

This article is downloaded from



CHARLES STURT
UNIVERSITY

CRO

CSU Research Output
Showcasing CSU Research

<http://researchoutput.csu.edu.au>

It is the paper published as:

Author: E. Dietsch, P. Shackleton, C. Davies, M. Alston and M. McLeod

Title: Mind you, there's no anaesthetist on the road': Women's experiences of labouring en route.

Journal: Rural and Remote Health **ISSN:** 1445-6354

Year: 2010

Volume: 9

Issue: 2 (1371)

Pages: 1-10p

Abstract: Introduction: The aim of this article was to learn from women in rural New South Wales (NSW) Australia, their experiences of labouring en route to birth in a centralised maternity unit. Methods: This qualitative study was exploratory and descriptive. It was part of a larger project that explored women's experiences when they birthed away from their rural communities. Participants were recruited from communities all over rural NSW where a maternity unit had closed. Forty-two female participants and three of their male partners shared their stories of 73 labours and births. This article draws on data collected during in-depth interviews with 12 participants and one partner who shared their experiences of labouring en route to a centralised maternity service. Interviews were audiotaped and transcribed verbatim for the purpose of thematic analysis. Exemplars, using the participants' own words and highlighting story are identified as a tool used for data synthesis and presentation. Results: Two themes were identified. These relate to the way the risk of dangerous road travel is ignored in obstetric risk discourse, and the deprivations experienced when women labour en route. An unexpected finding was the positive nature of one woman's experience of birthing by the side of the road. Conclusions: Many participants questioned why they needed to risk unsafe road travel when their preference was to labour and birth in their local communities with a midwife.

Author Address: edietsch@csu.edu.au pshackleton@csu.edu.au cdavies@csu.edu.au

malston@csu.edu.au

URL: <http://www.rrh.org.au/articles/subviewnew.asp?ArticleID=1371>

<http://www.rrh.org.au>

http://researchoutput.csu.edu.au/R/-?func=dbin-jump-full&object_id=14870&local_base=GEN01-CSU01

http://unilinc20.unilinc.edu.au:80/F/?func=direct&doc_number=001488638&local_base=L25XX

CRO Number: 14870

Original Research

'Mind you, there's no anaesthetist on the road': women's experiences of labouring en route

Submitted: 3 November 2009
Revised: 11 February 2010
Published: 12 April 2010

Author(s) : Dietsch E, Shackleton P, Davies C, Alston M, McLeod M.



Elaine Dietsch



Carmel Davies



Margaret Alston

Citation: Dietsch E, Shackleton P, Davies C, Alston M, McLeod M. 'Mind you, there's no anaesthetist on the road': women's experiences of labouring en route. *Rural and Remote Health* 10 (online), 2010: 1371. Available from: <http://www.rrh.org.au>

ABSTRACT

Introduction: The aim of this article was to learn from women in rural New South Wales (NSW) Australia, their experiences of labouring en route to birth in a centralised maternity unit.

Methods: This qualitative study was exploratory and descriptive. It was part of a larger project that explored women's experiences when they birthed away from their rural communities. Participants were recruited from communities all over rural NSW where a maternity unit had closed. Forty-two female participants and three of their male partners shared their stories of 73 labours and births. This article draws on data collected during in-depth interviews with 12 participants and one partner who shared their experiences of labouring en route to a centralised maternity service. Interviews were audiotaped and transcribed verbatim for the purpose of thematic analysis. Exemplars, using the participants' own words and highlighting story are identified as a tool used for data synthesis and presentation.

Results: Two themes were identified. These relate to the way the risk of dangerous road travel is ignored in obstetric risk discourse, and the deprivations experienced when women labour en route. An unexpected finding was the positive nature of one woman's experience of birthing by the side of the road.

Conclusions: Many participants questioned why they needed to risk unsafe road travel when their preference was to labour and birth in their local communities with a midwife.

Key words: Australia, midwifery, risk, rural/remote services, rural women's health, safety.

