

**Costing childbirth at home, in a birth centre or in a
hospital for women at low risk of pregnancy
complications in New South Wales, Australia**

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A thesis submitted for the degree of Doctor of Philosophy (Midwifery)

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CERTIFICATE OF ORIGINAL AUTHORSHIP

I, Vanessa L Scarf, declare that this thesis is submitted in fulfilment of the requirements for the award of Doctor of Philosophy, in the Faculty of Health at the University of technology Sydney.

This thesis is wholly my own work unless otherwise referenced or acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis. This research is supported by the Australian Government Research Training Program.

This document has not been submitted for qualifications at any other academic institution.

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Publications included in this thesis

Statement of contributions to jointly authored works contained in the thesis

The results from this thesis have been submitted for publication in peer-reviewed journals. Below is a description of the contributions made to the papers by the co-authors. I take full responsibility for the accuracy of the findings presented in these publications and this thesis. All authors have given permission for the publications to be incorporated into this PhD.

Thesis Format

This is a thesis by compilation and consists of seven chapters, five of which are papers; Chapters two to six. Chapters two, three and five are papers that have been published during my PhD candidature. Chapters four and six are currently under review. Publication details for each chapter are outlined below, together with a statement of contribution and percentage contribution for each author.

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Abstract

Background

There are three settings available to women in which to give birth in New South Wales: Home, birth centre and hospital. The cost of giving birth for women at low risk of complications in each of these settings is not known.

Aim

The aim of this study was to estimate the cost of giving birth for women at low risk of complications who are planning birth at home, in a birth centre or in a hospital in NSW from the perspective of the health service.

Methods

A cost analysis was conducted comprising four components. Firstly, two systematic reviews were conducted to examine the literature on 1) the safety of giving birth at home or in a birth centre, and 2) the cost associated with birth in these settings. Secondly, a decision tree framework was used to map the trajectories (or pathways) of women in New South Wales using linked health data. Thirdly, a micro-costing study employing time-and-motion observation along with resource use data collection via a unique data collection sheet was conducted. Finally, using the decision tree framework, a macro-costing analysis, the cost of the trajectories of the women who planned birth at home, in a birth centre or in hospital was estimated using Australian-Refined Diagnosis Related Groups (AR-DRGs).

Findings

Maternal and perinatal outcomes of planned place of birth were significantly better for women planning birth at home or in a BC, including higher rates of normal vaginal birth and lower rates of intervention and admission to the NICU for infants. The trajectories of women showed those who plan to give birth at home or in a BC have high rates of vaginal birth and women in all groups had low rates of intervention. When cost was explored, it was either less costly or the same to provide birth services at home or in a BC. The median micro-cost of providing care for women who plan to give birth at home, in a birth centre or in a hospital were AUD \$2150.07, \$2094.86 and \$2097.30

respectively. Macro costs using AR-DRGs for homebirth, BC and hospital birth were \$4748, \$4979 and \$5463 respectively.

Conclusion

Given the relatively lower rates of complex intervention and adverse neonatal outcomes associated with women at low risk of complications, expanding choices for women to give birth at home or in a BC would be less costly to the health system. However, what is required now is the political will and advocacy to progress the future planning of maternity service provision in New South Wales.