



Freestanding midwifery units: Maternal and neonatal outcomes following transfer

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ABSTRACT

Background: the viability of freestanding midwifery units in Australia is restricted, due to concerns over their safety, particularly for women and babies who, require transfer.

Aim: to compare the maternal and neonatal birth outcomes of women who planned, to give birth at freestanding midwifery units and subsequently, transferred to a tertiary maternity unit to the maternal and neonatal, outcomes of a low-risk cohort of women who planned to give birth in, tertiary maternity unit.

Methods: a descriptive study compared two groups of women with low-risk singleton, pregnancies who were less than 28 weeks pregnant at booking: women who, planned to give birth at a freestanding midwifery unit ($n=494$) who, transferred to a tertiary maternity unit during the antenatal, intrapartum or postnatal periods ($n=260$) and women who planned to give, birth at a tertiary maternity unit ($n=3157$). Primary outcomes were mode, of birth, Apgar score of less than 7 at 5 minutes and admission to, special care nursery or neonatal intensive care.

Key findings: the proportion of women who experienced a caesarean section was lower, among the freestanding midwifery unit women who transferred during the, intrapartum/postnatal period compared to women in the tertiary maternity, unit group (16.1% versus 24.8% respectively). Other outcomes were, comparable between the cohorts. Rates of primary outcomes in relation to, stage of transfer varied when stratified by parity.

discussion: these descriptive results support the provision of care in freestanding, midwifery units as an alternative to tertiary maternity units for women, with low risk pregnancies at the time of booking. A larger study, powered, to determine statistical significance of any differences in outcomes, is, required.

Introduction

Each year, approximately 300,000 women give birth in Australia (Australian Institute of Health and Welfare, 2015). The concept of safely giving birth in Australia has become inherently linked with immediate, onsite access to specialist obstetric, paediatric and anaesthetic support (Hunt and Symonds, 1995; Tracy et al., 2006; Australian Health Ministers' Advisory Council, 2008). As a result, many small maternity units have closed in Australia over the last 10 years, leaving a gap in affordable, accessible and equitable primary level maternity services (Reiger, 2006; Kildea et al., 2010). Freestanding midwifery units (FMUs)- which are maternity units managed by midwives with no obstetric, anaesthetic or paediatric support available on site- are well placed to fill this gap. Freestanding midwifery units work within an

integrative, collaborative services framework, and have an established referral pathway with a tertiary maternity unit in the event of need for medical consultation and transfer (Birthplace in England Collaborative Group, 2011; Overgaard et al., 2011; Monk et al., 2014). Despite this there are concerns over the safety of planning to give birth at a location that requires transfer via car or ambulance in the event of an obstetric emergency. Although FMUs play an important role in maternity service provision in countries including England and New Zealand (Birthplace in England Collaborative Group, 2011; Grigg et al., 2014), they barely feature in the Australian maternity landscape due to concerns over their safety (Monk et al., 2013a).

The Evaluating Midwifery Unit (EMU) study was the first study to evaluate FMUs in Australia. It was prospective cohort study of maternal and neonatal outcomes associated with the intention to give

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birth at FMUs in New South Wales compared to the outcomes of similar low risk women who planned to give birth in tertiary maternity units (Monk et al., 2014). It formed part of a larger prospective cohort study on freestanding midwifery units in Australia and New Zealand (Grigg et al., 2015a, 2015b). The results of the study support the provision of care in FMUs as an alternative to high risk settings for women with low risk pregnancies- with FMUs associated with similar or reduced odds of intrapartum interventions (including caesarean section) and similar or improved odds of indicators of neonatal wellbeing (Monk et al., 2014). These findings concur with a broad range of international evidence that supports the provision of primary birthing services to women with low risk pregnancies (Birthplace in England Collaborative Group, 2011; Davis et al., 2011; Overgaard et al., 2011).

Transfer from FMU to tertiary maternity units is relatively common; the EMU study reported an overall rate of transfer of 51.8%, with 34% of women planning to give birth in an Australian FMU transferring during the antenatal period and 16.8% transferring during the intrapartum/postnatal period (the stage of transfer for 1% of women was unknown) (Monk et al., 2014). These findings concur with the New Zealand arm of the EMU study, which reported that a similar proportion of women transferred during the antenatal and intrapartum/postnatal periods (28.5% and 17.3% respectively) (Grigg et al., 2015b). The rates of intrapartum/postnatal transfer in other international studies were also similar to the Australian arm of the EMU study: 16.3% in Denmark (Overgaard et al., 2011), 21.9% in England (Birthplace in England Collaborative Group, 2011).