ARTICLE

Introduction

In the decade 1996–2006, 130 Australian rural maternity units closed throughout Australia¹. The option of birthing in their local community, as their own mothers had done, is denied to women living in 32 rural towns in the state of New South Wales (NSW) where maternity units have closed². In addition to economic reasons, closures have taken place in the complex context of health professional workforce shortages^{3,4} and the assumption in obstetric discourse which dates back to 1970, that safety is increased when a maternity unit is serviced by surgeons and anaesthetists⁵. However, there have been no published analyses of the risks of women travelling on dangerous roads for maternity care, nor has there been any formal examination of either the safety or the cost-effectiveness of rural maternity closures³. Multidisciplinary literature from Australia^{6–8}, Canada^{9–12}, New Zealand¹³, UK¹⁴, USA¹⁵ and Scandinavia¹⁶ refute the increased safety assumption and argue that, for healthy, low-risk women and their babies born in small rural units, health outcomes are at least equal to low-risk women using larger, fully serviced units. Furthermore, perinatal birth outcomes have not improved in Australia despite increased medicalisation, centralisation and technological advances^{17–19}. In contrast, remote Inuit villages in Canada where healthy women labour in their own communities supported by Inuit midwives, have perinatal outcomes comparable with and sometimes more favourable than Canada as a whole⁹.

Existing Australian literature has not focussed on the experience of women most affected by rural maternity unit closures. This article seeks to redress this deficit by answering the research question: 'What is the experience of women who laboured en route from their local rural community, where a maternity unit has closed, to a centralised maternity unit?'

Methods

The recruitment process for the larger study informing this study involved alerting media outlets serving towns where a maternity unit had closed to the purpose of the study. Potential participants were invited to contact the research team and many rural women's associations encouraged women to participate.

For the larger study, 42 participants from all over rural NSW shared stories of 73 births. This article draws on the experience of 12 of those participants, from a range of socio-economic and cultural backgrounds, who shared how they laboured en route to the centralised maternity unit. The majority of the interviews were conducted in the participants' homes in 2007 and 2008. Where this was not practicable, interviews took place at other venues nominated by the participants.

Each 30–90 min interview resembled a conversation with only 3 pre-determined interview questions that were relayed to participants as part of the consent process²⁰. These questions related to women being asked to share their experiences of pregnancy and birth; their experience of having to move away from their local communities to birth; and they were invited to add anything else that they considered significant or relevant. Interviews were audiotaped and transcribed verbatim. Each participant was given a pseudonym and no town or hospital was identified during data analysis and reporting. Participants were encouraged through non-directive, conversational prompting to explore the issues they raised in greater depth. For the purposes of this part of the study, the specific research question to be answered related to the women's experiences of labouring en route from their home community where the maternity unit had closed to a larger, centralised maternity unit. The significance of this study is embedded in the participants' accounts.

Thematic analysis and identification was attended by two research team members individually, themes identified by paired consensus were then cross-checked with the whole research team. Team consensus resulted in a refinement of themes for reporting and presentation purposes. The participants' narratives were utilised as exemplars to ensure the women's experiences remained the central tenet. Charles Sturt University Institutional Ethics Committee approval was granted for this project (2006/307).

Results and discussion

The results and the discussion section have been deliberately integrated to enable the participants' narratives to remain pivotal. Two major but interrelated themes were identified. These relate to how the risk of dangerous road travel is ignored in obstetric risk discourse, and the deprivations experienced by women when they labour en route. However, not all women experienced labouring en route as totally negative. One participant's experience is used to illustrate the positive nature for her of birthing by the side of the road. Finally, a highlighting story is used summatively as a paradigm case to illustrate the possible risks and deprivations experienced by women when they are forced to travel to a centralised unit to birth.

