

Giving birth in the Murrumbidgee region: A quantitative and qualitative approach to general practice obstetrics in a rural region

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Abstract

Objective: There is public concern regarding rural workforce shortages and closure of smaller obstetric centres.

Aim: To identify whether safety is a concern for Murrumbidgee hospitals that fit primary medical care models and ascertain general practitioner (GP) obstetricians' perspectives regarding the benefits and challenges to practising in the region.

Design: Mixed-method retrospective analysis of selected outcomes in the NSW Mothers and Babies Reports 2012–2015 and semi-structured interviews with GP obstetricians.

Setting: Murrumbidgee Local Health District.

Main outcome measures: Evaluation of the safety of smaller hospitals (i.e. discharge status at birth, neonatal resuscitation and admission to intensive care); and iterative thematic analysis.

Results: This study provides evidence that smaller hospitals are providing safe obstetric care. Fewer babies were transferred, with fewer stillbirths, at the smaller hospitals and no difference in newborn deaths. There were more normal vaginal births in the smaller hospitals (70.0%) than in Wagga Wagga Base Hospital (57.2%) or Griffith Base Hospital (58.6%). There were fewer neonatal resuscitations in the smaller hospitals than in Wagga Wagga Base Hospital or Griffith Base Hospital. More than one-quarter of babies were admitted into the special care/neonatal intensive care for both Wagga Wagga and Griffith Base Hospitals; however, the rate was <3% in the smaller hospitals ($p < 0.001$). GPs were overwhelmingly positive about the professional rewards of GP obstetric practice and the importance of continuity of care, despite barriers such as workforce shortages, loss of facilities and other staff (midwives and anaesthetists). Possible solutions included fostering support systems, proactive succession planning and improving training support.

[Correction added on 10 May 2022, after first online publication: CAUL funding statement has been added.]

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Conclusions: GP obstetricians are providing a valuable, safe service in MLHD with both personal and community benefits.

KEYWORDS

continuity of care, GP obstetrics, maternal choice, model of care, workforce

1 | INTRODUCTION

Access to good quality and safe maternity care and adequate workforce continues to be an issue for rural Australians.^{1,2} It has been suggested that in some areas, services are not meeting rural women's needs, but this issue could be addressed by delivering basic maternity services in rural communities.³ Closure of maternity services has been seen as contributing to the problem, with 'healthy childbirth' being reframed as synonymous with 'specialist anaesthetic and obstetric services'.⁴ It has also been argued that closing smaller units shifts cost from health services to rural women who must travel for basic obstetric care.⁵ In Queensland, a 41% reduction in rural maternity units has been blamed for more than doubling the proportion of births before arrival at a unit, from 3% to 7% (1992–2011), with an associated potential risk to mother and baby.²

General practitioners (GPs) play an important role in delivering maternity services in rural hospitals, which fit a primary-medical-care model.^{6,7} Current RANZCOG guidelines detail that low- to moderate-risk births can be safely handled in Level 1–3 rural hospitals, which fit a primary-medical-care model.⁸ The rural GP obstetric workforce is diminishing. Possible explanations for the diminishing workforce include factors such as fear of safety from GP obstetricians and their patients and fear of litigation.^{9,10} While there is limited research into how these factors affect rural NSW, newspaper reports indicate a high level of public concern regarding the diminishing GP obstetric workforce and closure of smaller obstetric centres throughout the Murrumbidgee local health district (MLHD).^{11–12}

Safety of primary care obstetric models has been seen as a concern. This study aimed to add to the limited research available in relation to one regional area in south-western rural NSW by analysing publically available birth data. Hospitals that offer obstetric services within the MLHD include Wagga Wagga Base Hospital (Level 5 service), Griffith Base Hospital (Level 4 service) and smaller hospitals (Levels 1–3 services) across a range of model of care, including primary medical care models.^{13–17} The smaller hospitals are principally centred around a primary-medical-care model, whereas Wagga Wagga and Griffith also have specialist obstetric involvement.¹⁴ In addition,

What is already known on the subject:

- There is evidence that poor maternal and neonatal outcomes are associated with births before arrival at hospital. General practitioners play an important role in delivering maternity services in rural hospitals for low- to moderate-risk births; however, the GP obstetric workforce is diminishing

What this paper adds:

- The paper provides evidence that GP obstetricians have good maternal and neonatal outcomes and that there are many personal and community benefits of practising GP obstetrics. Challenges of obstetric practice and potential solutions are explored

GP obstetricians' perspectives were explored to gain an understanding of the benefits and challenges in relation to providing rural maternity care in a primary care setting.

