Queensland Health

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Rural Maternity Taskforce Report

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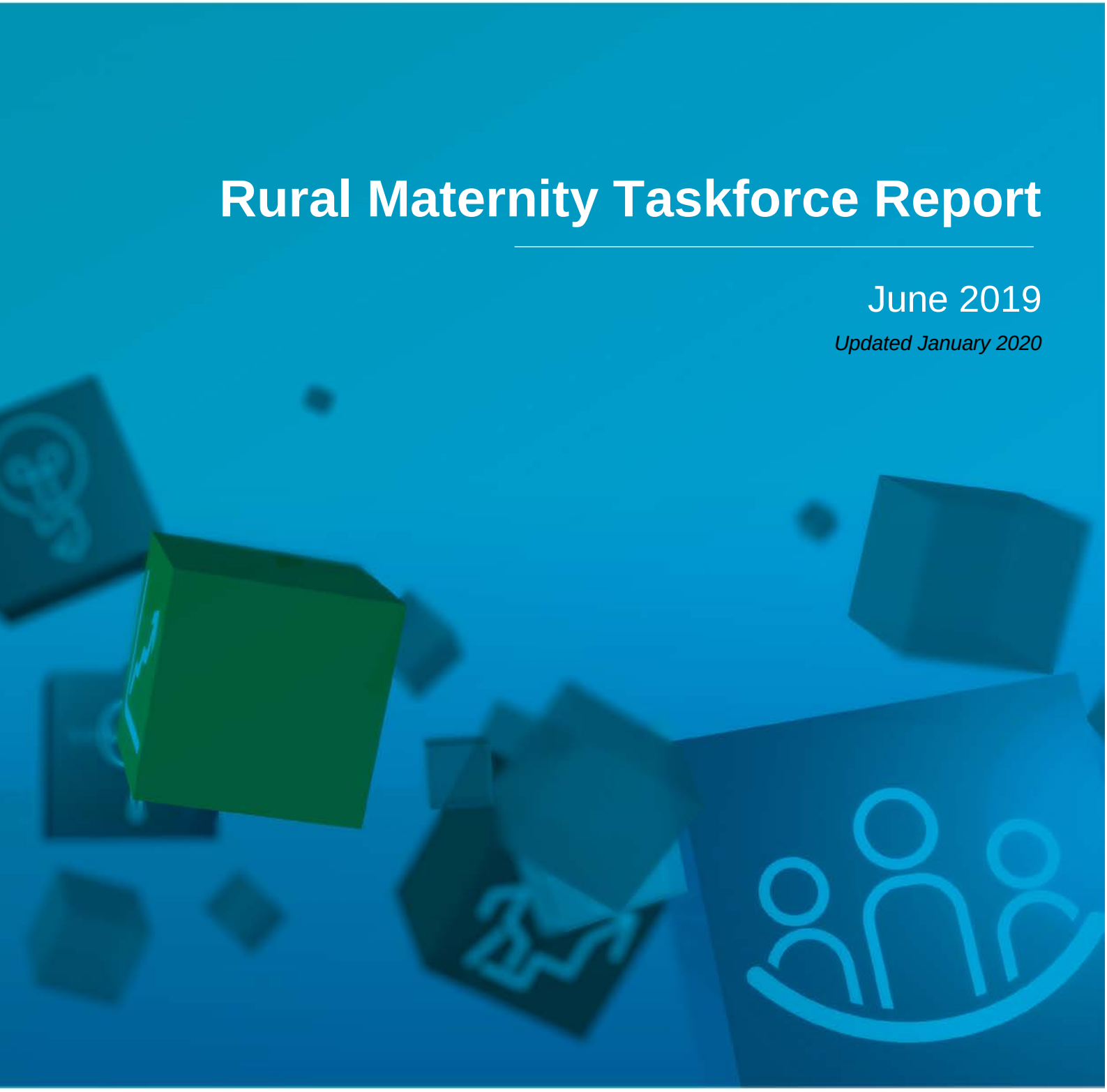

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Rural Maternity Taskforce Report

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Letter to the Minister

The Honourable Steven Miles MP
Minister for Health and Minister for Ambulance Services
PO Box 48
Brisbane QLD 4001

Dear Minister,

I am pleased to present the enclosed report of the Queensland Rural Maternity Taskforce (the Taskforce), which includes six recommendations for consideration by the Queensland Government.

Every day in Queensland, rural and remote women leave family and business, travel long distances on rough roads often without the security of mobile phone coverage, and endure financial, social, and emotional hardship just to access the maternity care that urban people have on their doorstep.

A group of very special midwives, nurses, generalist doctors, and Aboriginal and Torres Strait Islander health workers choose to forgo city convenience and the plethora of specialists and support services, to provide GP and hospital care to rural communities. With advanced skills including obstetrics, midwifery, neonatal resuscitation, anaesthetics and surgery, arguably they have the most difficult job in healthcare. Their reward is often the close connections they develop with the community and the women they care for.

The work of the Taskforce is dedicated to rural and remote women and their families, and the special people who choose to serve them as clinicians.

