, My Midwives had two student midwives on placement and 2 graduate midwives working toward endorsement. My Midwives workforce strategy provides a pipeline for midwives to become endorsed as it is one of the only private midwifery services in Australia that has purchased a Health Care Practice Policy covering both endorsed and non-endorsed midwives (under supervision).

Women access My Midwives via a self or General Practitioner (GP) referral. Midwives provide care to women of any risk in pregnancy, following the National Midwifery Guidelines for Consultation and Referral [18]. My Midwives offers a midwifery continuity of carer model with each woman allocated a primary midwife who is working with a partner or in a group of three. The midwifery team allocated to the woman is on call from booking through to six weeks postpartum. Midwives have a caseload of 36–40 women per annum, that is reduced to 25–32 in the First Nations specific services.

Most women receive antenatal care at My Midwives practice rooms, with some care provided in the woman's home or local hospital depending on risk factors and individual circumstances. Early labour care is available in women's homes with women birthing either at home, in a hospital or birth centre where the midwife has admitting rights. One practice (Toowoomba) has a residential facility where women from rural Western Queensland with limited options for homebirth (due to distance and practitioner location) can homebirth. Where complexities occur, the midwife refers directly to the on-call medical staff of the local hospital and continues to provide midwifery care even where a transfer of lead carer to an obstetrician is required. The midwife will attend caesarean births, facilitating skin to skin contact in recovery, early postnatal care and support of breastfeeding.

Women who have an uncomplicated birth in hospital are discharged by their midwife according to hospital protocols and the woman's wishes. Women and their babies receive immediate and ongoing postnatal care from their primary midwife (and back-up midwives as required) until the baby is six weeks old. The woman's GP is provided with ongoing updates during the pregnancy and women are referred to their GP for post birth checks for their baby (as required) with transfer back to their GP at around seven weeks post-partum. Child Health Nurse (CHN) involvement varies by jurisdiction with Victoria providing universal CHN care and Queensland providing selective access.

Participants

All women receiving care through one of My Midwives operating sites who gave birth between 01/01/2014 and 31/12/2022. We excluded data from women who received care from a dedicated First Nations model of care, the Birthing in Our Community service. This model has additional inputs which include First Nations governance and holistic wrap-around services from the First Nations workforce (similar to [7]) and is being evaluated separately.

Data collection

As part of usual practice, the primary care midwife enters routine information for each woman from the first appointment with My Midwives to six weeks after birth into a purpose-built electronic client database. Information includes women's demographics, medical history, obstetric history, pregnancy complications, labour, birth, postnatal and infant outcomes. Date and time of each postnatal visit, breastfeeding status and postnatal care up to six weeks is also recorded.

A unique identifier for each woman was manually created by My Midwives. Data were extracted into a separate excel spreadsheet, de-identified and securely transferred to researchers. Data were imported to Stata 16.0 for data cleaning and analyses. Missing values were sought from My Midwives using the unique identifier to improve the dataset.

Variables

Maternal characteristics included maternal age (years), body mass index at booking, ethnicity, parity, birth plurality, ACM referral category at booking, and at birth (Table 1). Pregnancy issues were coded from free text and the most common ones were presented (Table 1, Supplementary Table 1).

Of the National Core Maternity Indicators, 11 were available for analyses; induction of labour for women giving birth for the first time, caesarean section for women giving birth for the first time, non-instrumental vaginal births for women giving birth for the first time, instrumental vaginal births for women giving birth for the first time, episiotomy for women having their first baby and giving birth vaginal assisted (instrumental) and unassisted (non-instrumental), women having their second birth vaginally whose first birth was by caesarean section, Apgar score of less than 7 at 5 minutes for births at or after term, small babies born at or after 40 weeks gestation with a birthweight less than 2750 g, third and fourth degree tears among all women who gave birth vaginally, and among all vaginal first births. Three core indicators were not available to compare: smoking in the first 20 weeks of pregnancy, antenatal care in the first trimester and general anaesthetic for women giving birth by caesarean section (Fig. 2).

Other outcome measures which were not benchmarked with national data but are important to midwife-led continuity models were reported [3]. These included non-pharmacological pain relief, epidural pain relief, water immersion, water birth, medically led care at birth, primary midwife at birth, physiological management of 3rd stage, postpartum haemorrhage, transfer to hospital for a planned homebirth, number of antenatal and postnatal visits, gestation at birth, special care nursery admission and exclusive breastfeeding at six weeks (Table 2).

