# Oxytocin and adrenaline spaces: midwives' perceptions and beliefs about the design of hospital birth rooms

A thesis presented in fulfillment of the requirements for the degree of Doctor of Philosophy, Midwifery

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**CERTIFICATE OF ORIGINAL AUTHORSHIP**

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

Signature of Student:

Date:

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# Abstract

## Objective

The objective of this study was to explore whether - and in what ways - the design of hospital birth units might influence midwives and their practice. To do this, the study aimed to elicit midwives' perceptions and beliefs about the design and aesthetics of hospital birth rooms. By exploring midwives' responses to their own varied workplaces, the study intended to increase understanding of design features and characteristics that can support the provision of quality midwifery care.

## Background

Workplace design is known to have functional, social and psychological effects on staff across many different professions and environments. The professional environment in which the majority of midwives work is the hospital. Health care staff working in hospitals are impacted upon by design, which can influence productivity and wellbeing. Midwives have previously identified that the hospital can be a difficult and stressful place to work. However, little research is available specifically examining midwives' perceptions and beliefs about the role that design of the physical environment plays in this phenomenon.

## Methods

This study used a qualitative exploratory descriptive methodology underpinned by the theoretical approach of critical realism. A total of 21 in-depth face-to-face photo-elicitation interviews were conducted with a sample of 16 midwives from one Australian hospital. The study site was a large tertiary hospital, which had recently undergone extensive renovation and rebuilding. Due to changes associated with rebuilding, the midwife participants had experience of working in a total of five differently designed hospital birth rooms. All interviews were audio-recorded, de-identified and transcribed verbatim. A thematic analysis was conducted using the study objectives as a guiding framework. Based on this analysis, theoretical conceptualisations were developed to examine relationships amongst the data.

**Findings**

Midwives were deeply affected by the design and aesthetics of hospital birth rooms. The overarching theme developed was that of 'oxytocin and adrenaline spaces'. Midwives used these terms to describe the design and aesthetics of rooms that were either supportive or stressful to work in. Based on this, a theoretical conceptualisation linking supportive design with enhanced wellbeing and efficacy and thus to better quality care provision was developed. This conceptualisation was premised on the known supportive effects of oxytocin on wellbeing and the known detrimental effects of stress on workplace efficacy.

Midwives reported that traditional hospital birth rooms did not effectively support activities and behaviours associated with high quality midwifery practice, particularly the facilitation of normal birth. Three design characteristics were identified that could increase support for midwifery practice in hospital birth rooms. They were friendliness, functionality and freedom. Friendly rooms reduced stress and increased feelings of safety. Functional rooms enabled choice and provided options. And freedom allowed for flexible, spontaneous and responsive midwifery practice. Birth rooms that possessed these three characteristics were perceived as having a salutogenic effect on midwives, reducing stress and enhancing the provision of effective care.

**Conclusion**

The design features and aesthetic characteristics of hospital birth rooms are extremely important to midwives. Developing and implementing supportive design can enhance midwives' wellbeing and may promote the provision of quality midwifery care. The design characteristics of friendliness, functionality and freedom can have a salutogenic effect upon midwives and should be considered when renovating, refurbishing or redesigning hospital birth rooms.

## Acknowledgements

Starting a PhD is easy. Finishing it is the hard part. I would never have either started or finished this project without the involvement of Professor Caroline Homer and Professor Maralyn Foureur. It was Caroline who gave me the confidence to start, and Maralyn who convinced me I had the capacity to finish. Together, they were a wonderful supervisory team and I am thankful to both of them for their consistent encouragement and excellent guidance. I also thank my third supervisor Professor Deborah Davis for her valued input and assistance at critical moments along the way.

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## Glossary of terms

A brief explanation of some terms used in this thesis.

**Active birth**: Labour and birth during which women remain upright and mobile, move freely and instinctively choose their own positions.

**Birth centre:** A small in-hospital or free-standing maternity unit, usually staffed by midwives and frequently offering a continuity of care model where women receive care from the same known midwife throughout pregnancy, labour, birth and the postnatal period. Historically associated with home like décor and a strong philosophy of supporting and facilitating normal birth. Positioned as an alternate option to traditional delivery suite but very limited access in Australia.

