Maternity services for rural and remote Australia: barriers to operationalising national policy

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Highlights
• National policy intends woman-centred rural maternity services should continue
• A considerable gap exists between this intent and services at local level
• Barriers to operationalising this intent include lack of leadership and workforce planning
• Barriers to operationalising policy intent may be eased by using a planning Toolkit

Abstract

Introduction

In Australia, many small birthing units have closed in recent years, correlating with adverse outcomes including a rise in the number of babies born before arrival to hospital. Concurrently, a raft of national policy and planning documents promote continued provision of rural and remote maternity services, articulating a strategic intent for services to provide responsive, woman-centred care as close as possible to a woman’s home. The aims of this paper are to contribute to an explanation of why this strategic intent is not realised, and to investigate the utility of an evidence based planning tool (the Toolkit) to assist with planning services to realise this intent.
Methods

Interviews, focus groups and a group information session were conducted involving 141 participants in four Australian jurisdictions. Field notes and reports were thematically analysed.

Results

We identified barriers that helped explain the gap between strategic intent and services on the ground. These were absence of informed leadership; lack of knowledge of contemporary models of care and inadequate clinical governance; poor workforce planning and use of resources; fallacious perceptions of risk; and a dearth of community consultation. In this context, the implementation of policy is problematic without tools or guidance.

Conclusions

Barriers to operationalising strategic intent in planning maternity services may be alleviated by using evidence based planning tools such as the Toolkit.

Keywords

Rural health services, maternity hospital, health planning

Introduction

Planning and delivering maternity services in rural and remote Australia poses considerable challenges. These include workforce recruitment and retention (and renewing and retaining evidence-based and emergency care skills in the workforce), long distances between communities and services, restricted travel due to seasonal weather influences and poor access to transport, and the difficulty of establishing and maintaining effective networks between services (networks defined following Goodwin et al [1]) [2-6]. Between 1992 -2011, there was a 41% reduction in the total number of maternity units in Australia from 623 to 368 [3]. This included the closure of 255 units that had fewer than 500 births per annum and the addition of 21 units with over 2000 births per annum. The closure of small maternity services is associated with rurality [3]. These closures correlate with an increase in unplanned births of babies being born before arrival to hospital in Queensland [3] and Victoria [7] where the rate of unplanned out of hospital births almost doubled
over this time. Whilst the provision of other rural and remote health services face similar challenges, there are particular risks associated with lack of maternity services. For example, unplanned births without attendance when birthing services are not provided in a community, and women being separated from their children and their social support networks, often for long periods, at a potentially stressful time in their lives [8-10].

Many rural and remote communities across Australia have experienced population decline and do not have the population base to support a full range of health services [2]. Whilst this provides some explanation for the closure of maternity services, it does not explain it all. Decisions to close services have also been attributed to a variety of other factors including difficulties with workforce, particularly medical recruitment and retention [5, 11]. Service closures are also linked to centralisation of services with perceptions of improved safety in larger centres with cost savings for government (not families) [11].

Decisions about closure (or not) have not necessarily been based on evidence, a consistent rationale or on community demand [8, 11]. As a result, many Australian women whose local service has closed must travel great distances. This impacts on communities as well as on the safety of mothers and babies and introduces considerable social, emotional and financial costs for families [8, 9, 12-14]. Many women from rural and remote locations struggle to accommodate these costs. They are disadvantaged due to their socioeconomic position [2], level of education [15], lack of access to services [2], and are often younger mothers [16], all of which can lead to poorer perinatal outcomes.

In Australia over the last decade, while rural and remote maternity services have been closing [3], a raft of state and national policy and planning documents have been developed, supporting the continuing provision of maternity services [4, 5, 17-22] (Table 1). During this period, there was prolonged national public and professional dialogue culminating in a formal consultation in 2008-9 led by a national committee (the Australian Health Ministers Advisory Council) on which all state health departments were represented, to develop the Australian National Maternity Services Plan
The NMSP recognised the importance of maternity services and provided a strategic national framework for implementation to 2015. It articulated a nationally agreed clear and consistent strategic intent for maternity services to provide responsive, woman-centred care (including choice for rural women), as close as possible to a woman’s home. Also, within this timeframe (since 2011), local control and devolution of governance to local health boards has driven localised decision making in maternity service provision in some jurisdictions [23].