Statistical methods

All the categorical variables were described as frequency and percentage. Mean, median, and inter quartile range (IQR) were reported for quantitative variables. The number of missing data were reported. For all the national core indicators, we conducted one sample proportion test to estimate whether the population of My Midwives is equivalent to the Australian national population. We employed the one-sample proportion test here as the National Perinatal Data represents all births in the Australian population and there was no sampling variation around the parameters drawn from this data. Where the national population parameters fell outside of the 95% confidence interval of My Midwives point estimates, the My Midwives population was inferred to be statistically different (at the 0.05 level of significance). All data cleaning and analyses were conducted in Stata and forest plots were drawn in excel.

Costing estimates

To calculate the financial impact for a collaborating public hospital between women admitted as private patients and public patients, the

Table 1
Maternal characteristics and pregnancy issues, My Midwives cohort, 2014–2022.

Variables	My Midwives
Number of women	2747
Maternal characteristics	
Maternal age (Mean±SD)	31.3±4.6
Body mass index at booking (Mean±SD)	25.8±5.6
Parity	
Primiparous	1396 (50.8%)
Multiparous	1351 (49.2%)
Ethnicity	
Caucasian	2488 (90.6%)
Indigenous	20 (0.7%)
Other	239 (8.7%)
Insurance status	
Self-funded (includes 25–30% bulk-billed)	1824 (66.4%)
Private Health	912 (33.2%)
Not recorded	11 (0.4%)
Socioeconomic Indexes for Areas (SEIFA)	
Quintile 1 (most disadvantaged)	220 (7.9%)
Quintile 2	235 (8.5%)
Quintile 3	991 (35.8%)
Quintile 4	745 (26.9%)
Quintile 5 (most advantaged)	556 (20.1%)
Not recorded	25 (0.9%)
ACM referral category at booking	
Nil issue	1134 (41.3%)
A (Discuss)	328 (11.9%)
B (Consult)	1105 (40.2%)
C (Referral)	177 (6.4%)
Not recorded	3 (0.1%)
ACM referral category at birth	
Nil issue	852 (31.0%)
A (Discuss)	123 (4.5%)
B (Consult)	686 (25.0%)
C (Referral)	1081 (39.4%)
Not recorded	5 (0.2%)
Pregnancy issues	
Multiple births	25 (0.9%)
Anxiety in pregnancy	47 (1.7%)
Anaemia in pregnancy	35 (1.3%)
Thyroid issues in pregnancy	55 (2.0%)
Cardiac issues in pregnancy	9 (0.3%)
COVID in pregnancy	21 (0.8%)
Gestational diabetes	131 (4.8%)
Pregnancy induced hypertension	71 (2.6%)
Premature rupture of membranes including PPROM	81 (2.9%)
Antepartum haemorrhage	24 (0.9%)
Meconium in liquor	97 (3.5%)
Breech or unstable lie	57 (2.1%)
SGA or IUGR issue	30 (1.1%)
Planned place of birth at 36 weeks gestation	
Hospital	1597 (58.1%)
Birth Centre	687 (25.0%)
Home	429 (15.6%)
Not recorded	34 (1.2%)
Actual place of birth	
Hospital	2002 (72.9%)
Birth Centre	399 (14.5%)
Home	342 (12.4%)
Born before arrival	4 (0.1%)
Number of antenatal appointments with My Midwife, (Mean, Median, IQR)	11.4, 11 (9, 13) (n=2747)

following costing elements were included: hospital DRG income estimated from NWAU and NEP for three major birthing DRGs; savings from not paying My Midwives midwifery time in hospital, potential MBS claims for midwives and hospitals and bed-fees from private health insurance.

Table 2
Labour and birth outcomes, My Midwives cohort, 2014–2022.