The obstetric discourse promoting the benefits of birthing in a centralised unit, while ignoring the risks of travelling en route, was questioned by some participants, including Belinda:

In a rural area where there is no service, we are putting 100% of women at risk. We are putting them at risk by forcing them onto the bitumen, driving when they're in labour, making decisions around scheduling their birth, putting them through emotional, huge emotional costs and financial costs for, at maximum, the 20% of women that would require medical care. Now, of that 20%, 1 to 2% absolute maximum, could endure a serious event during labour. Of that 20%, the vast majority of them would be screened out during pregnancy and would very safely be cared for at another facility, another service in a bigger area, and that would be totally appropriate. But yeah, 100% of women are being put in danger for then, if we pare it back, essentially one per cent of women. (Belinda)

Although most participants, unlike Belinda, did not question their need to travel, all were negatively impacted by their evacuation and believed the risks of travelling in labour were being ignored. During the interviews, all participants expressed fear and anxiety about birthing en route:

I certainly don't want to be stuck on the side of the road in the middle of nowhere, giving birth to my baby on the back seat. (Rose)

The perception of the participants was that birthing on the side of the road was a frequent occurrence, a real possibility for them and this increased their anxiety:

But the amount of girls that have had a baby on the side of the road ... there was a girl out that way, and her and her husband got in the car and away they went, and she had the baby somewhere between [town] and [town]. (Heather)

There is an erroneous assumption that all women will have access to transport. However, many women spoke of the lack of public transport in their area. Taxis, universally available in urban areas, would be prohibitively

expensive even if they were available for women in rural and remote NSW who had to travel to regional centres to birth:

I'm lucky, I've got a car, I've got that mobility. There's a lot of people in [town] that don't have that mobility. You know? And, as tough as finances are, I can still whack it on the Master Card and work out how I'm going to pay it, but, you know? Some people don't even have that option, and I think that that's really tough. (Janine)

Many participants questioned the paradox of being forced to risk unsafe roads in order to reduce the small, potential risk of birthing closer to their home communities:

They don't have an anaesthetist in town, so in the slight percentage of a chance that they need to do an emergency Caesar, they can't do that ... mind you, there's no anaesthetist on the road. (Zoe)

Travel on rural roads is inherently dangerous. There are few petrol or breakdown recovery services and mobile phone coverage is often non-existent. Driving with sun in the eyes, kangaroos and livestock on dirt and potholed roads were just some of the dangers described. These roads are dangerous at any time, but given the nature of labour and birth, the risks increase exponentially:

But yeah, the sun makes it difficult and the kangaroos and the drought and, you know? The livestock on the road. It's all, it's all a bit tough. (Isabelle)

I went into labour ... at 3 o'clock in the morning, it was dark and there was kangaroos on the road. ... [Maternity unit] is probably just over 200 kilometres, but 100 kilometres of that for me, is dirt ... It had been raining and we, we even had difficulties getting out of here ... we nearly got bogged on the way out. (Marie)

We got into the car at about 12.30 am ... hit our first roo. ... I opened my eyes to see the joey go flying across the windscreen. I thought, 'Oh, I don't need to see that right now.' ... So, we just took it easy and travelled in about 80 kilometres [an hour] ... We must have passed, that night, 250 kangaroos. ... every dam we passed, there'd be 10 that would jump out across the road. (Rose)

Women living in Western countries expect to labour and birth with professional support, choices in terms of birth planning and in a well-equipped environment (be it the hospital, birth centre or home). The participants in this study were no exception. Jane expressed disappointment at not being able to have a bath or her expected pharmacological pain relief needs met:

I got into the ambulance and I said to [ambulance officer], 'Can I have some drugs now, please?' And he said, 'No, you can't have any drugs.' And I said, 'I was led to believe that there would be drugs in this ambulance.' (Jane)

Rose had expected, or at least desired to have a known midwife:

I just think it's so important to build up a rapport with your midwife and if that midwife can be guaranteed to be your midwife during labour and then follow on through postnatally, I think you have such better outcomes for the mother.