2 | METHODS

A retrospective analysis of the NSW Mothers and Babies Reports 2012–2015^{14–17} was undertaken wherein data were provided for Wagga Wagga Base Hospital and Griffith Base Hospital, both located within the MLHD. Data for smaller 'smaller hospitals' in the MLHD were extrapolated as hospitals with fewer than 200 births were not listed individually. Variables of interest included number of births (extrapolated from baby discharge status), number of postpartum haemorrhages (PPHs) and blood transfusions following vaginal birth or caesarean section. Using SPSS (v26) and OpenEpi (www.openepi.com), Pearson's chi-squared test and Fisher's exact test were used to compare categorical outcomes of smaller hospitals with Wagga Wagga Base Hospital and Griffith Base Hospital. A *p*-value <0.05 was considered statistically significant.

In addition, GP obstetricians were purposively sampled to include participants who had practised or were practising in south-western NSW in a range of small rural towns and large regional centres. Participants were

emailed written information about the study and followed up by phone. Questions focused on benefits and rewards to practise, challenges and barriers to practise, workplace shortages and possible solutions. Interviews were 20–120 min long, conducted one-on-one by MT mostly at the workplace of participants and audio-recorded and transcribed. Iterative thematic analysis¹⁸ was the methodological framework used and was conducted by MT and CH.¹⁹ This study was approved by The University of Notre Dame Australia Human Research Ethics Committee (017143S) and was conducted in accordance with the National Statement on Conduct in Human Research ethics guidelines.²⁰

3 | RESULTS

3.1 | Quantitative data

Between 2012 and 2015, there were 7640 births in hospitals in the MLHD. There were 3237 births at Wagga Wagga Base Hospital, 1992 at Griffith Base Hospital and 2411 at smaller hospitals in the MLHD. Discharge status of babies differed between hospitals (Fisher's exact test = 100.378, $p < 0.001$). More babies were discharged from the smaller hospitals (97.1%), than in Wagga Wagga Base Hospital (91.0%) or Griffith Base Hospital (93.6%). Fewer babies

were transferred ($p < 0.001$) and there were fewer stillbirths ($p < 0.002$) at the smaller hospitals with no difference in newborn deaths.

Type of birth differed between hospitals [$X^2(10) = 142.70$, $p < 0.001$; Figure 1]. There were more normal vaginal births in the smaller hospitals (70.0%) than in Wagga Wagga Base Hospital (57.2%) or Griffith Base Hospital (58.6%) [$X^2(2) = 105.8$, $p < 0.001$]. In addition, there were fewer forceps-assisted births ($p = 0.011$), fewer vacuum extractions ($p < 0.001$), fewer elective caesareans ($p = 0.002$) and fewer emergency caesareans ($p < 0.001$). There was no difference in the number of vaginal breech births between hospitals.

Overall, there were fewer neonatal resuscitations in the smaller hospitals than in Wagga Wagga Base Hospital or Griffith Base Hospital [$X^2(2) = 34.66$, $p < 0.001$]. For the 1278 babies where resuscitation was required, there were differences in resuscitation type between hospitals [$X^2(8) = 159.11$, $p < 0.001$]. Suction rates in smaller hospitals were higher than in Griffith Base Hospital but similar to Wagga Wagga Base Hospital. The use of oxygen therapy in the smaller hospitals was higher than in Wagga Wagga Base Hospital but similar to Griffith Base Hospital. There were lower rates in smaller hospitals for more invasive methods such as intermittent positive pressure respiration (IPPR) by mask ($p < 0.001$) and intubation and IPPR ($p = 0.037$). There was no difference between hospitals

