What have we learned from the Australian Rural Birth Index study?

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This paper presents the findings of an NHMRC funded investigation which began as an exercise in testing a Canadian developed maternity services planning tool for its utility and validity in Australia. A number of us, subsequently researchers on this grant managed to successfully lobby to get an evidence based planning tool included in our National Maternity Services plan, now defunct. However it did mean that there were some additional funds from this source to add to NHMRC’s budget for rural and remote research into maternity care. We applied through the usual NHMRC granting process and were successful in undertaking research that has developed an evidence based planning tool for Australia. This study also spawned other related studies, two identified here that improve greatly our knowledge of rural and remote birthing services in Australia. The goal of this paper is to provide the context within which this research occurred, so people start to understand the magnitude and severity of this issue, but also summarises what we found. The research describes, explains and provides an evidence-based strategy to deal with planning and reviewing birthing services in an improved manner.

Background

This study sits within the context of really quite rapid closure of birthing units, particularly in rural and remote Australia with up to 255 or a 41% closures and reduction in maternity services in Australia over the last 20 years (1, 2, 9). An earlier Canadian study, led by our Canadian researchers on this grant, looked at population data for over 49,000 women and newborns living in rural catchments. They found adjusted odds ratio of perinatal mortality for newborns from catchments greater than 4 hours from services was 3.17 (95% CI 1.45-6.95). Newborns from catchments 2 to 4 hours, and 1 to 2 hours from services, without specialist services, generated rates of 179 and 100 neonatal nursery care per thousand births compared to only 42 days for newborns from catchments served by specialists. Their conclusions were that rural women who have to travel to access maternity services have increased rates of adverse perinatal outcomes (3).

Primary Maternity Units (PMUs) offer less expensive and potentially more sustainable maternity care, with comparable or better perinatal outcomes for normal pregnancy and birth than higher level units (4, 5). Despite this, little is known about how these maternity services operate in rural and remote Australia, in regards to location, models of care, service structure, support mechanisms or sustainability. A descriptive cross-sectional survey was undertaken to investigate primary maternity units working in rural and remote Australia. This study aimed to confirm and describe how they operate and was led by Kruske, another chief investigator on this grant (6). Simple descriptive statistics and thematic analysis of free text answers provided information from the only 17 primary maternity units we were able to identify, that remain in rural and remote Australia. All of the 17 completed the survey. The PMU users were on average 56 km or 49 minutes from the referral service. They provided care annually to around 60 birthing low risk women with closures or downgrading of the services common (6). Interestingly, medically led care was the most widely used model, despite the PMU service internationally generally being a 41% led by midwives (7, 8). Sustainability was seen to be a high risk, as was overreliance on medical leadership and under-utilisation of midwifery caseload care.
Evidence suggests the closure of maternity units is associated with an increase in babies born before arrival (BBA). A study led by chief investigator on our Australian rural birthing index study explored the association between the number of closures of maternity units in Australia and Queensland by babies born before arrival in her own research she led (9). She looked at the BBA rate and geographic remoteness of the health district where the mother lives. This study was a retrospective investigation of routinely collected perinatal data. It showed that the closure of maternity units over a 20 year period across Australia and Queensland is significantly associated with an increased BBA rate. While the BBA rates are not only limited to rural and remote areas, they do indicate the high risk of adverse outcomes associated with BBA that are concentrated rurally. This association means we need to rethink the closure of units.

A widely held view of planners and senior bureaucrats is that safe maternity services in rural Australia require 24-hour on-site surgical and anaesthetic capability. A related study initiated and led by Kruske, also a chief investigator on this ARBI grant, investigated three years of activity (2009-2011) of a rural maternity unit approximately 1h from the nearest surgical service (10). This retrospective study utilised contemporaneously, purposefully collected audit data, routinely collected data and medical chart review. This rural unit was providing care to twice as many young women and almost 5 times the average aboriginal and Torres Strait Islander cohort as most Australian units. Of the total of 506 women booked to receive care through a midwifery group practice 74.5% gave birth at the local facility as planned. They, similar to those that were transferred in a timely manner, had excellent outcomes.

Our study

There were challenges in sourcing information to establish a national and accurate picture of maternity services (11). Jurisdictions use varied, and different frameworks to describe services and service networks appeared to be relatively idiosyncratic, based on a combination of individual relationships, geography and transport infrastructure. The absence of consistency and readily available comparable information on rural and remote maternity services nationally has implications for policy, safety and quality as well as planning. Accountability, certainly at a national level (11), is compromised. Other preliminary work with the literature confirmed the value of evidence based planning tools that can be used to establish a rational base for services (12).

Careful work with our statisticians, using data from around the 170 rural and remote birthing facilities we were able to identify across Australia (11), demonstrated that we can develop a mathematically valid planning tool for Australia based on the principles and initial work undertaken in Canada. The paper demonstrating how we did this has just been accepted for publication (13). While this research was useful we also learned from field work also attached to this grant that examined the utility and credibility of this tool with local bureaucrats and planners (13). Fieldwork was conducted in four jurisdictions at nine sites in rural (n=3) and remote (n=6) Australia with 117 health service employees and 24 consumers (14). We found that the application of this formula requires not only judgement but also contextual analysis. It was very evident when we talked to planners and senior executives within health services that the calculation by itself was insufficient. So we also developed, scrutinised and, assisted by an expert group, a toolkit to apply this planning tool. The Australian Rural Birthing Index Toolkit (14) is an evidence-based guide to assessing the appropriate level of maternity service for rural communities with populations of 1,000-25,000. The Toolkit combines instructions for calculating the ARBI mathematically with questions planners can use to assess contextual and pragmatic issues that impact the ability to deliver sustainable health services in a given rural community.
http://www.ucrh.edu.au/wp-content/uploads/2014/07/ AUSTRALIAN-RURAL-BIRTH-INDEX-TOOLKIT-FINAL-24Sep2015.pdf. The toolkit has now been used in three States, we have assisted with this process and are delighted that it is being useful. The calculation enables local regional health services or state ministries or departments assess the viability and appropriateness of the service for a population. While in the past we imagined this would be used mostly to either reopen or ensure services that could be justified numerically were not closed, it is also being useful to demonstrate how difficult it is to sustain a service if birth numbers are very few. This requires an active, community engaged problem-solving process not only the application of a formula.