(Rose)

Susan had visited the new hospital and met with some of the local midwives but her expectation that she would birth at the local hospital was denied. Susan said:

Why would you bother building something? Like, I wouldn't build a shed if I wasn't going to use it ... If you're not going to put tools in it, what's the point in building it? (Susan)

Participants in this study were forced to leave their home communities to birth and were many times robbed of their rights and expectations:

So I'm on all fours in the car, yelling at [partner] to rub my back ... And he's driving ... and rubbing my back with the other one ... I don't remember much about it. But, it's funny how, in labour, you shut out a lot of what else is happening around you, and the time. ...and I'd turned back over and sit down in between contractions and then like I'd have to turn over and say, 'Rub my back, rub my back.' Because we've got a manual car, he's having to change gears as well... The pain was just excruciating. (Susan)

Women intuitively seek out a place of perceived safety and protection to labour and an enabling environment is crucial to ensure best outcomes for women and newborns^{21,22}. The antithesis of a safe and protected labouring environment is a lonely road with not even mobile phone coverage. Zoe who has had a previous Caesarean section said:

No there wasn't [mobile phone coverage], not between [towns], so we couldn't ring until we got about five kilometres out of [small town] ... He did [try to get phone coverage] probably about every five minutes before we actually got through, but there was no service ... the speed that he was doing... It took us probably about an hour and a quarter doing that speed [with contractions every two minutes] . (Zoe)

Zoe spoke of her strong desire to have a vaginal birth after her previous Caesarean section. She had chosen a private obstetrician for this purpose. However, close to term she believed that experiencing a vaginal birth with her obstetrician's support was unlikely:

And so I'm fretting, thinking, 'Another Caesarean next week, I really don't want this.' (Zoe)

Zoe's labour started and, together with her partner and toddler, she commenced the 3 hour drive to the regional centre. En route, the labour became established and they stopped at a small rural hospital. Within 10 minutes of arriving, her baby was born vaginally:

Doctors tend to have a bit of an issue with Caesarean, having a vaginal birth after a Caesarean. And he looked at my card, 'Oh, you've had a Caesarean.' 'Yes I have, and there's not much I can do about it now, this baby's nearly here.' And that sort of calmed him down and he was right then. (Zoe)

Birthing at the small rural hospital was a completely unplanned event for Zoe. In retrospect, she believed her body was giving her the best chance of birthing vaginally by being at a small rural hospital rather than the larger private hospital. In this instance, Zoe was not feeling safe to travel on to the private institution where she had expected to be given another Caesarean section.

Although labouring while travelling was uncomfortable, Zoe expressed how giving birth vaginally had been a very positive experience:

And even [partner] has said to me that I've got my self-esteem back. (Zoe)

In contrast to Zoe, for Jane it became obvious that she was going to give birth many kilometres from any hospital. Her partner called an ambulance and although there was mobile phone coverage, unclear mapping caused a delay in the paramedics finding them:

And so we called the ambulance ... the ambulance actually rang back to check where we were, where our location was. So we scooted along [in ambulance] ... quite regular contractions and then they just sped up all of a sudden ... the ambulance just took off, they were doing about 160 kilometres. (Jane)

The participants in this study who laboured on the road had many deprivations, including their right to experience early labour in the safety of their own home before going to their chosen birthplace, once they were in established labour. Rather than being able to focus on their labour, the participants were contending with issues related to travel, the needs of accompanying children and the threats to both their own and their newborns' safety by possibly being born into a very dangerous environment:

I remember lying on the back seat with [toddler] and holding my hand through to [husband] and just squeezing every time a contraction was coming, so he could time it still ... we had lots of pillows. We tried to make it comfortable ... you feel all the bumps. (Mary)

Deprivations may cause disappointment; however, there are times when being deprived of a safe birthing environment can lead to dangers that threaten the lives of mother and baby.