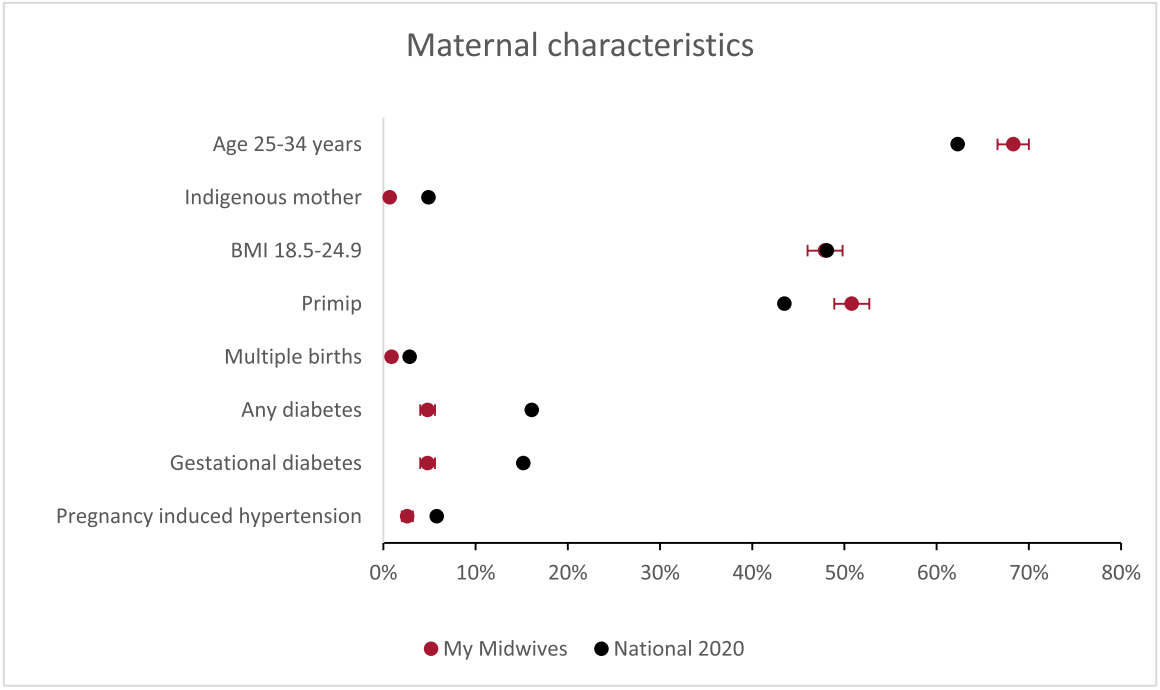
	My Midwives
Number of women	2747
Labour and birth	
Labour onset	
Spontaneous	2099 (76.4%)
Induction	509 (18.5%)
No labour	139 (5.1%)
Non-pharmacological pain relief	1512 (55.0%)
Epidural/Spinal pain relief	761 (27.7%)
Water immersion in labour	854 (31.1%)
Mode of birth	
Non-instrumental vaginal birth	1988 (72.4%)
Instrumental vaginal birth	272 (9.9%)
Caesarean section	482 (17.6%)
Not recorded	5 (0.2%)
Successful vaginal birth after caesarean section	167 (75.9%)
Water birth	477 (17.4%)
Medically led care at birth	1109 (40.4%)
Primary midwife at birth	2372 (86.3%)
Episiotomy (vaginal births only)	333 (14.7%)
Physiological management of 3rd stage	764 (27.8%)
Postpartum haemorrhage	517 (18.9%)
3rd or 4th degree perineal trauma (vaginal births only)*	78 (3.5%)
Transfer (for 381 women commencing labour at home for a planned home birth)	
Birthed at home	291 (76.4%)
Intrapartum transfer	61 (16.0%)
Postnatal transfer	3 (0.8%)
Neonatal transfer	2 (0.5%)
Not recorded	24 (6.3%)
Number of postnatal visits (Mean, Median, IQR)	8.8, 9 (7, 11) (N=2747)
Infant outcomes	
Number of infants	2772
Neonatal outcome	
Live birth	2755 (99.4%)
Stillbirth	17 (0.6%)
Apgar score at 5 minutes	
≥7	2689 (97.0%)
<7	56 (2.0%)
Not recorded	27 (1.0%)
Gestation at birth	
≥37 weeks	2639 (95.2%)
<37 weeks	133 (4.8%)
Birthweight	
≥2500 g	2667 (96.2%)
<2500 g	96 (3.5%)
Not recorded	9 (0.3%)
SCN/NICU admission	132 (4.8%)
Exclusive breastfeeding at six weeks	2323 (83.8%)