**Birth unit:** The section of the hospital where maternity services are delivered to childbearing women. In an Australian hospital you would expect direct labour and birth care plus assessment and treatment of pregnancy complications after 20 weeks to take place in the birth unit. Staffed by midwives and doctors working in rostered shifts. Facilities such as postnatal ward and special care (neonatal) nursery are sometimes co-located and may be referred to as part of birth unit.

**Delivery suite:** The area of the birth unit where direct labour and birth care is provided to women and their families. Traditionally designed with a central desk for midwives and a number of individual labour and birth rooms, each with their own bathroom. Midwives are the core staff providing care along with doctors, anaesthetists and paediatricians when required.

**Midwife:** An appropriately trained and registered health professional who is qualified to provide care to women throughout pregnancy, labour and birth and the postnatal period.

**Midwifery practice:** Encompasses the activities, behaviours and tasks that constitute the work of midwives. Includes the provision of clinical, physical and emotional care and is strongly associated with the philosophy of woman centred care.

**Quality midwifery care:** In this thesis, quality midwifery care means clinically appropriate and emotionally sensitive care that is provided to women during labour and birth. It also means care that is sustainable and safe for midwives and therefore does not compromise their wellbeing. Quality care is transacted between midwives and women and is therefore changeable and flexible. It is care that - as much as possible in any given instance - enables midwives to identify and meet the needs of individual women in a way that is congruent with midwifery philosophy and values.

**Normal birth**: A birth that takes place with little or no medical intervention. Precise definitions differ but generally accepted to mean a spontaneous active labour during which women move freely, do not use pharmacological pain relief, choose their own position(s) for pushing and experience a vaginal birth without complications. Also known as physiological or natural birth.

**Salutogenesis:** An approach developed to support the investigation of factors that promote human health and wellbeing, in particular the relationships between health, stress and coping. Often explained as the opposite of pathogenesis.

## Publications and activities during candidature

### Peer reviewed publications

**Hammond A,** Homer CSE, Foureur M. Friendliness, functionality and freedom: Design characteristics that support midwifery practice in the hospital setting. *Midwifery*, 2017, 50, 133-138.

**Hammond A**, Homer CSE, Foureur, M. Messages from Space: An Exploration of the Relationship between Hospital Birth Environments and Midwifery Practice. *Health Environments Research and Design Journal,* 2014, 7, 4, 81-95.

**Hammond A**, Foureur M, Homer CSE, Davis D. Space, place and the midwife: Exploring the relationship between the birth environment, neurobiology and midwifery practice. *Women and Birth,* 2013, 26, 277-281.

**Hammond A**, Foureur M, Homer CSE. The hardware and software implications of hospital birth room design: A midwifery perspective. *Midwifery,* 2013*,* 30, 7, 825-830.

## Media

**Hammond A**. Babies not burgers: Why we need better designed labour wards. The Conversation, 28 Feb, 2014. (https://theconversation.com/babies-not-burgers-why-we-need-better-designed-labour-wards-22300)

## Conference presentations

**Hammond A,** Miller S, Skinner S, Svenstrup H, Foureur, M**.** Changing spaces: the implications of birth room design in resource rich and resource poor settings. *International Confederation of Midwives Triennial Conference,* Toronto, Canada, 2017. Symposium presentation.

**Hammond, A.** Salutogenic workplace design: Can it support midwives in the birth room? *International Confederation of Midwives Triennial Conference,* Toronto, Canada, 2017. Oral presentation.

Foureur M, **Hammond A**, De Vroome M, Davis, D. Birth Unit Design (BUD) for midwives: So you want to build or renovate your birth unit? A workshop to develop your BUD skill set. *International Confederation of Midwives Triennial Conference,* Toronto, Canada, 2017. Skills workshop.

**Hammond A**. Designing for normal: How can the design of hospital birth rooms support normal birth*? Australian College of Midwives Victoria Branch Normal Birth Conference*, Ballarat, Australia, 2016. Oral presentation and workshop.