Some participants questioned why they were forced to risk road travel. It was perplexing to many participants why their rural town once had a birthing service, but now has a well-equipped hospital with midwives on staff but no maternity services:

Brand new maternity built ... 4 years ago and the frustrating thing is it is not being used. (Rose)

Participants spoke of their desire to birth locally and believed a midwifery model of care was the most realistic, acceptable and appropriate means of achieving this:

I have a lot of confidence in the midwives ... As long as I know they are ... up to date with everything ... there were enough midwives. (Polly)

Midwives, or, you know, so that you can go for regular check-ups with someone who knows what is going on, not just an ordinary GP. (Michelle)

I want to say on behalf of rural women, that rural women are crying out for support, and with half the chance, with the education and with actually the midwifery service available, not only would we see much better outcomes clinically, we would be establishing families in a far more supportive way, and mothering... So, really, just to, let's put the commerce aside and let's actually put women central to this, because I know that, with the option, women would basically flock to these services. (Belinda)

Given that the average travelling time to the planned birthplace was almost 4 hours (3 hours 51 min), it is not surprising that 12 of the 42 women (29%) in the larger study were labouring en route and five (12%) birthed before arrival. One woman had an unplanned homebirth; one woman birthed on the side of the road; one woman birthed in the ambulance en route; and two gave birth in small hospitals en route, including one who had had a previous Caesarean section.

When women need to be evacuated from their own communities to labour and birth, they have the dilemma of choosing between undesirable alternatives – travelling in labour or possibly spending many weeks in the town where they will birth. Describing her birth experience en route to the maternity unit, Natasha said:

We got to [two small towns] and they were still 5 minutes apart, but they were fairly intense ... because I hadn't been through that last stage of giving birth [with first child] I thought I would be right. So I kept going ... we wanted to make it to [large town]. And I wasn't right. ... We got to the other side of [next town] and I got out of the car and I just could not get back in. [Husband] said, 'Come on, let's get back in. Come on, we're nearly there, we're nearly there.' And I couldn't ... I was pushing ... ready ... for [baby] to come out ... I thought ... we'll make it there, but we didn't ... [Husband] was on the phone to 000 and they were talking ... what to do ... I was standing outside of the car, it was 9 degrees ... about half past five in the morning. (Natasha)

Of particular interest in this scenario are two concepts. Firstly, there is the risk of hypothermia for mother and baby with the temperature being only 9°C:

I was comfortable standing up ... sort of leaning over the front seat of the car ... because everything was happening, I wasn't cold, even though it was 9 degrees. (Natasha)

Secondly, in retrospect this woman found birthing en route to

be a much more empowering experience than giving birth in a well-equipped hospital with an epidural in situ:

It was that easy ... I was on all fours ... that was the most comfortable position ... Because I had an epidural with [first child], I didn't think I'd give birth ... as natural as that. I didn't think I could do it. But I had no choice, I had no drugs whatsoever. And after I'd done it, I just felt so proud that I could do it. And you don't need drugs ... I didn't even feel like I had given birth ... it just seemed like a natural, the natural thing. (Natasha)

However, Natasha's resilience and resourcefulness should never be excuses for

allowing a situation to remain unchallenged.

The experience to follow is presented as a highlighting story. Although it is the experience of only one participant and her partner, it provides a practical synopsis of the possible risks and deprivations experienced by women living in rural and remote areas when they are forced to travel to a centralised unit to birth.

Highlighting

story

Nadine and her partner, Billy, left their home to travel 4 hours to the base hospital. They left behind six children in the care of an elderly couple. The woman was recovering from a heart attack and Nadine and Billy were extremely reluctant to leave their children with this couple for fear of worsening her condition. However, the only other alternative was for the children to be split up and put into foster care. This scenario was abhorrent to Nadine, Billy and the elderly couple. This was the first time Nadine and Billy had left any of the children overnight, without either of them being readily available and the experience of leaving was very traumatic, especially for Nadine.

They left at night in a car that usually travelled on one tank of petrol to the town where Nadine was to birth. Soon after leaving, Billy and Nadine noticed the car was experiencing mechanical problems but neither mentioned it, in order to try to protect each other from worry:

Our car was actually playing up and like ... would have been ... it took about 10 minutes to get it up to 100 kilometres per hour, actually. Yeah, literally, it took that long, but, yeah, I was praying to God that nothing happened along the way because the car couldn't go any faster ... And I was praying that the car would hold together ... so here's a story for you, 25 kilometres out of town we broke down.