The Taskforce was established in August 2018 to advise the Minister on the status of rural maternity services in Queensland, with a focus on safety and access. It includes rural consumers, front-line clinicians, Aboriginal and Torres Strait Islander organisations, professional organisations and unions, researchers, policy makers, and health service leaders. Despite many differing experiences and perspectives, I am immensely proud of the way the members worked together to build trust, listen, and come to consensus on Taskforce deliverables and recommendations.

The Taskforce set an ambitious agenda including calling for public submissions, evidence review, comprehensive analysis of existing safety data, and visits to five rural maternity services to hear from consumers, community members, rural clinicians and health service leaders. This has allowed Taskforce members to consider the different perspectives and at least attempt to ‘walk in the shoes’ of stakeholders.

There are three sections to this report that present key activities undertaken by the Taskforce. The Stakeholder Consultation section provides the perspectives and opinions of the stakeholders in rural and remote communities; the consumers, clinicians, community members and health service leaders who have the lived experience of accessing, working within, and managing and planning maternity services in rural and remote communities. The Public submission section provides a summary of the views of the wider population of Queensland regarding the issues with, and suggestions to improve, rural and remote maternity services. The Data Analysis section provides a detailed analysis of the safety data for rural and remote maternity services in Queensland. The recommendations contained in this report are based on consideration of all this information.

Rural and remote maternity services are a barometer for rural health services in general. The same clinicians providing maternity services to rural communities often provide all the other emergency and planned healthcare for the community. Loss of maternity and procedural skills means loss of broader skills available to the community. The result is that moving to such a community becomes less attractive

to highly trained doctors and midwives and young families. There is also a sense of loss for the community that has invested time, money, and energy in supporting their local health service. For this important reason, it is not possible to consider rural maternity in isolation from the sustainability of the broader rural health service.

Between 1996 and 2005 a significant number of rural maternity services downgraded. Since then there has been a preference by some clinicians and administrators to keep maternity services centralised within major towns and cities. There are many legitimate contributing factors to this direction including societal changes, increased clinical standards and scrutiny, skills shortages including chronic recruitment and retention issues, safe working hours, and cost efficiency. Whilst all these factors are legitimate, it would appear that we have been reluctant to engage with communities and rural clinicians to share these challenges, and work together on solutions.

Rural maternity services including birthing, can be delivered with very good levels of safety for mother and baby, when risk identification and emergency support systems are well planned and well managed. Indeed, in some cases, centralisation may have contributed to new risks such as an increase in the incidence of giving birth before arrival at hospital. It certainly has contributed to greater psychological, spiritual, social, and financial impacts on rural and remote women; they feel less safe as a result of losing local services.

There is no simple solution to this complex challenge. However, the Taskforce asserts that it is time to reconsider centralisation of maternity services. With careful planning and clear goals, it should be possible to both strengthen existing services and introduce new services in rural and remote areas that are safe, sustainable and meet the needs of the community.

For this to happen, there will need to be stronger governance and visibility of rural and remote services at a system level, to enable them to compete in a funding and performance model that is focused on big hospitals, volume and efficiency, emergency departments and elective surgery. Collaboration with clinicians and consumers and the inclusion of Aboriginal and Torres Strait Islander and multicultural representation should be embedded within the system.

On behalf of the Taskforce, sincere thanks to all those who have contributed to this critical work, and especially the women, families, and clinicians of rural and remote communities who shared their stories with us. Strong, sustainable and connected rural health services are critical to Queensland. I hope that our work will lead to positive change for rural communities and the clinicians who live and work in them.

Finally, I would like to personally thank all the members of the Taskforce for their wisdom, guidance and passion for improving rural maternity services and Kelly Shaw of KP Health for her invaluable contribution to the stakeholder engagement process.

Yours Sincerely,

Dr John Wakefield PSM

Chair Queensland Rural Maternity Taskforce

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Glossary

Antepartum Haemorrhage	The mother had an antepartum haemorrhage (ICD-10-AM of O20, O46) recorded in the perinatal record or any hospital admission after the date of conception and up to and including the birth record.
Apgar Score	Scoring system, developed in 1952 by Virginia Apgar, an anaesthesiologist from New York, used to assess newborns at one minute and five minutes after they are born. Apgar has been developed in to a mnemonic that stands for: A: Appearance (skin colour) P: Pulse (heart rate) G: Grimace (response to stimulation, such as suctioning the baby's nose) A: Activity (muscle tone) R: Respiration (breathing)
Born Before Arrival	A baby born outside of a hospital at a location that is not the intended place of birth e.g. hospital car park or on the way to hospital in an ambulance or car. It includes babies born at home where the mother at the onset of labour intended to have her baby in a hospital but actually gave birth at home. It does not include home births that were planned.
Birth Centre	A healthcare facility with a home-like environment where care is provided by a single known midwife or small number of midwives. It is usually only available to women whose pregnancy is considered to be low-risk.
Bishop Score	The Bishop score is commonly used to assess the cervix and to inform the choice of method for induction of labour. Each feature of the cervix (dilation, length, station relative to the ischial spines, consistency, position) is scored and then the scores are summed. The state of the cervix is one of the important predictors of successful induction of labour (Queensland Clinical Guidelines 2017).
Causal pathway	The process or pathway (in statistical analysis) through which an outcome is brought into being.
Clinical Services Capability Framework (CSCF)	A Queensland Health tool that outlines the minimum support services, staffing, safety standards and other requirements required in both public and private health facilities to ensure safe and appropriately supported clinical services. The categorisation of a hospital into framework levels for a service is based on hospital self-rating (Queensland Health 2018).
Collaborative working[1]	The way in which clinicians work together to meet the woman's expectations and achieve the best possible outcome of a pregnancy. Elements include: • Respectful communication and teamwork • Co-development of local clinical protocols and clear 'time-critical' response systems • Regular involvement in multidisciplinary case review, clinical indicators, learning and quality improvement • Working together to keep the woman fully informed and respect her choices.
Continuity of carer	When a health professional who is known by the woman provides all her care, thus enabling the development of a relationship.