* :15 missing records

Results

Women's characteristics

The mean age of women who accessed My Midwives was 31.3 years with a standard deviation of 4.6, ranging from 16 to 48. Sixty-eight percent of women attending My Midwives were aged between 25 and 34 years, which were significantly higher than the national level (62.3%). There was no difference between the My Midwives sample and national data of the percentage of women with a healthy body mass



Red dot: point estimation for My Midwives; red left vertical line: lower 95% CI; red right vertical line: upper 95% CI; black dot: National 2020 population; p<0.05 when black dot falls outside the red 95% CI

Fig. 1. Maternal characteristics comparison between My Midwives cohort and 2020 Australian national data. Red dot: point estimation for My Midwives; red left vertical line: lower 95% CI; red right vertical line: upper 95% CI; black dot: National 2020 population; p<0.05 when black dot falls outside the red 95% CI.

index. Less than one percent of women in this cohort were Indigenous which was significantly lower than the national average of 4.9% (due to women under the dedicated Indigenous Birthing in Our Community service being excluded (Table 1, Fig. 1)).

Significantly more women attending My Midwives (50.8%, n=1396) were having their first baby compared to 43.5% nationally. Women attending My Midwives had significantly less complications compared to the national average: multiple births (0.9% vs 2.9%), diabetes (4.8% vs 16.1%), gestational diabetes (4.8% vs 15.2%) and pregnancy induced hypertension (2.6% vs 5.8%) (Table 1, Fig. 1).

Of the 2747 women receiving care from My Midwives, 40.2% at booking and 25.0% at birth were assessed as needing consultation with relevant medical practitioners according to the ACM National Midwifery Guidelines for Consultation and Referral. The percentage of women requiring referral increased from 6.4% at booking to 39.4% at birth (Table 1). Crosstabulation for ACM category at birth and pregnancy issues provided more information on why midwives were discussing, consulting with, or referring to, specialists (Supplementary Table 1).

On average, women had 11.4 antenatal visits with My Midwives, the gestation at the first visit with any health worker was not recorded in the system. Compared to the birthplace planned at 36 weeks, more births occurred in hospital (72.9% vs 58.1%), less in birth centres (14.5% vs 25.0%) or at home (12.4% vs 15.6%) (Table 1).

Labour and birth

Seventy-six percent of women started labour spontaneously and 18.5% were induced. Of the 1396 women who gave birth for the first time, 22.9% were induced which was significantly lower than the national level of 45.8%. In terms of pain relief, 55% of women had non-pharmacologic (for example 31.1% of women had water immersion) and 27.7% had an epidural at the first stage of labour (Table 2). Of all the women who gave birth with My Midwives, 72.4% experienced a non-instrumental vaginal birth, 9.9% experienced an instrumental vaginal birth and 17.6% had a caesarean section. For those who gave birth for the first time, women attending My Midwives experienced fewer caesarean sections (22.6% vs 32.1%), more non-instrumental vaginal births (60.5% vs 42.2%) and fewer instrumental vaginal births (17.0% vs 25.7%) compared to the national average. Of the 220 women who attempted a vaginal birth after caesarean section, 167 (75.9%) successfully gave birth vaginally, which was significantly higher than national data (11.9%). Four hundred and seventy-seven (17.4%) women attending My Midwives had a water birth (Table 2, Fig. 2).

Of the 2260 women who had a vaginal birth, 14.7% had an episiotomy. For primiparous women who had an instrumental vaginal birth 82.2% had an episiotomy which was similar to national data (81.5%). Primiparous women who had non-instrumental vaginal births experienced significantly less episiotomy (9.5%) compared to 23.9% nationally (Table 2, Fig. 2).

A total of 86.3% of births were attended by the primary Midwife including those women who received medically led care at birth (40.4%) due to risk factors (Table 2, Supplementary Table 1). Almost all women had a known midwife at birth except those who were born before arrival to hospital. For 381 women (41.5% primiparous; 58.5% multiparous) who commenced labour at home for a planned home birth 291 (76.4%) successfully did birth at home; 61 (16.0%) were transferred intrapartum; 3 (0.8%) were transferred postnatally for maternal reasons and 2 (0.5%) transferred for neonatal reasons. Significantly higher percentage of primiparous women were transferred intrapartum compared to multiparous women: 34.8% vs 3.1%, hence less gave birth at home successfully: 53.8% vs 92.4%. Twenty-eight percent (n=764) of women received physiological management of third stage and 18.9% (n=517) experienced a postpartum haemorrhage. There was no significant difference in the 3rd or 4th degree perineal tear rate between My Midwives and national data. On average women attending My Midwives and their babies had 8.8 postnatal visits, ranging from 0 to 24 (Table 2).