Billy left Nadine in the car in the middle of the night and started walking the 25 km into town to try to get petrol. Billy actually walked 22 km with his petrol can before he was given a lift back to Nadine who was waiting in the car:

Because usually the car gets to [regional city, 4 hours drive away] on one tank of fuel ... Yeah, I walked ... Yeah, nobody would stop, probably because I was [Aboriginal] ... Walking along the [road] with a jerry can ... You'd have to be, like, a big tough bloke to get out ... Not many people would stop at 2 o'clock in the morning ... people drove past, I had people shouting out the window, actually. I don't know what they're saying ... and I was walking as fast as I could ... so it took me a good 3 hours ... And luckily there was a, you know, a man pulled up. He was from [home town] he knew a lot of people from [home town] and yeah, he took me to the service station, and he drove me back. And he didn't accept any money off me.

Nadine was extremely frightened in the car in the middle of the night on a rural road and she tried to hide in the back seat so that no one would see her:

And here, I'm sitting in the car ... I'm actually sitting down in case anyone drives by ... I'm laying down in the car so when people drive past they won't see a young girl sitting there ... Turn all the lights off, just in case. People can be awful... People can be awful, you know? What about if they stopped to see what the car was doing there and ... you know? I might get kidnapped... And yeah, the service wouldn't work on his phone... I was very anxious, very, very anxious. I ended up literally hiding down in the car... I put my head on a pillow and ... I was literally down ... I thought, 'if I keep myself low' because cars kept

going past and I thought ... I thought if they go past and see me sitting there, they might come back again, like, they might try and help or they might want to be mean.

The participants' narratives highlight how forced evacuations from rural areas to birth are increasing risk, anxiety and deprivation. The participants' desire for midwifery-led care to enable them to birth in their local communities is backed by evidence demonstrating the safety of midwifery-led care for healthy women and their newborns. A 2008 Cochrane Database systematic review²³ concluded that all women should have the right to access midwifery-led care and they should be encouraged to seek out this option.

The small number of participants and the exploratory nature of the study do not allow for generalisations to be made. However, the experiences they described are so profound that they cannot be ignored. This is the first study to explore women's experiences of being forced to evacuate from their rural and remote NSW areas to birth. What has been discovered is a health system that discriminates against pregnant women and their rurality. The current maternity policy that inevitably leads to a significant number of women labouring on dangerous roads en route to a centralised maternity unit is not serving them well.

Conclusion

It is acknowledged that the provision of maternity services in rural areas is complex. The re-opening of closed units will require not only political will but enhanced allocation of resources and incentives for midwives as well as GPs to live and practise competently and confidently in rural areas. However, the experiences and preferences must be considered if Australian women are to labour and birth with a skilled birth attendant in an enabling environment. The participants' desire for midwifery-led care to enable them to birth in their local communities is backed by evidence demonstrating the safety of midwifery-led care for healthy women and their newborns, compared with other models of care. The closure of maternity units in rural NSW must stop. We conclude that infrastructure must be provided to re-open many that have been closed if the risks of unsafe road travel and the deprivations experienced by rural women are to be reduced.

Acknowledgments

This study was funded by the Nurses and Midwives Board of New South Wales. The authors' appreciation is expressed to all 42 women who so generously shared their experiences.

References

- 1.** National Rural Health Alliance. *Principles for maternity care in rural and remote Australia*. Position statement. Canberra, ACT: NRHA, 2006.
- 2.** Australian Rural Nurses and Midwives. *Coonabarabran one of many: closure of maternity units in the bush*. Media release. Sydney, NSW: ARNM, 2007.
- 3.** Australian College of Midwives. *Rural maternity services*. Position Statement. Canberra, ACT: ACM, 2007.
- 4.** Roxon N. *Audit of health workforce shortage in rural and regional Australia*. Canberra, ACT: Department of Health and Ageing, 2007.
- 5.** Department of Health. *The Peel Report*. London: Her Majesty's Stationery Office, 1970.