[1] See also: Department of Health, 2019. *Clinical Practice Guidelines: Pregnancy Care. Part B: Core Practices in pregnancy care, 7 Providing pregnancy care services.* Canberra: Australian Government Department of Health. https://beta.health.gov.au/resources/pregnancy-care-guidelines/part-b-core-practices-in-pregnancy-care/providing-pregnancy-care-services.

Credentialing	The formal process used to verify the qualifications, experience, professional standing and other relevant professional attributes of health practitioners for the purpose of forming a view about their competence, performance and professional suitability to provide safe, high-quality health services within specific organisational environments (ACSQHC 2015).
Credentials	The practical experience, qualifications, professional awards and statements of competency issued by an authorised and recognised body that attest to a practitioner's (clinician's) education, training and competence and relevant practical experience (ACSQHC 2015).
Explanatory variable	A type of variable in statistics where it isn't certain that it is an independent variable.
Fetal death (stillbirth)	Defined by the Registration of Births, Deaths and Marriages Act as a child who has shown no sign of respiration or heartbeat, or other sign of life after completely leaving the child's mother and who has been gestated for 20 weeks or more or weighs 400g or more.
Gestational Diabetes	The mother had diabetes arising during pregnancy (ICD-10-AM O24.4) recorded in the perinatal record or any hospital admission after the date of conception and up to and including the birth record.
Gestational Hypertension	The mother had hypertension arising during pregnancy (ICD-10-AM O13) recorded in the perinatal record or any hospital admission after the date of conception and up to and including the birth record.
Live births	Defined by the Public Health Act 2005 as a 'baby whose heart has beaten after delivery of the baby is completed'.
Midwifery Group Practices	A small number of midwives working in a group with each midwife having their own caseload and providing backup for the other midwives in the group practice. A woman has primary midwife assigned to her throughout her pregnancy, during birth, and in the early weeks at home. Sometimes also called 'Caseload Midwifery'. (AIHW 2019)
National Boards	There are 15 National Boards that represent the following health professionals: Aboriginal and Torres Strait Islander health, Chinese medicine, chiropractors, dentists, medical doctors, medical radiation practitioners, nursing, midwifery, occupational therapists, optometrists, osteopaths, paramedics, pharmacists, physiotherapists, podiatrists, and psychologists. The primary role of the National Boards is to protect the public and they are also responsible for registering practitioners and students, as well as other functions, for their professions.
Perinatal mortality	Defined in this report as all fetal deaths (stillbirths) of at least 20 weeks gestation or at least 400 grams birthweight and neonatal deaths (deaths of liveborn babies of any weight or gestation within the first 28 days of life).
Pre-eclampsia	The mother had pre-eclampsia (ICD-10-AM of O14) recorded in the perinatal record or any hospital admission after the date of conception and up to and including the birth record.
Pre-existing Diabetes	The mother had pre-existing diabetes (ICD-10-AM of E10-E14, O24,0-O24.3, O24.9) recorded in the perinatal record or any hospital admission after the date of conception and up to and including the birth record.
Pre-existing Hypertension	The mother had pre-existing hypertension (ICD-10-AM O10-O12, O16) recorded in the perinatal record or any hospital admission after the date of conception and up to and including the birth record.