A key action item of the NMSP regarding planning, design and implementation of maternity services was to ensure the provision of woman-centred services, including a “…rigorous methodology to assist in future planning for maternity care, including in rural and remote communities” [20] p.53. In an audit of methodologies and tools suitable for planning maternity services [24] only the Rural Birthing Index (RBI) from British Columbia, Canada [25] was identified. We reviewed and then adapted the Canadian RBI for use in Australia, which we then referred to as the Australian Rural Birthing Index (ARBI) [26].

To review the RBI we combined modelling of data on births and demography to produce a score, which was then analysed using the expertise of a multi-skilled research team and expert panel [27]. During this process, our research team undertook qualitative fieldwork. The aim of the fieldwork was twofold. First, to investigate the face validity and utility of the Canadian RBI applied in Australia with Australian data in nine rural or remote health services. Second, it aimed to deepen our understanding of the specific historical, social and geographical context of rural birthing services and to examine perceived barriers to sustainable service delivery. This helped to explain why, in a positive policy context, services continued to close or remained closed. In part this was because of a poorly understood notion of risk [13]. Our fieldwork resulted in the development of an evidence-based planning tool, presented as a ‘Toolkit’, for rural and remote maternity service planners, which
provides instruction on how to calculate and use the ARBI score and guides readers through the key principles for decision making about service provision [26].

The Toolkit includes a mathematical calculation, to allow services to determine their ARBI score, twinned with a series of questions that address principles necessary to ensure considered and evidence-based decision making occurs in comprehensive rural and remote maternity services planning. The Toolkit articulates the use of the ARBI score as part of a three-stage process: a deterministic stage exploring population need; a feasibility stage exploring optimal level of service; and a prioritising stage leading to planning decisions. The principles, formulated as a ‘checklist’ in the Toolkit with questions to be answered, encourage active review of the local data used to interpret the score. The principles also encourage active review of service networks, clinical governance and risk; community consultation and service models; transport logistics; workforce and physical infrastructure and resources issues in the planning process.

The aims of this paper are to present the results of the fieldwork to help describe why the strategic intent of the last decade, described in policy, may not have been operationalised, and how use of the Toolkit might contribute to rectifying this.

**Methods**

The overall aim of the ARBI project was to review the RBI for its suitability as a robust instrument which would assist rural and remote maternity service planners. To do this we replicated the Canadian RBI using Australian data. The first step was to identify catchments for each facility. Following our fieldwork, we developed a Toolkit containing guidance on how to calculate the ARBI score, and how to apply this using key principles for comprehensive decision making about service provision.
The ARBI

A catchment area was described for each facility in rural and remote Australia using one-hour road-travel in any direction from the facility. This theoretical catchment provided a basis for the overlay of data and subsequent calculation of catchment populations for all rural and remote public maternity services. Catchments between 1,000 and 25,000 population were identified in this way [28]. The components of the Canadian RBI (population catchment, numbers of births, socio-economic status and distance to nearest surgical service) [25] were calculated. We used these data to calculate the Canadian RBI score (the number of births divided by 10 is multiplied by a measure of socio-economic disadvantage and then added to a measure of distance to nearest surgical service). The next phase was to interpret the score in relation to Australian maternity service levels [21] and fieldwork findings. The ARBI was then produced after consultation with an Expert Panel.

Qualitative fieldwork

As part of the adaptation of the Canadian RBI, qualitative fieldwork was undertaken at nine rural and remote sites across four states and territories of Australia (New South Wales, Queensland, Western Australian and the Northern Territory). The sites were purposively selected to include different: Canadian RBI scores; jurisdictions; levels of remoteness; communities in which the current level of service was discordant with the expected level of service as predicted by the Canadian RBI score as well as services whose level matched the score, and those where birthing services had been successfully sustained over several years as well as those which had closed. The selection of sites was undertaken in collaboration with jurisdictional health leaders as part of our integrated knowledge translation approach [27].