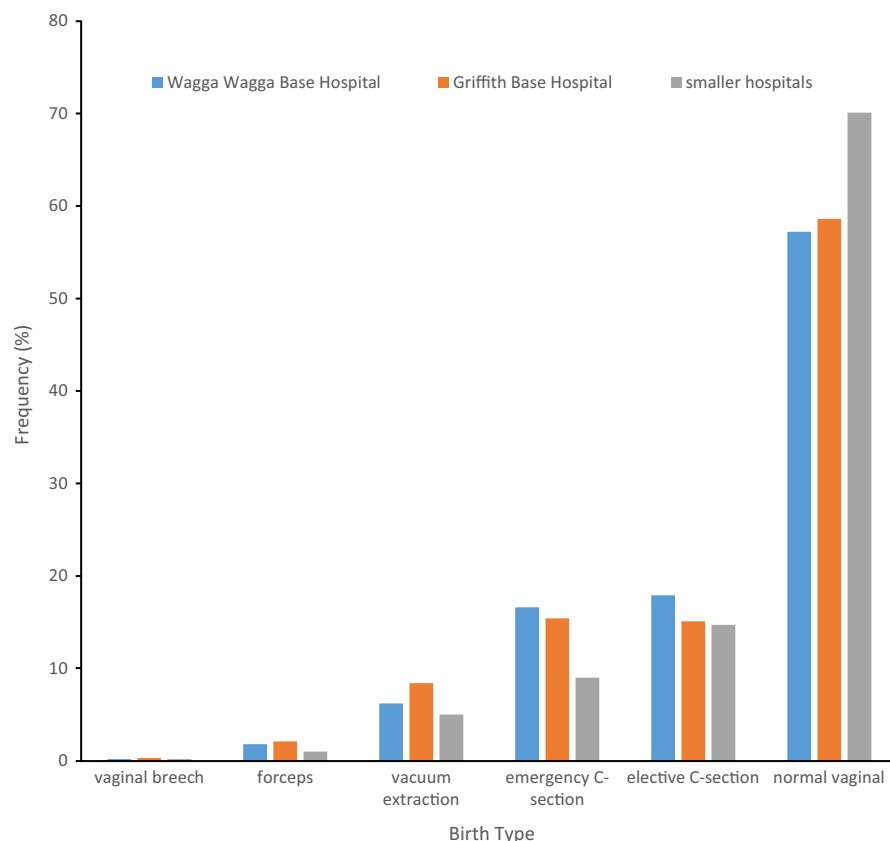


FIGURE 1 Birth type at different hospital groups (significant differences between hospital groups for all birth types except for vaginal breech)

in rates of resuscitation via external cardiac massage and ventilation.

There were fewer admissions to special care or neonatal intensive care in the smaller hospitals than in Wagga Wagga Base Hospital and Griffith Base Hospital [$\chi^2(2) = 643.27, p < 0.001$]. More than one-quarter of babies were admitted into the special care or neonatal intensive care for both Wagga Wagga Base Hospital and Griffith Base Hospital; however, the rate was <3% in the smaller hospitals.

Overall, the rates of PPH and blood transfusion following C-section and vaginal birth were 2.8% and 2.1%, respectively. There was no difference in rates of postpartum haemorrhages (PPH) and blood transfusion following vaginal birth at the different hospitals. However, there was a higher incidence of PPH and blood transfusion following caesarean section at smaller hospitals (5.3%) than at Wagga Wagga Base Hospital (2.3%) and Griffith Base Hospital (1.3%) [$\chi^2(2) = 18.82, p < 0.001$].

3.2 | Qualitative data

Eleven clinicians participated in interviews: seven were male, ages ranged from 38 to 80 years. GPs had been practising obstetrics in the MLHD for between four and 37 years, and four were currently in practice. Five GPs had a basic diploma in obstetrics, three had an advanced diploma, and three had a grandfathered diploma. A basic diploma in obstetrics accredits for low risk births, such as simple vaginal births whereas advanced diplomas and grandfathered diplomas accredits for low- to medium-risk births, including caesarean sections.

Clinicians were overwhelmingly positive about the professional rewards of the GP obstetric experience and the importance of continuity of care, the ability to contribute to maternal choice and to provide a local service for women with obstetric care closer to home.