Recommended minimum antenatal visits for gestational age	A measure of whether the mother had attended at least the recommended number of antenatal visits for the gestational age at which the baby was born; based on the Queensland Pregnancy Health Record[2]. • Less than 20 weeks gestation; At least 2 visits • 20-24 weeks; At least 3 visits • 25-27 weeks; At least 4 visits • 28-30 weeks; At least 5 visits • 31-33 weeks; At least 6 visits • 34-35 weeks; At least 7 visits • 36-37 weeks; At least 8 visits • 38 weeks or more; At least 9 visits
Regression analysis	Statistical processes for estimating the relationship between variables.
Relative risk	Also known as a risk ratio. The probability of an event (risk) occurring in the exposed (study) group compared to the probability of the same event occurring in the non-exposed (control) group. The risk is expressed as a ratio. If both groups face the same level of risk, the relative risk is 1. If the first group had a relative risk of 2, subjects in that group would be twice as likely to have the event happen. A relative risk of less than 1 means the outcome is less likely in the first group. (NICE 2019)
Remoteness	Defined using the Australian Statistical Geography Standard (ASGS) and the Accessibility and Remoteness Index of Australia (ARIA+) categories as described by the Australian Bureau of Statistics (ABS, 2018).
Statistical Area level 2 (SA2)	Medium-sized general-purpose areas in the Australian Statistical Geography Standard that are intended to represent a community that interacts socially and economically. In cities, SA2s represent suburbs whereas in rural and remote areas a town and associated areas may be represented by one or a number of SA2s depending on size (ABS, 2016).
Socio-Economic Indexes for Areas (SEIFA)	Product developed by the Australian Bureau of Statistics that ranks areas in Australia according to relative socio-economic advantage and disadvantage. The information is based on the five-yearly census[3].
Univariate analysis	Analysis of only one variable.
Woman-centred care	Recognises the woman's baby or babies, partner, family, and community, and respects cultural and religious diversity as defined by the woman herself. Woman-centred care considers the woman's individual circumstances, and aims to meet the woman's physical, emotional, psychosocial, spiritual and cultural needs. This care is built on a reciprocal partnership through effective communication. It enables individual decision-making and self-determination for the woman to care for herself and her family. Woman-centred care respects the woman's ownership of her health information, rights and preferences while protecting her dignity and empowering her choices. (NMBA 2018)

[2] https://www.health.qld.gov.au/__data/assets/pdf_file/0030/433659/pregancy_rec.pdf

[3] http://www.abs.gov.au/websiTedbs/censushome.nsf/home/seifa

Abbreviations

ABS	Australian Bureau of Statistics
ACM	Australian College of Midwives
ACRRM	Australian College of Rural and Remote Medicine
ACSQHC	Australian Commission on Safety and Quality in Health Care
AHMAC	Australian Health Ministers Advisory Council
AHPRA	Australian Health Practitioner Regulation Agency
AIATSIS	Australian Institute of Aboriginal and Torres Strait Islander Studies
AIHW	Australian Institute of Health and Welfare
AMA	Australian Medical Association
ARBI	Australian Rural Birthing Index
ARIA +	Accessibility and Remoteness Index of Australia
ASGS	Australian Statistical Geography Standard
BBA	Born Before Arrival
BMI	Body Mass Index
CEQ	Clinical Excellence Queensland
CEWT	Children's Early Warning Tool
CAH	Cairns and Hinterland
CTG	Cardiotocography
COAG	Council of Australian Governments
CTQ	Central Queensland
CSCF	Clinical Service Capability Framework
CTW	Central West
DDS	Darling Downs
DMF	Decision-Making Framework
DRANZCOG Advanced	RANZCOG GP Diploma Advanced
ETT	Endotracheal tube
FARGP	Fellowship in Advanced Rural General Practice
FACRRM	Fellow of ACRRM
FOG	Flying Obstetric and Gynaecology
FRACGP	Fellowship of the RACGP
FROGS	Far North Regional Obstetric and Gynaecological Service
GOL	Gold Coast
GP	General Practitioner
HHS	Hospital and Health Service
HIE	Hypoxic Ischemic Encephalopathy
ICD-10-AM	International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification
IMPROVE	Improving Perinatal Review and Outcomes Via Education
IPPV	Intermittent positive pressure ventilation
MAC	Mackay
MIDUS	Midwifery UpSkilling Course
MHS	Mater Health Service
MNT	Metro North
MPHC	Multi-Purpose Health Centre
MSAG	Maternity Services Action Group
MST	Metro South

NEWT	Neonatal Early Warning Tool
NICE	National Institute for Health and Clinical Excellence
NL	No level
NTW	North West
NMBA	Nursing and Midwifery Board of Australia
OC	Outpatients Clinic
PDC	Perinatal Data Collection
PHC	Primary Health Centre
PROMPT	Practical Obstetric Multi-Professional Training
PSANZ	Perinatal Society of Australia and New Zealand
PSQIS	Patient Safety and Quality Improvement Service
QCMB	Queensland Centre for Mothers and Babies
Qld	Queensland
Q-MEWT	Queensland Maternity Early Warning Tool
QMPQC	Queensland Maternal and Perinatal Quality Council
QNMU	Queensland Nurses and Midwives' Union
RACGP	Royal Australian College of General Practitioners
RANZCOG	Royal Australian and New Zealand College of Obstetricians and Gynaecologists
RG	Rural Generalist
ROPP	Right of Private Practice
RRMS Planning Framework	Rural and Remote Maternity Services Planning Framework
SMNCN	Statewide Maternal and Neonatal Clinical Network
SA2	Australian Statistical Geography Standard Statistical Area level 2
SEIFA	Socio-Economic Indexes for Areas
SCT	Sunshine Coast
SWT	South West
TEMSU	Telehealth Emergency Management Support Unit
TVL	Townsville
TAC	Torres and Cape
VMO	Visiting Medical Officer
WBY	Wide Bay
WTM	West Moreton