**Hammond A**, Foureur M, Homer C. Hospital Birth Room Design: A midwifery perspective. *International Confederation of Midwives Triennial Conference*, Prague, Czech Republic, 2014. Oral presentation.

**Hammond A**, Hart C, Foureur M. Designing for well women: Optimising outcomes and experiences through the design of hospital birth units. *Healthcare Design Conference*, San Diego, USA, 2014. Roundtable session.

**Hammond A**, Foureur M, Homer C, Davis D. The impact of birth unit design on midwifery practice. *Australian College of Midwives National Conference*, Hobart, Australia, 2013. Oral presentation.

## Seminars and workshops

**Hammond, A**. Hospital birth room design: What does it mean for midwives? *University of Technology Sydney Place of Birth Seminar*, Sydney, Australia 2016. Oral presentation.

**Hammond A**. Birth unit design: Changing the shape of things. *University of Technology Sydney Evidence Into Practice Seminar*, Sydney, Australia, 2014. Oral presentation.

**Hammond A**. Research into practice: A personal perspective. *University of Technology Sydney Research Into Practice Workshop*, Sydney, Australia, 2013. Oral presentation and workshop.

## Publications included in this thesis.

This thesis contains four publications. One appears in Appendix A and forms part of the background to the study. The other three appear as Chapters Six, Seven and Eight. The article in Chapter Eight is currently under review, the other three articles have been published in peer reviewed journals during my PhD candidature. In this section a statement of author contributions to each publication is provided. Appropriate permission has been received from the publishers to reproduce these publications here.

**Included as Appendix A**

Hammond A (AH), Foureur M (MF), Homer CSE (CH). The hardware and software implications of hospital birth room design: A midwifery perspective. *Midwifery,* 2013*,* 30, 7, 825-830.

| **Area of contribution** | **Estimated percentage of contribution** |
|---|---|
| Original concept | MF 50%; AH 50% |
| Study design | MF 70%; CH 20%; AH 10% |
| Conduct of field research | MF 60%; AH 40% |
| Analysis | AH 100% |
| Writing manuscript | AH 100% |
| Editing and revision | MF 20%; CH 20%; AH 60% |

**Included as Chapter Six**

Hammond A (AH), Foureur M (MF), Homer CSE (CH), Davis D (DD). Space, place and the midwife: Exploring the relationship between the birth environment, neurobiology and midwifery practice. *Women and Birth,* 2013, 26, 277-281.

| **Area of contribution** | **Estimated percentage of contribution** |
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| Original concept | AH 100% |
| Study design | AH 80%; MF 10%; CH 10% |
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| Writing manuscript | AH 100% |
| Editing and revision | AH 50%; MF 30%; CH 10%; DD 10% |

**Included as Chapter Seven**

Hammond A, Homer CSE, Foureur, M. Messages from Space: An Exploration of the Relationship between Hospital Birth Environments and Midwifery Practice. *Health Environments Research and Design Journal,* 2014, 7, 4, 81-95.

| **Area of contribution** | **Estimated percentage of contribution** |
|---|---|
| Original concept | AH 100% |
| Study design | AH 80%; MF 10%; CH 10% |
| Conduct of field research | AH 100% |
| Analysis | AH 100% |
| Writing manuscript | AH 100% |
| Editing and revision | AH 50%; MF 30%; CH 20% |

**Included as Chapter Eight**

Hammond A, Homer CSE, Foureur M. Friendliness, functionality and freedom: Design characteristics that support midwifery practice in the hospital setting. *Midwifery*, 2017, 50, 133-138.

| **Area of contribution** | **Estimated percentage of contribution** |
|---|---|
| Original concept | AH 100% |
| Study design | AH 80%; MF 10%; CH 10% |
| Conduct of field research | AH 100% |
| Analysis | AH 100% |
| Writing manuscript | AH 100% |
| Editing and revision | AH 50%; MF 30%; CH 20% |

No others, apart from those identified above, made contributions to this thesis or the publications within it.