Infant outcomes

Of the 2772 babies, 99.4% were live born and 95.2% were born at

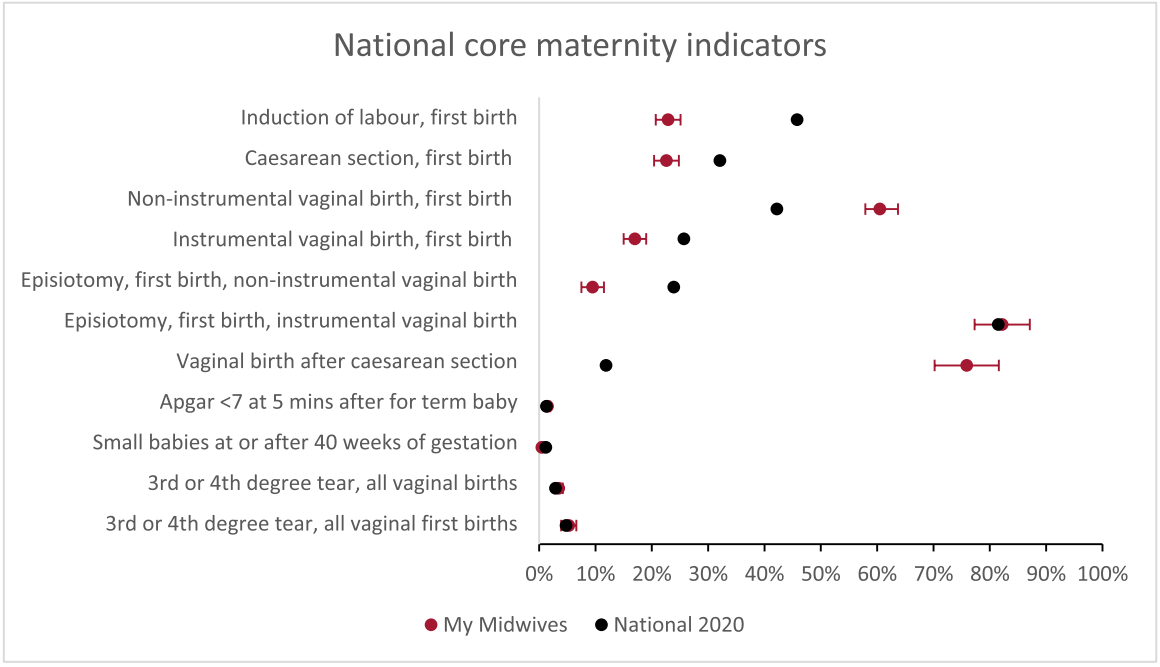


Fig. 2. National core maternity indicator comparisons between My Midwives cohort and Australian national data, 2020. Red dot: point estimation for My Midwives; red left vertical line: lower 95% CI; red right vertical line: upper 95% CI; black dot: National 2020 population; p<0.05 when black dot falls outside the red 95% CI.

term. Two percent (n=56) of babies' Apgar score at 5 minutes was less than 7 and 4.8% (n=132) babies were admitted to special care nursery or neonatal intensive care. Compared to the national data, term babies born through My Midwives service had a similar percentage of Apgar scores less than 7 at 5 minutes and significantly fewer small babies with a birthweight less than 2750 g at or after 40 weeks of gestation. More than eighty percent (83.7%) of babies were exclusively breastfed at six weeks (Table 2, Fig. 2).

Funding expenses

The estimated income from Medicare that My Midwives could claim was up to $3707.90 for a typical birth across pregnancy, birth and postpartum, when a woman started antenatal care within the first trimester with My Midwives and completed postnatal care at six weeks after birth. (Table 3) In 2021/22, 77% of My Midwives revenue was spent on midwives' salaries, 10% on administration team's salaries and the rest on professional indemnity and public liability insurance, rent, and other expenses such as computing, accounting and transport etc.