GPs reported that rural generalism and obstetrics were rewarding and fulfilling. One GP (in a small rural town) said 'general practice in the country is so much more challenging, so much more interesting, so much more diverse'. 'It's incredibly satisfying...you see them through their pregnancy, through delivery, check up on them afterwards, see them through the next pregnancy, you know their family. You're part of that, and that's a great gift in general practice'. There was also a reward in being valued, 'being appreciated by the people you look after'. While the work itself was rewarding, 'It's just a much more satisfying life being a country doctor', it wasn't financial reward that was valued as 'it is not actually that lucrative' when compared to the work involved.

Continuity of patient care, having a single clinician whether it was a GP or a midwife, improved communication and provide 'someone who knows you, who knew you before you were pregnant', increasing rapport and trust. This allowed support during the emotionally and physically demanding process of labour and the ability to recognise issues like depression. One regional GP obstetrician said, 'when a woman becomes pregnant she doesn't lose the rest of her health or her identity. There's value in having someone still managing that person, and her family and their other medical issues'. This was a challenge as this clinician also said, 'everyone wants you there all the time, and it's understandable but not practical... it's a delicate balance'.

Providing maternal choice and an alternative obstetric model of care for rural women, even when specialist or midwifery-led care was available was regarded as 'philosophically, I think it's a good idea for women to be able to choose'. GP obstetrics was seen as another model of care with the advantage of already established rapport.

Providing a local service and contributing to rural communities was seen as important. As one rural GP who provided low-risk antenatal and intrapartum care said, 'pregnancy is a normal part of life...it's a really important thing that women in smaller towns be able to give birth in smaller towns when it's safe to do so'. For patients and families, reduced travel for antenatal, intrapartum and postnatal care reduced financial and social costs and maintained links with support systems. 'It gives great confidence to women knowing that they can have a family in the town where they live, and that is a normal thing to be able to do, and we should be skilled enough to be able to do that'. Doctors saw themselves as a valued part of the community and as advocates for maintaining local services. When local obstetric services were threatened, 'the community kicked up a stink...it became a political issue and a town issue'.

When asked to identify the challenges to practising GP obstetrics in the MLHD, issues such as workforce and bureaucratic challenges were raised. There was a perception of diminishing services and staff including midwives and theatre staff, and a reduction in the GP obstetrician workforce, with fear of error and litigation and lack of mentorship having the potential to discourage young doctors.

Some services required facility upgrades for obstetrics to continue, which had not occurred and one rural doctor described management as appearing to be 'reactive rather than proactive in looking for solution...it's been a process of attrition...they've been waiting for things to fall apart instead of being proactive in fixing things'. One retired rural GP said 'an awful lot of bureaucracy has gotten in the way of medicine...I miss the patients but I certainly

don't miss the bureaucracy'. There were challenges to services at a hospital level. One regional GP stated 'You have got hospital administrators in different areas' who are pressured to employ specialists 'as opposed to GP obstetricians...it certainly doesn't really seem that GP obstetrics certainly involving intrapartum care has been overwhelmingly supported in the private sector'. Concerns were also raised at the training providers' level, such as in relation to supervision guidelines. One GP said 'decisions are being made that impact on us without our consultation and the assumption that others know better how we practise. And that's incredibly frustrating'.

Delivering safe obstetric care requires a multidisciplinary team; however, 'there's towns around that don't have an obstetric service because they don't have an anaesthetist. There are other towns that have heaps of anaesthetists and no obstetricians, there are other places with no midwives...it's very difficult to get [that] combination of people'. Midwives 'have to do general nursing as well... they cover emergency and general ward stuff' and while older midwives were seen as 'very skilled and really good', they were often the 'only midwife in the hospital' and more junior nursing staff to be supported to develop 'confidence and skills' to undertake this role. The district-wide shortage of medical and non-medical staff, such as theatre staff and midwives, was seen to be a major challenge. One doctor felt this had not been managed systematically, 'they're shutting down or reducing services in a lot of smaller regional areas' while at the same time 'government is saying we want to put money into GP proceduralists'. One GP who had retired from obstetric practice felt the problem was getting worse. 'When I first came...there was probably about 10 GP obstetricians. When I finished, there was only myself and one other and then I finished'.