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Executive summary

"When you've seen one rural maternity service…You've seen one rural maternity service"
(Rural Maternity Clinician)

The provision of health services in rural and remote communities is very different from that in regional and metropolitan areas. Geography and scale create unique challenges and the workforce tends to be generalist rather than specialist. The many support services present in cities and towns are usually absent in rural and remote areas with the rural hospital often being the provider of primary, community and aged care services. The small scale creates major challenges in the provision of safe work hours and sustainable work-life balance for clinicians. The loss of one staff member can mean the loss of critical services. Isolation can create major challenges for maintenance of skills and opportunities to upskill. An advantage of small scale is that clinicians can develop a more meaningful and holistic relationship with patients and have a broader understanding of their health concerns and the external factors that impact upon them. The models of care that are provided in rural and remote areas can depend on the skill mix of the available clinicians, but in many small communities continuity of carer is achieved by default.

The Queensland Rural Maternity Taskforce (the Taskforce) was established in August 2018, at the request of the Minister for Health and Ambulance Services in response to concerns raised by the media and consumer groups regarding the provision of safe and accessible maternity services in rural and remote areas. The Taskforce was asked by the Minister to advise on the safety of current rural maternity services in Queensland and explore what steps can be taken to minimise risks for mothers and babies in rural and remote communities, whilst providing services as close as possible to where they live. Membership of the Taskforce includes consumers, front-line clinicians, Aboriginal and Torres Strait Islander consumers and organisations, professional organisations and union representatives, researchers, policy makers, and health service leaders. The Taskforce had two key deliverables: a report on the safety of current rural maternity services in Queensland, and the development of a decision-support guide, known as the Rural and Remote Maternity Services Planning Framework that will support Hospital and Health Services in decision making on rural and remote maternity service provision.

The report consists of three key sections. The data analysis section provides information on geographical access to maternity services, clinical outcomes, and risk factors for rural women and their babies. The data analysis is complemented by the stakeholder engagement and public submission sections. These provide the perspectives and opinions of the consumers, clinicians, community members and health service leaders who have the lived experience of accessing, working within, and managing and planning maternity services in rural and remote communities, and the views of the wider population of Queensland.

Of the 40 public maternity services that currently provide birthing, antenatal and postnatal services in Queensland, 32 are located in regional, remote and very remote areas. The majority of these services are CSCF level 3, which can provide planned births for a healthy woman with a pregnancy of 37 weeks gestation or greater and who is not expected to have complications in labour or birth. The data analysis found that approximately 96% of women who give birth live within a one-hour drive of a public maternity service. Of the remaining 4% who live an hour or more from that service, a third are Indigenous. For women living four or more hours from a maternity service this increases to 80% who are Indigenous.

The closure of maternity services has not been a slow steady progression over a few decades as suggested by the media. While a number of services closed between 1996 and 2005, service numbers have remained relatively stable since then. From 2011 to 2017 six services closed and five opened. However, the loss of rural birthing services, and a preference by some clinicians and administrators to keep the concentration of maternity services within major towns and cities is having unintended

consequences. These include loss of skills base from rural hospitals; health, social and economic consequences for women and families; and introduction of new risks to the safety of the mother and baby, which may outweigh any intended safety benefits.

The analysis showed that perinatal and neonatal mortality rates were a maximum of 1.7 times higher for women in very remote areas compared to women in regional areas. This increased rate was found to be partly explained by maternal health factors that can be modified by good access to social and health support before and during pregnancy. The main conclusion from this is that more work needs to be done to support better general health of women in rural and remote areas, including improved access to primary and preventive health services and better social care services.

The rate of babies being born before arrival at hospital (BBA) was found to be increasing and has more than doubled since 2000. The BBA rate is highest for women who live between one and two hours from maternity services. This suggests that the centralisation of rural maternity services may be contributing to more unintended home births or births by the roadside due to the longer distances women have to travel to birth. Whilst there are fewer BBAs in very remote areas, this is possibly because women are relocated closer to a birthing service many weeks prior to the estimated birth date, which has its own risks and challenges for the women, their babies, and families

The stakeholder engagement and submission processes found that some clinicians believe women take unnecessary risks for themselves and their babies or are willing to accept higher risk rates than clinicians are comfortable with. Clinicians may only be considering clinical risks for the mother and baby, and professional risks for themselves. They may not fully appreciate the complex interaction between clinical, social, cultural, spiritual, and financial aspects of safety and risk that the woman considers when choosing what she believes is best for herself and her baby. In an attempt to reduce clinical and professional risks, decisions made by clinicians and health services create other risks that are transferred to the mother and baby.

Women want to be informed about all their maternity options, not just the ones that are locally available. They want continuity of carer within welcoming, comfortable, culturally appropriate services as close to home as possible. They want adequate support and resources when they have to travel away from home to access maternity services. Community members and clinicians want to be involved in, not just consulted on, the development and review of maternity services. They want transparency in how decisions are made and for more than just clinical safety to be considered.