- 6.** Cameron B, Cameron S. Outcomes in rural obstetrics, Atherton Hospital 1991–2000. *Australian Journal of Rural Health* 2001; **9**: S39-42.
- 7.** Tracy S, Sullivan E, Dahlen H, Black D, Wang Y, Tracy M. Does size matter? A population-based study of birth in lower volume maternity hospitals for low risk women. *British Journal of Obstetrics and Gynaecology* 2006; **113**: 86–96.
- 8.** Scherman S, Smith J, Davidson M. The first year of a midwifery-led model of care in far north Queensland. *Medical Journal of Australia* 2008; **188(2)**: 85-88.
- 9.** van Wagner V, Epoo B, Nastapoka J, Harney E. Reclaiming birth, health and community: midwifery in the Inuit villages of Nunavik, Canada. *Journal of Midwifery Women's Health* 2007; **52(4)**: 384-391.
- 10.** Gryzbowski S, Cadesky A, Hogg I. Rural obstetrics: a 5-year prospective study of the outcomes of all pregnancies in a remote northern community. *Canadian Medical Association Journal* 1991; **144(8)**: 987-994.
- 11.** Rourke J. Trends in small hospital obstetrical services in Ontario. *Canadian Family Physician* 1998; **44**: 2117-2124.
- 12.** Kornelsen J, Grzybowski S. Obstetric services in small rural communities: what are the risks to care providers? *Rural and Remote Health* **8**: 943. (Online) 2008. Available: <http://www.rrh.org.au> (Accessed 20 September 2009).
- 13.** Rosenblatt R, Reinken J, Shoemack P. Is Obstetrics safe in small hospitals? Evidence from New Zealand's regionalised perinatal system. *Lancet* 1985; **24(2)**: 429-432.
- 14.** Moster D, Lie R, Markestad T. Neonatal mortality rates in communities with small maternity units compared with those having larger maternity units. *British Journal of Obstetrics and Gynaecology* 2001; **108**: 904-909.
- 15.** Leeman L, Leeman R. Do all hospitals need cesarean delivery capability? An outcomes study of maternity care in a rural hospital without onsite cesarean capability. *Journal of Family Practice* 2002; **51(2)**: 129-134.
- 16.** Viisainen K, Gissler M, Hemminki E. Birth outcomes by level of obstetric care in Finland: a catchment area based analysis. *Journal of Epidemiology and Community Health* 1994; **48(4)**: 400-405.
- 17.** Australian Institute of Health and Welfare. *Rural, regional and remote health: a study on mortality*. AIHW cat. no. PHE 45; rural health series no. 2. Canberra, ACT: Australian Institute of Health and Welfare, 2003.
- 18.** Trewin D, Madden R. *The health and welfare of Australia's Aboriginal and Torres Strait Islander peoples*. Canberra, ACT: Australian Bureau of Statistics and Australian Institute of Health and Welfare, 2005.
- 19.** Hancock H. Low birth weight in Aboriginal babies – a need for rethinking Aboriginal women's pregnancies and birthing. *Women and Birth* 2007; **20(2)**: 77-80.
- 20.** Dietsch E, Davies C, Shackleton P, Alston M, McLeod M. *Luckily we had a torch: birthing in rural and remote NSW*. Wagga Wagga, NSW: Charles Sturt University, 2008.
- 21.** Uvnas Moberg K. *The oxytocin factor: tapping the hormone of calm, love and healing*. Cambridge, MA: Da Capo Press, 2003.
- 22.** Foureur M. Creating birth space to enable undisturbed birth. In: K Fahy, M

Foureur, C Hastie (Eds). *Birth territory and midwifery guardianship: theory for practice, education and research*. Sydney, NSW: Elsevier, 2008; 57-78.

23. Hatem M, Sandall J, Devane D, Gates S. Midwife-led versus other models of care for childbearing women. *Cochrane Database of Systematic Reviews* 2008; Issue 4. Art. No: CD004667. DOI: 10.1002/14651858.CD004667.pub2.

© Elaine Dietsch, Pamela Shackleton, Carmel Davies, Margaret Alston, Margaret McLeod 2010
A licence to publish this material has been given to Deakin University, <http://www.rrh.org.au>