Interviewees attributed this to a highly demanding career, with poor succession planning, training issues and lack of support for both existing and upcoming clinicians. 'I think longevity and succession planning...that's one of the challenges, is making sure we have another lot of doctors coming through that can pick up the ball and run with it'. Another concern raised was that 'the isolation does make it that next little layer of anxiety' and also the high-risk nature of obstetrics and the consequences of error and medico-legal action. 'I think there's a lot of fear around obstetrics. What if things go wrong?...it is a highly stressful situation at times'. Ways of managing this anxiety were described: 'you need to be sensible and looking at what's high risk...always thinking what have I got support wise if things don't go the way they're planned', 'being very strategic in the sorts of people you deliver'. Financial pressures of large insurance costs, with little or no financial return, was another element. 'A big problem is the litigation around obstetrics and the cost of insurance. That's why a

lot of people stopped doing it. The cost of insurance is significant...and I think young doctors just get a bit scared with obstetrics'. 'In metropolitan areas, the whole concept of GP obstetrics is dead'.

A potential solution to these issues is appropriate mentorship and support of young trainees. One rural GP saw new training pathways as having a potential to address these issues saying, 'this is what the rural generalism pathway is all about, training people, getting them the skills'. This GP said that this support needed to 'not stop at the hospital, it's getting them out in the community afterwards with the correct mentorship in place, with help around them' where they can feel comfortable and use their skills with someone else as backup.

The qualitative data also highlighted potential solutions to these challenges. Possible solutions to workplace shortages were fostering support systems, having 'the correct mentorship in place where they feel comfortable enough to use their skills', proactive succession planning and improving training support. The role of the rural generalist was also emphasised. Telehealth was suggested as a possible solution by multiple interviewees, 'you can reduce travel for women just by showing an image or a case, looking at it online, you can do that from the other side of the world'. Others warned about the limitations of this technology, particularly in emergency and practical scenarios 'as far as intrapartum obstetrics goes, you really need someone there...not all the time but you need them to be available'.

4 | DISCUSSION

Delivery of maternity services and sustaining a GP obstetric workforce are important issues for rural Australia. Although safety has previously been identified as a potential factor of concern for some GP obstetricians and patients,⁹ the results of the quantitative analysis in the present study provide evidence that smaller hospitals are providing safe obstetric care. Smaller hospitals had fewer stillbirths and death, fewer admissions to special care nurseries, less need for neonatal resuscitation with more vaginal deliveries. This suggests that GP obstetricians are appropriately identifying low risk women as suggested in the RANZCOG guidelines.⁸ This is consistent with other research showing that lower hospital volume was not associated with adverse outcomes for low-risk pregnancies²¹ and that, in the setting of a robust rural generalist training program, GP obstetricians can support safe high-quality care.²² Other researchers suggest that closure of smaller maternity units may result in more risks to safety,² such as travelling distances to birthing units with the risk of birth before arrival.^{2,4} The significant result of more PPHs

and blood transfusions following caesarean section in the smaller hospitals was surprising and unexplained. These units performed fewer caesarean sections statistically and may have been more likely to treat bleeding aggressively. Available data did not allow exploration of confounders such as maternal age. Although the smaller hospitals had <200 births/year individually, cumulatively the number of births was comparable to the larger hospitals in the region, reinforcing the important role these units have in maternity care across the LHD.

The GPs interviewed in the study described rural obstetrics as a rewarding career that provides a needed service. Benefits and rewards of GP obstetrics included continuity of care and increased maternal choice, which are also recognised as important factors for rural patients in other Australian and Canadian studies.⁵ When there is a lack of local maternity services in rural communities, due to maternity unit closure or workforce shortages, women receive suboptimal 'fragmented' care.⁵ Against the perceived advantage of centralising rural maternity services, there are social, cultural, financial and emotional risks to consider when women travel to give birth, such as separation from community and support networks, financial burdens and, specifically for Indigenous women, issues surrounding birthing on country.^{1,2} Further, maternity services are invaluable and positively contribute to regional communities, supporting the view that 'maternity and newborn care are lynchpins for sustainable communities medically, socially and economically'.⁵

There were multiple challenges identified to practising GP obstetrics in the MLHD in this study. All participants raised the issue of diminishing services and workplace shortages of staff and GP obstetricians in the MLHD placing services in the smaller units at risk. This is consistent with reported trends of a declining rural Australian GP procedural workforce.^{9,10,23} Specific issues for the Murrumbidgee region included lack of upskilling opportunities for staff in some areas, such as training more theatre staff to support emergency deliveries, and the failure of services being proactively managed and maintained. Swayne and Eley¹⁰ advocate for the importance of sound facilities and strong workforces in rural obstetrics, highlighting the importance of a 'synergistic model of rural procedural practice' with 'additive effects of the combined efforts of staff, support services and resources (being) greater than the sum of the parts'.¹⁰