One third (33.2%) of women accessing My Midwives service had private health insurance and the remainder were self-funded. According to residence postcode, one-fifth (20.1%) of women were from the most socioeconomically advantaged quintile (Quintile 1) and 7.9% from the most disadvantaged (Quintile 5) (Table 1). My Midwives bulk-billed around 25–30% of their women who therefore had no out-of-pocket costs, most from socioeconomic disadvantaged groups. Anecdotally, after spontaneous vaginal births, almost all women went home directly from birth suite, and after instrumental vaginal births or caesarean section women stayed in hospitals for 1–2 nights (the actual length of stay was not recorded). Of the six collaborating hospitals, one agreed to waive one night bed-fee ($394/night) for all women, other hospitals had a case-by-case waiving policy.

Table 4 presents the financial impact for local hospitals with a hypothetical woman admitted as a public patient or as a private patient under My Midwives care in different jurisdictions. Our assumption was based on My Midwives data for mode of birth and length of stay (LOS) (72.1% had uncomplicated vaginal birth with LOS 1 day, 9.8% had vaginal birth with minor complexity with LOS 2 days and 18.1% had uncomplicated caesarean section with LOS 2 days). When women were admitted as public patients, hospitals were paid according to DRG solely. If women were admitted as private patients, hospitals would receive extra benefits such as private midwives providing intrapartum and other 'in hospital' care (e.g. short stay assessments, postnatal care) that they did not have to pay for (estimated worth ~$1650); bed-fees from private health insurance (~$504) and potential obstetric MBS claims (~$641). On average when a woman was admitted as a private patient instead of as a public patient, a hospital in a Queensland major city would benefit $1643 per birth and a hospital in the Australian Capital Territory would benefit $808.

Table 3
Medicare claim details for a typical birth with My Midwives.

Clinical Care	Item number	MBS Rebate	Average visits	Total
Antenatal – booking consultation	82100	$47.25	1	$47.25
Antenatal – care plan	82115	$282.15	1	$282.15
Antenatal – over 40 mins	82110	$47.25	11	$519.75
Telehealth – phone AN up to 40 mins	91210	$28.60	11	$314.60
Birth – early labour - out of hospital	82116	$695.95	1	$695.95
Birth - 1st midwife 6–12 hours	82120	$1175.90	1	$1175.90
Postnatal – over 40 mins	82135	$69.45	9	$625.05
Postnatal - debrief	82140	$47.25	1	$47.25
Total				**$3707.90**

Number of antenatal visits and postnatal visits were based on the My Midwives data.

Table 4
Estimated financial impact on hospitals collaborating with private midwives admitting women with a private health insurance.

Admission type, Jurisdiction, Remoteness	NWAU for O60C, Vaginal Delivery Single Uncomplicated (1)	NWAU for O02B, Vaginal Delivery W GIs Minor Complexity (2)	NWAU for O01C, Caesarean Delivery, Minor Complexity (3)	Average hospital income from DRG per birth (4)	Hospital benefits from My Midwives per birth(5)	Hospital income from private health insurance for bed fee(6)	Potential MBS claims by Obstetrician per birth(7)	Total hospital benefits per birth (8)	Difference between private admission vs public per birth(9)
Private in Queensland Major city	$4196	$8086	$8095	$5283	$1650	$504	$641	$8078	$1643
Public in Queensland Major city	$4857	$9966	$10,807	$6434				$6434	
Private in Victorian Major city	$3698	$7450	$7313	$4720	$1650	$504	$641	$7515	$1080
Public in Victorian Major city	$4857	$9966	$10,807	$6434				$6434	
Private in South Australia Major city	$3481	$7516	$7202	$4550	$1650	$504	$641	$7345	$910
Public in South Australia Major city	$4857	$9966	$10,807	$6434				$6434	
Private in Western Australia Major city	$3812	$8294	$8207	$5047	$1650	$504	$641	$7841	$1407
Public in Western Australia Major city	$4857	$9966	$10,807	$6434				$6434	
Private in Tasmania Major city	$3718	$7775	$7592	$4817	$1650	$504	$641	$7611	$1177
Public in Tasmania Major city	$4857	$9966	$10,807	$6434				$6434	
Private in New South Wales Major city	$3710	$7704	$6596	$4624	$1650	$504	$641	$7419	$984
Public in New South Wales Major city	$4857	$9966	$10,807	$6434				$6434	
Private in Australian Capital Territory Major city	$3302	$7785	$7202	$4447	$1650	$504	$641	$7242	$808
Public in Australian Capital Territory Major city	$4857	$9966	$10,807	$6434				$6434	
Private in Northern Territory Remote	$5117	$10,599	$11,389	$6789	$1650	$504	$641	$9584	$1126
Public in Northern Territory Remote	$6384	$13,100	$14,205	$8457				$8457	