Aboriginal women in some communities told the Taskforce they want more welcoming environments within which to give birth, and to see more Indigenous women in maternity workforce roles. Aboriginal and Torres Strait Islander consumers would like to be consulted separately from other consumers, as well as participating in the broader consumer engagement process.

Clinicians want to be supported by the heath service to provide continuity of carer in a safe, collaborative environment. They want adequate support and resources to maintain their professional skills and work to their full scope of practice. They want good peer networks and mutually respectful relationships with the higher-level services they refer to. Clinicians and women want good communication and clear processes in place for when women are transferred between services.

Rural and remote maternity is the barometer for the health of all rural services and a keystone for rural and remote communities. Appropriate governance, whole-of-system planning, and funding models are required to support and sustain rural hospitals, and reduce reliance on centralisation based on economies of scale.

Recommendations

In the light of the findings in the data analysis section and information obtained from the written submissions and five rural visits, the following recommendations are made:

1. **Queensland Health establish clear whole-of-system governance and strategy for rural and remote health services.**

   Rationale – The current health system funding and performance management model is geared to urban based specialist hospital services, operating efficiently at scale, with a focus on performance measures of emergency department, specialist outpatient and elective surgery waiting lists. Given the very different circumstances of small hospitals, with a generalist medical workforce, limited access to support services, and need for 24/7 operations with a small multi-skilled workforce, specific system governance is required to ensure that the needs of rural communities and providers are carefully considered. A clear whole-of-system governance and strategy for rural health service delivery in Queensland is required that brings together: education and training; workforce; planning, funding and performance management; sustainability; and safety and quality. Ring-fenced funding allocation specifically for rural and remote maternity services should be considered in the health budget.

2. **Queensland Health undertake comprehensive system-wide planning of rural maternity service provision.** The broad aim should be to strengthen the case for bringing rural maternity services closer to home; strengthen and improve existing CSCF level 2 and 3 services, and carefully plan for re-establishment of key level 2 and 3 maternity services in collaboration with local communities.

   Rationale – The increasing rates of babies born before arrival (BBA) at hospital, and the relatively high rate of BBA amongst women who live between one and two hours' drive from a maternity service that has caesarean section capability, prompts the need to carefully plan the re-establishment or strengthening of existing level 2 and 3 services. Providing maternity services close to where women live improves outcomes for both the mother and baby; and clinical, social, cultural, spiritual, and financial risks for women, their babies, and their families are reduced. Planning should include consideration of the risks for woman and their families that arise when women travel long distances for maternity services and spend extended periods of time away from their community, usually at a substantial cost to the woman and her family. Clinical risks may be reduced from the health system perspective, but other risks are increased for the woman and her baby.

3. **HHSs invest in and promote improved rural maternity service collaborative culture and teamwork as a core to ensure best outcomes for women and babies.**

   Rationale – Acknowledging the evidence demonstrating the widespread benefits associated with continuity of care, the development of a culture of collaboration, trust and teamwork between doctors, midwives, Aboriginal and Torres Strait Islander health workers and nurses is especially critical in rural settings where emergency specialist support is often hours away. This does not happen by accident. It requires investment in relationships, joint training and education, and shared quality and case reviews, across the network of services including the specialist service; and additional support for inexperienced clinicians. Careful selection, development, and support of medical and midwifery leaders to create this culture is critical to safe outcomes for women, their babies, and the staff providing care. Collaboration with consumers and the community when developing and reviewing services is just as critical for ensuring the service is sustainable and meets the needs of the community.

4. **Each HHS (localised for each maternity service) develop an easy-to-understand guide for women, which summarises their local maternity model options. Queensland Health to co-design a template with consumers and service providers.**

   Rationale – Women universally indicated that they are not provided with information on models of care choices available to them locally or at a referral service; differences in risk with maternal and neonatal factors or service factors; and importantly, what the protocol is if an unforeseen emergency occurs during labour or if service provision changes. Rural maternity services should consider all aspects of maternity care in service delivery, including post-natal care which receives much less attention than it should.

5. **Queensland Health mandate HHSs to follow evidence-based framework for decision-makers in assessing and configuring rural maternity services.**

   Rationale – There is currently little formal guidance for HHS decision makers on how to assess, review and configure rural and remote maternity services. Assessments of safety and risk seem to be narrow, lack transparency and whilst well intentioned, may overstate the risk for women and babies, especially if they are risk screened only for clinical factors. A Rural and Remote Maternity Services Planning Framework is being developed by the Taskforce to support a more evidence based and transparent approach to rural maternity service delivery, taking into account the key issues, criteria, and processes. This framework has been developed by the Taskforce to assist HHSs in planning, evaluating, improving and re-configuring rural and remote maternity services. The framework includes essential steps in engaging with consumers and the local community using a co-design approach. The System Manager should mandate the use of this guide as part of its assurance system.