There is much concern about the safety of women and babies who require transfer, and Australia data around this issue is scant. The clinical outcomes of mothers and babies who transferred from a small rural Primary Maternity Unit in Queensland compared to routinely-collected state data (n=61,027 births in 2010) were reported by Kruske et al. (2015). This Primary Maternity Unit functioned in a very similar way to FMUs apart from the occasional increase in capacity to perform instrumental births and caesarean sections by doctors. The retrospective, descriptive study reported that 138 of the 506 women who planned to give birth at the Primary Maternity Unit transferred to the tertiary referral hospital. For the 66 women who transferred antenatally, the proportion of birth interventions including caesarean section (31.8%) and instrumental birth (6.1%) were lower than for all women who gave birth in Queensland in 2010 (33.6% and 9.6% respectively), and the rate of vaginal birth higher (62.1% versus 56.9% respectively). The inverse was the case for the 58 women who transferred during the intrapartum period, with 39.7% of women who transferred intrapartum experiencing caesarean section versus 33.6% of women in Queensland, 15.5% experiencing instrumental birth versus 6.1% in Queensland and 44.8% experiencing vaginal birth versus 56.9%. The incidence of Apgar scores of less than 7 at 5 minutes for livebirths of women who transferred was unable to be compared to state-wide data due to small cell sizes in the transfer groups. The results of this important study ‘challenge the notion that birthing services can only be offered in rural areas with onsite surgical capacity’ p1 of (Kruske et al., 2015), however the generalization of these findings to maternity units that only operate within the scope of FMUs is limited.

The aim of this study was to compare the maternal and neonatal birth outcomes of women who planned to give birth at FMUs and subsequently transferred to a tertiary maternity unit, to the same outcomes in a similar low-risk cohort of women who planned to give birth in a tertiary maternity unit. It is anticipated that the findings will contribute to the evidence on the safety of FMUs.

Methods

Study design

A descriptive study compared the maternal and neonatal outcomes

of women who transferred from freestanding maternity units and women who planned to give birth in tertiary maternity units.

Setting

The study was carried out in two different types of maternity units: FMUs and tertiary maternity units. Two FMUs in regional and urban areas of New South Wales participated in the study. Women received antenatal, intrapartum and postnatal care from their midwifery group practice midwives, who worked in small groups and provide 24-hour on-call midwifery care. If the need for transfer to the referral tertiary maternity unit arose, the midwifery group practice midwife often, but not always, transferred with the woman and continued to provide midwifery care in the tertiary maternity unit (Monk et al., 2013b). The referral tertiary maternity units were approximately 15–20 km away from the FMUs; and transfer time was estimated as being between 15 minutes and 65 minutes depending on traffic conditions. Intrapartum and postnatal transfers occurred via car or ambulance depending on the urgency of the transfer.

Tertiary maternity units offer care to women of all risk status, and are staffed by midwives, obstetricians, neonatologists and anaesthetists 24 hours a day (Nsw Health Department, 2002; NSW Health Department, 2003). The two tertiary maternity units used as comparators in this study were the referral hospitals for the freestanding midwifery units described above. They had a very wide catchment area, spanning 75 hospitals in New South Wales (NSW Health Department, 2010 (Reviewed 2013)) and received women and babies transferred from all other maternity units in the catchment areas. Women received antenatal, intrapartum and postnatal care from a number of models of care, including obstetric and midwifery antenatal clinics, general practitioner shared care, birth centre and midwifery group practice (Monk et al., 2013b).

Ethics

The study was approved by the Hunter New England Human Research Ethics Committee, the Northern Sydney Local Health District Ethics Committee and The University of Sydney Human Research Ethics Committee (NSW HREC reference number: HREC/09/HNE/78).

Participant and data collection

Eligible women were those with low-risk singleton pregnancies who were less than 28⁺⁰ weeks pregnant at the time of commencement of antenatal care who planned to give birth at a participating maternity unit during the study period. For the tertiary unit cohort, women were classified as being at low risk of developing obstetric complications if they did not have any medical or previous obstetric complications that would require ongoing care from specialist doctors, as per the Australian College of Midwives (ACM) Guidelines for Consultation and Referral (Australian College of Midwives, 2013).

The FMU cohort consisted of women who planned to give birth at a FMU during the study period, and subsequently transferred to a participating tertiary maternity unit. All women booked to give birth at the FMUs were considered low risk and were included in the study, regardless of their specific ACM risk classification (Australian College of Midwives, 2013). This was a pragmatic decision made at the beginning of the study, because midwifery and obstetric teams from the FMUs work collaboratively with women to ensure their suitability to give birth at the FMUs. They used the ACM guidelines in conjunction with other information (such as detailed medical records and physical assessment) to determine, with the women themselves, whether they would be advised to proceed to give birth in a FMU and, if necessary, when to transfer.

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