What we found in our fieldwork across 4 states and territories was surprising (paper in preparation; Maternity services for rural Australia: barriers to operationalising national policy). Closure of services seems to have occurred very quickly and without understanding the consequences for the local population or actually the health service itself. There was not only an absence of evidence in relation to planning decisions about whether a service existed or not, but jurisdictional differences. Some States were more likely to have services than others. The ones that had fewer services, did not appear to tie their decision making to “need”. Neither numbers of births from the local population nor population vulnerability, determined by sociodemographic or clinical definitions of ‘need’, was the rational for the existence of or nature of services. This was also surprising and unexpected (13).

We learned about the challenges of applying an evidence based tool through fieldwork (see footnote for title) which also taught us lessons that were not necessarily anticipated. For example the struggle to get good clinical governance of rural and remote health services. It was surprising to find during fieldwork that a regional hospital with staff specialists and registrars was not supporting small town services only a hundred kilometres or so away (15). In many cases the regional service centre had abdicated responsibility to local GP proceduralists, without planning for circumstances such as these practitioners leaving; therefore the service just closed (15). Solutions such as keeping services open with a viable midwifery workforce and regional support were not considered and, at the same time, the additional births occurring at the regional centre were often problematic and outside the numbers planned for in facilities of through the staff base. Even more distressing for those of us as clinicians doing fieldwork was the lack of support or clinical governance for those GPs undertaking procedural work without support, guidance or monitoring (15, 16). The absence or poor quality of networking in many cases, for example regional services rarely working with smaller services compounded the problem of clinical governance. The value of networks that reach out from regional hubs appear not only to be common sense but essential and their absence in most cases was surprising.

Finally ‘risk’ was an important finding from our fieldwork; where a fallacious or, at least poorly informed, sense of risk often influenced decisions. These decisions, in and of themselves, often added risk. We found most medical practitioners and health service managers perceived clinical risks related to rural birthing services related to absence of local caesarean section. Consumer participants and midwives however were more likely to emphasise social risks arising from a lack of local birthing services. Our data showed that closure of services adds social risk, which actually exacerbates clinical risk (16). There was little understanding that the closure of a service would be related to non-qualified staff being presented with unplanned births that arrived on the doorstep of a health centre or small hospital, or the impact of births that are unplanned occurring alongside the road. While women described being put under pressure to move to the regional service prior to the expected birth date, there was little sense of the financial or personal cost this put onto families. Analysis showed that perceptions of clinical risk are privileged over social risk in decisions about rural and remote maternity service planning without understanding how they are actually linked (16). Formal risk analyses should
consider the risks associated with failure to provide birthing services in rural and remote communities as well as the risks of maintaining services.

References


13. Margaret Irene Rolfe, BSc, MStat, PhD; Deborah Anne Donoghue, PhD; Jo M Longman, MPH, PhD; Jennifer Pilcher, BN, MPH; Sue Kildea, BN, BM, BHSc (Hons 1), PhD; Sue Kruske, BThSc (Hons), PhD; Jude Kornelsen, PhD; Stefan Grzybowski, MD, CCFP, FCFP, MCISc; Lesley Barclay, PhD; Geoffrey Gerard Morgan, PhD; The distribution of maternity services across rural and remote Australia: does it reflect population need? Under review BMC Health Services Research


Presenter

Emeritus Professor Lesley Barclay was until recently the Director of the Centre for Rural Health (North Coast) for Sydney University. She is known as an educational leader, health services researcher and systems reformer whose projects have improved maternal child health services in urban and remote
Australia and internationally. Professor Barclay has been and remains an investigator on NHMRC and ARC grants with most of those awarded in recent years being rural, remote or Indigenous focused. Dr Barclay’s national leadership was exemplified in her role as chair and most recently deputy chair of National Rural Health Alliance; an organisation of 33 peak rural health bodies. She is also known for her international expertise and advice, for example leading AusAID and World Bank projects in Asia and the Pacific. Most recently she has worked as a short-term technical advisor to WHO on a report on maternal child health services provided by WHO to nations in the region. She has just resigned from a role as a Board member on the North Coast Local Health District Board and until 2015 was on the region’s Medicare Local Board. Lesley Barclay is known for her mentoring and training, exemplified by 12 of the 35 PhD students she has supervised over the last decade being appointed as professors in midwifery or maternal child health. Professor Barclay has edited two books, written three book chapters, published 56 refereed papers in the last five years and written or contributed to numerous government or agency reports. Lesley was awarded an AO in 2004 in recognition of her contribution to professional and international development and child health. She is one of the very few Distinguished Fellows of the Australian College of Midwives and one of the few women designated a Samoan Chief, recognising her work in that country.