6. **Queensland Health identify and coordinate local and state-wide actions to improve maternal health in rural and remote communities. Remote Indigenous communities should be a priority.**

   Rationale – The data analysis identified poorer outcomes, i.e. stillbirth, neonatal death, or pre-term birth for Aboriginal and Torres Strait Islander families and women living in remote communities.

   The taskforce recognises the added challenges of providing services in these communities and that strategies are needed to reduce the prevalence of modifiable risk factors and to improve services. Maternity services must address the psychosocial determinants of health working with a primary healthcare approach that includes overarching Indigenous governance to ensure that women feel culturally safe. Strategies will need to be developed to ensure appropriate representation of Aboriginal, Torres Strait Islander, and culturally and linguistically diverse people in the maternity service workforce.

Fast facts and findings

- The definition of ‘safety’, ‘risk’, and ‘a good outcome’ mean different things to consumers, clinicians, and the executives who plan and manage the services provided in the Hospital and Health Services (HHSs).
- Women want to be provided with information about their maternity options (antenatal, birth and postnatal) both locally and elsewhere, and want to be supported to access their preferred maternity options.
- Many women want access to maternity services as close to home as possible, with continuity of carer the preferred option.
- Women who need to travel away from home to access care want improvements in subsidy and reimbursement schemes, transport and accommodation (including for older children and support persons) to lessen some of the impacts of travel on them and their families.
- Aboriginal and Torres Strait Islander women want more welcoming environments within which to give birth and to see more Indigenous women in maternity workforce roles.
- All consumers and community representatives, including Aboriginal and Torres Strait Islander people, want to be engaged from the beginning of maternity services planning processes and on an ongoing basis throughout design and review.
- The psychological safety of clinicians needs to be supported. Many clinicians reported they do not regularly participate in structured or facilitated reflective practice where they continue to be supported in their role on an ongoing basis, and where psychological distress can continue to be monitored for and worked on.
- Clinicians in rural and remote communities reported difficulties in accessing training and skills development and maintenance that included: not enough pregnant women for all maternity providers in the community (doctors, midwives, nurses) to maintain their skills in their respective disciplines, being unable to be released from work due to work-force shortages, lack of funding and support, and lack of on-site training.
- Incentives for midwives, nurses and allied health clinicians to work in rural and remote communities were significantly less than those for doctors, e.g. employment contracts and options including preferential housing, pay and conditions such as on-call payment, professional development and Right-Of-Private-Practice arrangements, which may contribute to recruitment and retention issues.
- Communication and information sharing between services and with the women could be improved, especially when a woman is transferred to a higher-level service or returns to her community.
- No pregnancy is risk-free but there needs to be a balance between what consumers, clinicians, health services, and the government consider to be acceptable risks and how to address them.
- 32 of the 40 facilities in Queensland that provide birthing (along with antenatal and postnatal services) are located in regional, remote and very remote areas (CSCF levels 2 to 6).
- 20 of those facilities are in outer regional, remote and very remote regions of Queensland.
- There is only one CSCF level 2 maternity service in Queensland and few women have access to birth centres.
- 78 regional, rural and remote facilities identify as a CSCF level 1 facility that provides antenatal and postnatal services on-site.

- 96 per cent of mothers who gave birth between 2013 and 2017 lived within a one-hour drive of a Queensland Health facility that provides birthing (CSCF level 2 to 6).
- The remaining four per cent accounts for 9,257 mothers who lived an hour or more from a public birthing facility during the five-year period; 3,066 (33 per cent) of these women are Indigenous.
- Of the women living four or more hours from a maternity service 80 per cent are Indigenous women.
- 35 per cent of all women and 46 per cent of Indigenous women are not attending the minimum recommended number of antenatal visits.
- Smoking during pregnancy and maternal obesity, irrespective of where a mother lives, are risk factors that increase the chances of a baby dying during pregnancy or within 28 days after birth. However, rates of smoking and obesity are higher in rural and remote locations.
- Women who live four or more hours from a maternity service have higher rates of all risk factors and higher rates of preterm birth, stillbirth and neonatal death than women who live close to services.
- In very remote areas, the rate of perinatal death is of the order of 1.6–1.7 times the rate of the inner and outer regional areas.
- When risk factors that are not associated with quality of care at the time of birth were included in statistical models calculating the chance of neonatal mortality, stillbirths and preterm births occurring, the rate of these outcomes occurring was not found to be higher in rural and remote areas than in urban areas. This suggests that it is important to focus on reducing the higher rates of risk factors present in the population residing in rural and remote areas in order to reduce the higher rate of adverse outcomes observed.
- The rates of babies born before arrival (BBA) at hospital are increasing in Queensland and are highest among women who live between one and two hours from a maternity service with caesarean section capability. This area requires further investigation.
- The findings of this report highlight the importance of ensuring women in rural and remote areas have access to appropriate, culturally safe services that meet their needs. This has important implications for service planning and targeting of prevention initiatives.

1. Introduction

The Rural Maternity Taskforce (the Taskforce) was established in August 2018, at the request of the Queensland Minister for Health and Ambulance Services to advise the Minister on the safety of current rural maternity services in Queensland. The focus of the Taskforce was to explore what steps can be taken to minimise risk for mothers and babies in rural and remote communities, whilst providing services as close as possible to where they live.