Bureaucracy was listed as a barrier at multiple levels. Some of the GP obstetricians described challenges at the interpersonal level between different staff, including other clinicians and administration, while others experienced this barrier at higher levels, including at the LHD management level, affecting service planning and delivery. Other

studies have suggested that this is problematic as the 'bureaucracy' is making decisions regarding maternity service units but is disconnected from the rural towns where these choices directly impact.¹⁰ Despite well-established safety of GP obstetrics, there are still concerns regarding safety, litigation and indemnity costs with clinicians. These concerns are also reflected in the literature^{9,10,23} with suggestion of an 'indemnity crisis' and 'rising indemnity costs and high-profile medico-legal cases' affecting GP obstetrics.²³

GP obstetricians within the MLHD proposed improving support systems and training programs for existing and new GP obstetricians. In particular, those GPs who want to train and practise in particular locations due to family and their own support systems should be supported to do so. One study has had success showing that employing models of training that support new GP trainees to undertake procedural obstetric training fosters maternity service improvement.⁹ However, this study was undertaken in Gippsland where there is a strong GP obstetric workforce, limiting transferability to the MLHD where the GP obstetric workforce has diminished. In addition to proactive succession planning of the future workforce, the present study suggested that current GP obstetricians must be further supported in their communities, and service and staffing issues must be addressed. Solutions in the MLHD should focus on proactive management and maintenance of existing maternity services to keep these units sustainable and functioning, and offering opportunities such as courses for upskilling staff. Previous research ascertained that solutions must incorporate innovative local partnerships, which help build sustainable training models²⁴ and clinical support, mentoring and supporting networks.⁶ In the Murrumbidgee region, there are support networks between clinicians in different rural towns within the LHD; however, this could be further supported and fostered. Solutions around litigation risk, locum support and ongoing funding to maintain procedural skills have been proposed to improve workforce sustainability¹⁰ but were not raised by participants in this study and may be an area of future research.

Future research should consider perspectives of other important stakeholders, such as younger graduates, midwives, LHD management and consumers. This would assist in forming a holistic understanding of local maternal health services, particularly regarding barriers and challenges. Future research should also identify, evaluate and work to implement possible solutions for the LHD, including those identified so far such as improving training programs, addressing service and staffing issues and improving support systems. This will include proactive

succession planning of health care professionals and maternity facilities to ensure the ongoing viability of smaller obstetric facilities and GP obstetrics throughout the region.

One of the limitations of this study related to the public data wherein hospitals were not listed individually if births per year were <200, with all hospitals Level 3 and below grouped together. Further, analysis of safety outcomes was limited by factors available in the reports. Consequently, other safety-related intrapartum and postpartum factors and confounders could not be taken into account. The qualitative component of this study comprised interviews with a small number of GP obstetricians from one region, most of whom no longer practised obstetrics. Thus, it may not necessarily be generalisable to other rural general practitioners. However, it does provide valuable information about challenges that are relevant to many rural and regional areas in NSW.

5 | CONCLUSION

Although the public health data provided evidence that GP obstetricians are providing a valuable, safe service in the MLHD, interviews highlighted several specific challenges that affect GP obstetricians' practising in the MLHD. Possible solutions were proposed and actions should be taken to evaluate and implement these potential solutions, including proactive service delivery planning, facility maintenance and succession planning of health care professionals to ensure the ongoing viability of these smaller facilities. GP obstetricians, as key stakeholders, should be supported in their roles and be involved in decision-making to help better inform policy and provision of obstetric services.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTION

MT: conceptualization; data curation; writing – original draft. CH: conceptualization; data curation; methodology; writing – review & editing. IS: conceptualization; methodology; writing – review & editing. JM: conceptualization; methodology; writing – review & editing. AS: data curation; writing – original draft; writing – review & editing.

ETHICAL APPROVAL

Ethics approval was granted by The University of Notre Dame Australia Human Research Ethics Committee (017143S).

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