Each site was visited by two researchers, at least one an experienced clinician researcher, for a minimum of two consecutive days during 2013-14. Researchers completed semi-structured interviews (some in paired or group interviews) with a broad range of participants purposefully sampled to maximise variability by role (health service leaders and managers, policy makers, service
providers, clinicians and consumers), seniority, location and experience. Focus groups were conducted where active consumer groups existed, and at one site a group information session was undertaken. Participants were identified through professional networks or suggested by leaders at a jurisdictional or national level. Consumers were identified through consumer organisations, clinicians and managers and with the guidance of Aboriginal and/or Torres Strait Islander Elders where appropriate.

Extensive field notes were made during each visit, and interviews were audio recorded allowing for review and refinement of field notes. The two researchers worked intensively together, debriefing, reflecting, analysing, synthesising (within and between sites) jointly constructing and refining field notes as they went, adding to the rigour and transparency of data collection and analysis [29]. Wider research team review of these data produced fieldwork reports summarising each visit, which in seven sites, were further refined in collaboration with participants and formally presented to senior health service executives following the visit. The field notes and fieldwork reports (subsequently summarised and refined in collaboration with participants) were thematically analysed during fieldwork and again as a complete dataset at the end of the fieldwork phase of the project [30]. In this paper, verbatim quotes from participants recorded in field notes of interviews, focus groups etc. are shown as “Italics within quotation marks” and second-order interpretation by researchers from fieldwork notes and reports as “plain text within quotation marks”.

Approval for this study was obtained from the Human Ethics Committees of the Queensland Health Office of Health and Medical Research [EC00334]; NSW Hunter New England Human Research [EC00403]; NT Department of Health and Menzies School of Health [EC00153]; Central Australian [HREC-12-96]; and WA Country Health Service Board [2013:30].
Results

Participants

Fieldwork involved 88 interviews with 102 participants, three focus groups with a total of 22 service users and one group information session with 17 participants as described in Table 2 below.

[Table 2]

Descriptions of the nine sites visited are presented in Table 3 below.

[Table 3]

Face validity, utility and accuracy of the RBI score

The fieldwork demonstrated participants considered the score was useful and that it indicated an appropriate level of service to meet population need, whether this was the level of service provided or not in each field site. In several sites, the score provided some missing evidence of the apparent need for a birthing service voiced by providers and the local community. Fieldwork determined that five of the nine services did not have a service consistent with the RBI score. This was not surprising given our basis for selecting field sites included services that were working well and those that had closed. Importantly, while health leaders were interested in the score, it appeared to be perceived as relatively minor in terms of its capacity to influence their decision-making.

Historical, social and geographical context of rural birthing services and barriers to sustainable service delivery

Our analysis identified challenging aspects of planning and delivering rural and remote maternity services which were consistent with existing literature. The absence of birthing services in rural and remote areas, and the negative impacts this had on women (particularly Aboriginal and/or Torres Strait Islander women) and their families in relocating for birth was repeatedly reported, including Aboriginal and/or Torres Strait Islander women reporting loss of cultural and spiritual dimensions of birth. This was consistent with findings from studies on loss of services in other jurisdictions [8, 12, 31-36]. Participants consistently and commonly reported the challenges of transport given long
distances, weather, and lack of access to vehicles, emergency and public transport [12, 37]. The factors which had an impact on the sustainability of services included effective professional networks or lack of them [1]. Some participants highlighted the importance of retaining an active maternity service at particular hospitals, as these services were seen as part of a viable network of services across the region [38].

Key themes which may explain the gap between strategic policy intent and actual services

Our analysis identified five interlinked themes contributing to an explanation of why there might or might not be a gap between strategic intent of policy and services offered. These were leadership; knowledge of contemporary models of care, and clinical governance; workforce planning; perceptions of risk, and community consultation.

Leadership

Clinician participants reported that there was lack of understanding by managers of the issues involved in providing clinical care, up-skilling staff, and maintaining and providing clinical governance in rural and remote contexts. In one site there was no Director of Nursing and Midwifery, and in others, Directors of Nursing had no midwifery experience or understanding. “I don’t know of one Director of Nursing, in any of the services, that is actually a nurse and a midwife. And certainly the regional directors, all of them are nurses, not one of them is a midwife. So it’s almost like you’re battling anyway, because they don’t understand it, and they don’t go to the right person to try to understand it, which is quite sad, really.” (Site 6 State level Manager). A major factor that was disturbing was the absence of networking between skilled and better staffed regional services who often were not providing leadership to less qualified colleagues in small hospitals that were often close by. We identified that continuing professional development and clinical governance were missing from many sites.