NWAU: National Weighted Activity Unit.
Average hospital income from DRG per birth (4)=$\%_{O60C}$(72.1%)*(1)+$\%_{O02B}$(9.8%)*(2)+$\%_{O01C}$(18.1%)*(3).
Hospital benefits from My Midwives per birth (5)=midwife hourly cost ($66/hour)*hours in hospital (25 hours intrapartum).
Hospital income from private health insurance for bed fee (6)=standard bed fee ($394/night)*{$\%_{O60C}$ (72.1%)*LOS_{O60C}(1 day)+$\%_{O02B}$(9.8%)*LOS_{O02B}(2 days)+$\%_{O01C}$(18.1%)*LOS_{O01C}(2 days)}.
Potential MBS claims by obstetrician per birth (7): calculation see Supplement Table 3.
Total hospital benefits per birth (8)=(4)+(5)+(6)+(7).
Difference between private admission vs public per birth (9)=$(8)_{private}$-$(8)_{public}$.

Discussion

Clinical findings

Equivalent, and sometimes better, maternal and neonatal outcomes were achieved for women in the service, supporting the small, existing evidence that private midwifery care is safe for mothers and babies [9,10]. Our findings are consistent with evidence from multiple Australian randomised controlled trials (RCTs) of midwifery continuity of care in the public maternity system [3,5,19] and the systematic review [3]. The service is accessed by women with risk factors in pregnancy across all sociodemographic levels. Only one third of women held private health insurance, which was an unexpected finding. It is possibly due to the size of the practice, which could absorb more bulk billing (no out of pocket fees for women) than smaller practices. However, we noted less maternal complications in pregnancy (multiple births and pregnancies complicated with diabetes or pregnancy induced hypertension) which may be contributing to improved outcomes; although the My Midwives cohort also had a higher proportion of primiparous women, where you would usually see higher intervention rates. Selection bias and the exclusion of Aboriginal and Torres Strait Islander women from this analysis may also be impacting results. Despite this, discussion, consultation, and referral with other providers highlights collaboration to enable multidisciplinary care for 59% of women at booking and 69% at birth.

Fifty percent of the cohort were primiparous and the caesarean section rate for these women was two thirds that of national data with My Midwives cohort also having six times the number of successful vaginal births after caesarean sections. More women accessed home birth (12.4%) and gave birth at a birth centre (14.5%) compared to national figures that show only 0.5% birth at home and 2% birth at a birth centre. There was a primary midwife present at 86.3% of births and almost all women had a known midwife at birth. This is higher than reported from all seven randomised trials (34–96%) included in the Cochrane review [3]. Having a known midwife positively impacts women's birth experience, especially for those fearful of labour pain [20]. Intrapartum transfer rates for the women who commenced labour at home (42% were primiparous) for a planned home birth were 16.0%, with less than 1% transferring postnatally. This compares to the large Birthplace in England study where 16,840 women commenced labour at home (27% were primiparous) with 14.2% transferring intrapartum and 6.2% postpartum [21].

Babies born in this model had equivalent or better outcomes compared to national data: fewer babies were small at or after 40 weeks gestation and Apgar score at 5 minutes were similar as was stillbirth rate (6.1 vs 7.7 per 1000 births nationally [22]). Women with My Midwives received postnatal care up to six weeks after birth with an average of 8.8 postnatal visits. Although national data is not available for comparison many women in Australia receive no home visits by a midwife postnatally, some only receive a phone call and others may get only 1–2 visits in the first two weeks only. A minority of jurisdictions have child and family health visits routinely available for new mothers in their homes.

Eighty four percent of babies were exclusively breastfed at six weeks compared to 73.5% nationally at two months (2023) [23] and 58% of women receiving midwifery group practice and 44% women in standard care at six weeks postpartum in the M@NGO randomised trial [4] (all risk women). This is consistent with the findings from a recent systematic review with meta-analysis which demonstrated that early postnatal interventions significantly improve women's likelihood to continue exclusive breastfeeding at six months [24]. These data need to be interpreted with caution as women attending My Midwives might be highly motivated to breastfeed and selection bias could be contributing to the different rates.