In two sites (Site 3 and Site 9) participants reported that local communities had been “promised” a re-opened birthing service on numerous occasions over many years by health service leaders. This
had raised expectations in the local community and caused confusion and disappointment when it, repeatedly, did not transpire. In another site, there was no interest in re-opening a birthing service due to health service staffs’ perceptions of difficulties including complicated politics.

In a minority of sites, however, clear vision in leadership was evident. For example, in one site local rural management had established a weekly multidisciplinary clinical meeting attended by hospital midwives, the midwife from the Aboriginal Medical Service, the community midwife and local doctors. This regular meeting contributed to understanding and open channels of communication between these services, regular case review, continuing professional development and regular skills review with support from external trainers provided by the jurisdiction.

It is noteworthy that in three of the four regional centres of the nine fieldwork sites, where discussions were held with regional and jurisdictional leadership, fieldwork notes showed there were gaps in practical, informed and accountable bureaucratic leadership. These included gaps in knowledge of contemporary models of maternity care and the evidence base for safety of birthing services without caesarean section, apparent lack of concern about an absence of clinical governance, limited oversight of workforce planning and support, misinformed perceptions of risk [13], and limited recognition of the voice of the local community.

In one jurisdiction (where we undertook two site visits), leadership made a strong positive contribution to the quality of rural and remote services through training and technical oversight. However, even in this state jurisdictional efforts could not overcome lack of skilled or informed leadership at a regional level.

Knowledge of contemporary models of care, and clinical governance

During data collection in our fieldwork we identified outdated models of care (similar to those reported in Kruske et al’s study of primary maternity units [39]) and lack of (or poor/inappropriate) clinical governance as threats to sustainability as well as safety of services. The traditional model where a stand-alone hospital-based service functions with nurse-midwives rostered on a 24/7 roster
supported by one or two GP obstetricians who attend each birth, was evident at some sites:
“Currently the service operates with nurse-midwives only... The maternity staff are an ‘extra’ pair of hands to assist in the wards as nurses if they are not busy.” (Site 5 Final Report).

Arguably, this traditional model is no longer viable because it is becoming more difficult to recruit nurse-midwives (as universities in most states are increasingly providing direct entry midwifery undergraduate courses which are in high demand [40, 41]), insufficient time and priority is given to antenatal patients due to nurse-midwives’ shared roles, and these midwives are often “…not adequately integrated into perinatal planning or care” (Site 7 Final Report). As in other studies and reports [42, 43], our participants reported that many Aboriginal and/or Torres Strait Islander and other women do not receive adequate or high quality antenatal care including prenatal ultrasound; there is no streamlined transition of care back to community as many women are discharged following birth without notifications being made to their local maternity service and nurse-midwives are too busy to follow through and track women themselves due to their dual roles particularly when their nursing role takes precedence. One site had no full time dedicated midwives despite a client load of over 100 births in the catchment annually. In some sites, a stable and skilled midwifery workforce was rapidly becoming disillusioned and distressed at their inability to undertake a full scope of practice.

Some participants linked the lack of contemporary models of maternity care, or knowledge of such models, to a lack of awareness of the evidence base that should inform decision-making. For example not knowing both national data and international systems-level evidence demonstrating the safety of rural maternity services without caesarean-section [44-46]. The evidence from Canada from a large epidemiological study [32], shows that while optimal safety occurs with a caesarean service this evidence also demonstrates that having no service is more dangerous than a non-Caesarean low risk service [14, 32, 47]. The spiritual, cultural and social importance of local services for Aboriginal and/or Torres Strait Islander populations was not addressed by health service leaders.
or managers during our fieldwork in some sites, despite its importance to Aboriginal and/or Torres Strait Islander women interviewed, and Indigenous women in other studies [6, 48, 49]. In a review of the literature Kildea et al identified components of an effective Birthing on Country model including the integration of Indigenous governance over maternity services, Indigenous approaches to birth and culturally and socially contextualised risk assessment [31]. Approaches to risk assessment and how the absence of services locally adds cultural and social risk are described more fully in an earlier paper [13].

In several sites we observed a hybrid model, neither the old traditional model nor a contemporary one engaged and networked regionally. In some cases this resulted in absence of, or ineffective, clinical governance: “There is considerable confusion and a hybrid and ineffective model of medical care and clinical governance of services, particularly those provided for Aboriginal families” (Site 3 Final Report). A hybrid, ineffective model of medical care and clinical governance of services in one site had resulted in poor continuity of care for women. This was evidenced by different record keeping systems causing confusion, ineffective information sharing and unsafe systems with women “falling through the cracks” (Site 3 Final Report), service avoidance and significant numbers of out of hospital births.

In a minority of sites, contemporary models of care were in evidence, for example a modified midwifery group practice where women were assigned a primary midwife in their local (remote) antenatal clinic who provided antenatal and postnatal care, as well as a nominated midwife in the regional centre who coordinated all care when the woman arrived in the regional centre. This model was reported to provide improved continuity of care and more comprehensive care from midwives working in a model that promoted relationship building and woman-centred care. This was seen by all stakeholders to be a “…positive change and resulted in more women engaging with the service” (Site 1 Final Report).
Appropriate referral policies, guidelines, support and clinical governance processes were absent in some of the sites we visited. For example: “The main risk to women (and also the health service) is lack of clinical governance in the system. There is no sense of networked services with responsibility for standards and care coming from [the local regional hospital] despite its capacity and role as a regional referral centre ... governance needs to be provided for obstetrics as well as midwifery.” (Site 7 Final Report). A common difficulty amongst sites like these was robust record keeping and communication, for example hand held records were used but not by all women (Site 8). In addition, copies of records received were subsequently filed in a way that resulted in a missed connection to continuing antenatal care.

**Workforce planning and resources**

In many sites, sufficient succession planning, particularly for medical staff, was absent even when GP obstetricians had clearly signalled their intention to retire, providing plenty of notice. Reliance on Locum General Practitioners (GPs) to keep services open or cover for emergency maternity care is a challenge for the health service to organise, can fragment care and is expensive with some short term locums flying in from considerable distances away to keep a service going (e.g. in one site Locums were flown in from New Zealand). In some sites investigation of regionally supported midwife models for low risk pregnancy (which are cheaper and as safe [10, 50-57]) could have usefully been explored.

In a number of sites, there was a notable lack of a training (upskilling) strategy for midwives, particularly for local women, or for training and employment of Aboriginal health workers, liaison officers and midwives working in partnership with other local health organisations. Although some sites noted the increasing availability of short courses on maternity emergencies (e.g. CRANAPlus Maternity Emergency Care courses that are delivered in rural and remote locations and the Advanced Life Saving in Obstetrics course) they also noted the difficulties encountered when all staff needed to access upskilling but could not be released due to a lack of backfill. Workforce planning
may have benefitted from such strategies in these sites as increasing the Aboriginal and/or Torres Strait Islander workforce not only provides local employment but strengthens the cultural security of services.

In one site (Site 2) the strategies to address the medical workforce issues related to recruitment and retention of medical staff were innovative and appeared to be successful. Specifically building trainee programs and treating trainees well in their practice had led to a situation whereby there were enough medical staff to sustain a birthing service according to clinicians working in the service, and that they had not had to advertise for medical staff for the past four years. The majority of physicians worked part time in the hospital and part time for the Aboriginal Medical Service. Two GP obstetricians providing back up for the maternity service described their training and goals, and expressed a high degree of satisfaction with the organization of services and with the medical support for their clinical activities. Professional development funding allowed for up-skilling in the nearest tertiary level hospital and it was felt to be important that training was “...in remote; by remote; for remote” (Site 2 Medical Staff), and some trainees were paid to up-skill for a year with an agreement that they would return for at least 12 months.