Financial impact on public hospitals

Funding for My Midwives private midwifery service comes from Medicare, private health insurance and women's out-of-pocket fees for midwifery and hospital services. Our study showed the collaborating hospital would receive less income from DRGs if women were admitted as private instead of public patients. The adjustment does not consider women's socioeconomic status. However, we estimate hospitals would be compensated by not having to pay for the majority of intrapartum midwifery services for these clients and during short stay assessment units when care is provided by provided midwives. Additional savings may be provided in the postpartum period when women are discharged early, and for some, extra private insurance payments contribute to arrangements that may be beneficial to hospitals. Accommodation fees and other fees for medical services in hospital, are major barriers for women who do not have private health insurance. Increased Medicare payments for services, as recommended in the Review of Medicare for Midwives [15,25], and establishing a waiver of private patient adjustments for all women without a private health insurance would assist scale-out. Practice incentives to support establishment in rural and remote regions would also assist; as would a funding source to support access for women without Medicare or private health insurance (international students or new arrivals to Australia such as women seeking asylum).

Strengths and limitations

Our study analysed My Midwives clinical data over nine years with more than 2700 women's records, which makes the results robust and rigorous against data fluctuations due to small numbers. The biggest limitation of the present study was a lack of patient-level national data that would serve as a comparison group. This meant we were unable to perform statistical modelling that would allow us to adjust for differences between the My Midwives and general Australian population; differences that may confound with the model of care effect. Instead, we could only benchmark against the risk-adjusted national core indicators to address the potential confounding issues. These indicators were developed for this purpose, enabling comparison of 'selected' groups of women who are expected to have reduced labour complications and better birth outcomes [26] with the aim of improving the quality of maternity care through benchmarking. Another limitation is the retrospective cohort study design with low internal validity and the inability to determine causality, noting that a randomised trial would not be feasible. However, all data were prospectively entered on a comprehensive database and the level of missing data was low. Efforts should be taken in the future to compare My Midwives to a better matched cohort with individual-level data to allow for adjustment of confounding variables. Further research could include women's experience of the model, the midwives' experiences of providing care and topics such as pathways for new graduates, workforce retention and burnout. Formal evaluations where My Midwives have partnered with First Nations organisations to provide care for First Nations families in two settings (urban and remote Australia) are underway.

Recommendations and implications for policy and practice

Despite the limitations, this study provides reassurance for all stakeholders regarding clinical outcomes with the financial data showing positive impacts on hospitals. Findings suggest waiving bed fees for women who do not have a private health insurance should be considered for all women. The private patient accommodation adjustment and private patient service adjustment [17] should also consider women's social and economic status and there should be no adjustment for women who do not have a private health insurance, as this acts as a disincentive for hospitals and scale-out. These strategies alone would help drive further uptake, make the service more equitable and could be

fast-tracked by jurisdictional government or local hospitals (bed-fees) and the Commonwealth (private patient adjustments) government.

Conclusions

My Midwives private midwifery service is the largest of its kind in Australia and an innovative model of care, in line with the woman centred care strategy [2] and the national health reform agreement [27]. Outcomes provide a reassuring evidence base for high-value best practice that support multidisciplinary care and enables greater access to homebirth and birth centres. Important implications for policy makers include urgent action to remove barriers restricting scale-out, most of which were recommended in the 2018 review of Medicare for midwives. With the national shortage of midwifery reaching a crisis in some areas (e.g. remote and very remote Australia) this model could contribute as a workforce strategy.

Author contributions

YG submitted ethics application, cleaned and analysed the data, completed all the tables and figures, and drafted the manuscript; SK conceived the study, interpreted the data, drafted and substantially revised the manuscript; LW conceived the study, drafted and reviewed the manuscript; AT drafted the manuscript; AQ, LR, MW reviewed the manuscript.

Ethical statement

Ethics was granted from Charles Darwin University Human Research Ethics Committee (H23003, approval date February 9, 2023).

Funding

The study received not funding.

Conflict of interest

Four authors (LW, AQ, LR, MW) work at the My Midwives. YG and SK declare no conflicts of interest.

Acknowledgements

We thank the midwives and administrators who facilitated the data extraction from My Midwives. Special thanks for A/Prof Cameron Hurst for statistical advice on this paper. There was no funding source for this project.

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.wombi.2024.101591.

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