Perceptions of risk

A major factor in the closure of rural maternity services in Australia has been an understanding of risk that privileges a clinical interpretation, despite the growing recognition that rural and remote women regard the social dimensions of risk (such as absence from home and community, and financial costs) as important [6, 13, 58] or more important [48]. The reality of clinical risk may have been distorted for providers due to exposure to a single adverse event they have seen in their training, possibly many years earlier as was the case for one fieldwork participant (Site 7), or an imagined catastrophic event “…what if we have a baby die?” (Site 3). In our fieldwork an ill-informed understanding of risk was often tied to the notion that emergency caesarean section capacity is essential to deliver safe care. The perceived vulnerability incurred by the lack of local
surgical backup in a primary service held more weight in decision making than the established body of international evidence suggesting the relative safety of such services [31, 59-61], for example the sense from one participant that a birthing service needed to “…guarantee safety or be held to account” (Site 1 Clinician). This has exacerbated the closure of services despite evidence that suggests normal birthing services without caesarean section are safer than no local services [32].

A minority of participants, mostly midwives or women themselves, had an expansive understanding of risk and recognized the trade-offs birthing women made in accepting higher clinical risk to mitigate social risk. Most clinicians and health service manager participants, however, expressed a high degree of clinical risk aversion. There was little awareness of the inextricable relationship between clinical and social risk, for example women avoiding antenatal care so the system would not know of the pregnancy and require relocation for birth. This perspective leads to clinical risk that could be avoided [13], unlike the biophysical risk resulting from maternal or fetal abnormalities [6].

Community consultation

Community involvement in the development, planning and delivery of health services can have many benefits, including improved care processes, increased consumer satisfaction and more effective priority setting and use of resources [62-64]. In many sites, there was little evidence of the voice of the local community being heard and influencing planning and decision-making around provision of maternity care from community members, planners or managers interviewed. There was a poor relationship between the health service and community and a lack of understanding by some staff of their own community. This, together with lack of leadership and managerial understanding and experience, a particular perspective of risk, and workforce issues had resulted in a lack of services or in services which did not appear to meet the needs of the population.

In one site (Site 2) the reverse was observed, with the local community having a direct influence on the retention of birthing services. For example, two attempts had been made by the health service to close the maternity ward each vigorously opposed by the community with demonstrations.
involving Aboriginal and Torres Strait Islander people and non-Indigenous people, men and women, and some care providers from the community. The demonstrations received broad publicity from news services and the service was retained. This site illustrates not only the importance of community voice in service planning but also the capacity of local citizens to most effectively express local need. Other sites demonstrated that attempts by the community to be heard were ignored.

**Discussion**

Participants in our fieldwork confirmed the face validity and potential utility of the RBI score. We found that discordant services, as signposted by a malalignment between the RBI score and the existing level of service, had clearly definable problems related to planning and managing local maternity services. Our fieldwork improved our understanding of the specific historical, social and geographical context of rural and remote birthing services. Whilst policy at the national level reflects a particular strategic intent for maternity services, there is a considerable gap between this intent and service delivery at local levels. Our work has helped to explain this gap identifying problems such as ad-hoc local, non-evidence based decision-making, poorly prepared or supported leadership, lack of knowledge of contemporary models of care and inefficient use of maternity staff; absent clinical governance and inadequate workforce planning, misinformed perceptions of risk and a dearth of community consultation in service planning.

In rural Canada similar improvised decision making has been attributed to a lack of direct policy attention [25], unlike Australia where policy exists and where, for example, a Royal Australian and New Zealand College of Obstetricians and Gynaecologists’ statement stipulates that need in rural and remote communities should be “…assessed according to determined guidelines taking into consideration local resources, rather than as a reactive response to a local crisis…” [19] p.4). Space precludes international analyses of a woman focussed model of care and improved outcomes that result, but the Executive Summary of a recent series in the Lancet focused on midwifery (published June 23, 2014) begins “The essential needs of childbearing women in all countries, and of their
babies and families, are ... still not being met, decades after they have been recognized. New solutions are required.... that firmly places the needs of women and their newborn infants at its centre. It is based on a definition of midwifery that takes account of skills, attitudes and behaviours rather than specific professional roles...The findings [published in this Series] support a shift from fragmented maternal and newborn care... focussed on identification and treatment of pathology to a whole-system approach that provides skilled care for all.” [65] p.2

Our fieldwork also reinforced our understanding that the ARBI score was not to be used as a number in isolation, but should be embedded as an important data element and understood and used sensitively in the context of local knowledge such as the actual area and size of catchment for a service. To this end our fieldwork and our subsequent analysis formed the basis of a Toolkit [26] which provided instruction on how to calculate the ARBI score, interpret it, and use it by working through a series of key principles.

This study was conducted in nine fieldwork sites across an extremely diverse country and our findings may not resonate with other rural and remote maternity services. The strengths of this study include the intensity of the fieldwork visits and the wide range of participants involved.

**Conclusion**

In conclusion, there are a number of important, interlinked barriers to realising the intent of existing policy on maternity services planning exemplified in the analysis presented here. Lack of skills and knowledge of evidence can be ameliorated by providing planners and managers with evidence based techniques. The Toolkit is based on this fieldwork and evidence and has been specifically designed for planners of Australian rural and remote maternity services who until now, have been working with few techniques or tools for support. The Toolkit can contribute (and indeed has or is being used in Victoria, the Northern Territory, Western Australia and Queensland) to more carefully consider
evidence-based planning of appropriate and sustainable rural and remote maternity services, and to help reduce the barriers to operationalising the strategic intent of current policies.

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Conflict of interest statement

The authors confirm that they have no conflicts of interest to declare.

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References


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<tr>
<th>Year</th>
<th>Policy document</th>
<th>Brief synopsis</th>
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<tbody>
<tr>
<td>2005</td>
<td>Rebirthing Report: A review of Queensland Maternity services [17] Independent review undertaken in Queensland (which the State Government reported against up until 2014)</td>
<td>An independent review of maternity services provision undertaken in 2004/05 including services for pregnancy, birth and neonates across Queensland. Identifies priority areas for improvement including outcomes for Aboriginal and Torres Strait Islander Women, and care for women who live in rural and remote areas.</td>
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<tr>
<td>2006</td>
<td>National Consensus framework for rural maternity services [4] Rural Doctors Association of Australia</td>
<td>Offers principles developed for use in policy and planning. The principles are presented as ways to ensure rural maternity services are: people and family centred; equitable in terms of distribution and access; able to provide for future generations; grounded in quality and safety; supported by a sustainable workforce; and protected in Australian Health Care Agreements.</td>
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<td>2008</td>
<td>Primary maternity services in Australia: A framework for implementation. [18] Australian Health Ministers' Advisory Council</td>
<td>This framework was endorsed by all State and Territory Health Ministers and reflects the Australian Health Departments’ commitment (from 2005) to primary maternity service models for women with uncomplicated pregnancies in remote, rural as well as urban Australia. The framework focuses on the needs and preferences of women, promoting greater access to continuity of care and fostering collaborative working relationships between care providers. In 2006 this commitment was translated into an agreed work plan including the development of core competencies and an educational framework for Maternity Services [23].</td>
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<td>2009</td>
<td>Improving maternity services in Australia: The Report of the Maternity Services Review [19] Commonwealth Government of Australia</td>
<td>This review of maternity services in Australia led to the National Maternity Services Plan (NMSP) being developed in 2011 (see below). The review identified that providing rural and remote services was particularly problematic and recommended changes to support the expansion of collaborative models of care, improved access for rural and Indigenous mothers and reduced workforce pressures (particularly in rural and remote areas).</td>
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<td>2010</td>
<td>Maternity services in remote and rural communities in Australia [20] Royal Australian and New Zealand College of Obstetricians and Gynaecologists</td>
<td>Statement developed and reviewed by the Women’s Health Committee of the Royal Australian and New Zealand College of Obstetricians and Gynaecologists and approved by the Board and Council. Aimed to provide advice on the provision of maternity services to remote and rural communities in Australia.</td>
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<td>2011</td>
<td>National Maternity Services Plan [21] From a national committee on which each state and territory was represented</td>
<td>The NMSP provided four priorities each with a range of action items. These formed the basis for driving a change agenda to provide maternity services through primary care models of care. The NMSP also outlined priority areas including the provision of equitable access for rural and remote women particularly Aboriginal women.</td>
</tr>
<tr>
<td>2012</td>
<td>National Maternity Services Capability Framework [22] From a national committee on which each state and territory was represented.</td>
<td>The Capability framework describes a six level structure of maternity and neonatal services for both public and private maternity services across all rural, regional and metropolitan settings, outlining the minimum requirements for each level.</td>
</tr>
</tbody>
</table>
## Table 2: Table of participants

<table>
<thead>
<tr>
<th>State</th>
<th>Number of Sites</th>
<th>Total Interviews</th>
<th>Focus Groups</th>
<th>Large Group Info Session (&gt;10)</th>
<th>Total Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>NT</td>
<td>2</td>
<td>21</td>
<td>1</td>
<td>1</td>
<td>49</td>
</tr>
<tr>
<td>NSW</td>
<td>3</td>
<td>33</td>
<td>2</td>
<td>0</td>
<td>57</td>
</tr>
<tr>
<td>WA</td>
<td>2</td>
<td>18</td>
<td>0</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>QLD</td>
<td>2</td>
<td>16</td>
<td>0</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>9</td>
<td>88</td>
<td>3</td>
<td>1</td>
<td>141</td>
</tr>
</tbody>
</table>
Table 3: Nine Fieldwork sites

<table>
<thead>
<tr>
<th>Site</th>
<th>Description</th>
<th>Suggested level of service based on RBI score(29)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A small regional hospital with a closed birthing service. Located in a very remote centre with almost 50% Aboriginal population and a large catchment of remote Aboriginal communities. Regional referral hospital 5.5 hours travel time by car.</td>
<td>Likely to have local birthing possibly without emergency caesarean section. Discordant with score.</td>
</tr>
<tr>
<td>2</td>
<td>A small district hospital with birthing service with caesarean section (c-section). Located in a very remote centre with a majority Aboriginal population and large catchment of very remote Aboriginal communities. Regional referral hospital 2-hour travel time by plane.</td>
<td>Generally will have local birthing probably with emergency caesarean section. Aligns well with score.</td>
</tr>
<tr>
<td>3</td>
<td>A district hospital with no birthing service. Located in a remote town with a large Aboriginal population. Regional referral hospital 3-4 hours travel time by car and airport for emergencies.</td>
<td>Score borderline between Possible to have local birthing but probably without emergency caesarean section capability and Likely to have local birthing possibly without emergency caesarean section. Probably discordant with score.</td>
</tr>
<tr>
<td>4</td>
<td>Two district hospitals in close proximity, each with birthing services and CS. Regional referral hospital 1.5-hour travel time by car.</td>
<td>One site Likely to have local birthing possibly without emergency caesarean section. Possibly discordant with score. The other site Generally will have local birthing probably with emergency caesarean section. Aligns well with score.</td>
</tr>
<tr>
<td>5</td>
<td>A small district hospital with birthing service with no CS. Located in a socio-economically disadvantaged rural town. Regional referral hospital around 30 minutes to &lt;1 hour travel time by car.</td>
<td>Generally will have local birthing probably with emergency caesarean section. Probably discordant with score.</td>
</tr>
<tr>
<td>6</td>
<td>A regional hospital with birthing services and CS. Located in a high growth remote centre. 25% Aboriginal population and a large catchment of very remote Aboriginal communities.</td>
<td>Likely to have local birthing possibly without emergency caesarean section. Aligns well with score.</td>
</tr>
<tr>
<td>7</td>
<td>A district hospital with a recently closed birthing service. Located in a small rural town. Regional referral hospital with CS 1-hour travel time by car.</td>
<td>Likely to have local birthing possibly without emergency caesarean section. Discordant with score.</td>
</tr>
<tr>
<td>8</td>
<td>A small health service with no birthing. Located in a very remote town with a small population and large catchment of very remote Aboriginal communities. Regional referral hospital full day travel time by car or 2 hours travel time by plane.</td>
<td>Likely to have local birthing possibly without emergency caesarean section. Discordant with score.</td>
</tr>
<tr>
<td>9</td>
<td>A small health service with recently re-opened birthing service with CS. Located in a very remote town with a small population and a broader catchment of remote Aboriginal communities. Regional referral hospital 4 hours travel time by car.</td>
<td>Score borderline between Possible to have local birthing but probably without emergency caesarean section capability and Likely to have local birthing possibly without emergency caesarean section. Possibly discordant with score.</td>
</tr>
</tbody>
</table>