The Taskforce is a stakeholder panel comprising consumers, front-line clinicians (health professionals), Aboriginal and Torres Strait Islander consumers and organisations, professional organisation and union representatives, researchers and health service leaders[4], which was established to:

- engage with key stakeholders in rural and remote Queensland regarding access to, and provision of, safe and sustainable woman-centred care
- gain an understanding of the issues, concerns, and expectations in those communities
- enable the development of appropriate recommendations that support and enable the provision of suitable woman-centred care as close as possible to where women live, whilst enabling good outcomes for mothers and babies in rural and remote communities.

The Taskforce met regularly between August 2018 and June 2019 to progress the following two deliverables:

- a report on current maternity services, including an analysis of the factors that affect access to and safety of services, and outcomes for mothers and babies
- a decision-support guide, known as the 'Rural and Remote Maternity Services Planning Framework' (RRMS Planning Framework), for HHSs to assist with planning, developing and delivering rural and remote maternity services.

Three key activities of the Taskforce that inform the development of the RRMS Planning Framework are:

1. **Stakeholder engagement through rural and remote forums** held in February and April 2019, in Ingham, Mt Isa, Roma, Theodore, and Chinchilla. Forums were also held in corresponding regional hubs of Townsville, Rockhampton and Toowoomba.
2. **A public submission process** from 3 December 2018 to 18 February 2019 whereby the Taskforce invited individuals and organisations to make submissions regarding:
   - issues concerning the safety or quality of current rural and remote maternity services in Queensland
   - actions/suggested approaches that could be taken to address identified issues.
3. **Queensland Maternity Summit – Rural and Remote,** 19 June 2019.

1.1. Purpose and scope

The original intention of this report was to be an objective technical report of the facts about the safety of giving birth in a rural setting. During its development, and the progress of the Taskforce in its stakeholder engagement processes, it became clear that the report needed to include insights into the lived experiences of the women and babies behind these facts and figures, their family and the communities, the clinicians who work in rural and remote locations, and the health service managers who ensure the clinicians and women have the resources and environment to be safe and practise safely. For this

[4] Full list of members is available in Appendix A: Terms of reference.

reason, the outcomes and feedback from the rural forums and public submission process have been included in this report.

The data analysis section provides facts on perinatal outcomes for women who live in Queensland's rural and remote areas compared with those who live in urban areas. It includes analysis of the factors which influence this variation including maternal factors, geographical factors and service access factors. It aims to deliver a report on the facts around what the current safety profile is for the women and families of Queensland when studied through the lens of where they reside.

This report includes, for reference purposes, an overview of the workforce required and the models of care available. It does not, however, discuss the benefits or risks of any of these models and it does not provide any commentary about the scope of practice for obstetricians and midwives.

2. Background

Outcomes for maternity services in Queensland compare well with other Australian jurisdictions (QMPQC, 2017). However, there are variations in outcomes, the causes of which have been independently examined (Queensland Health 2015b). The media has also reported data (Courier Mail 2018), that purported to show that the perinatal mortality rate was four times higher in rural facilities where birthing services have been closed.

Community concern and action has also occurred in relation to closure of rural birthing services. The Central Queensland Hospital and Health Service's decision not to re-open birthing services at Theodore, after a prolonged closure due to flood damage, has faced strong community opposition. Concerns have also been raised about birthing services, such as Chinchilla Hospital, being temporarily unavailable due to staffing issues.

It is acknowledged that the delivery of rural and remote maternity services involves many challenges. These include but are not limited to:

- the distributed population, size and demographics of Queensland
- changing community expectations
- contemporary governance and workplace health and safety requirements for safe staff hours
- funding challenges, and economies of scale
- workforce recruitment and retention issues
- tensions around provision of models of care (that creates a challenge for women to be able to access the care they want).

Maternity care in Queensland includes antenatal (before birth), intrapartum (onset of labour through to birth) and postnatal (up to six weeks after birth) care for women and babies. This care is provided in a variety of public and private settings, and is supported by service capability frameworks, governance frameworks, service networks, workforce, funding, information and data, and technological infrastructure.

2.1. National policy context

The National Maternity Services Plan (Commonwealth of Australia, 2011) provided a strategic framework to guide policy and program development from 2010 to 2015. The Plan identified actions under the four priority areas of Access, Service Delivery, Workforce, and Infrastructure to improve women's access to maternity services and service delivery. The Plan was extended until 30 June 2016 to enable work to continue on uncompleted actions. Currently undergoing consultation is the draft National Strategic Approach to Maternity Services document: *Towards woman-centred care: Strategic directions for Australian maternity services* (Commonwealth of Australia, 2019). With the aim of providing equitable,

culturally safe, woman-centred, informed and evidence-based collaborative maternity services, the national strategic approach emphasises that women are the decision-makers in their care and maternity care should reflect their individual needs. This strategic approach focuses on four equally weighted values of respect, safety, access and choice. Improved access to maternity care includes women having access to appropriate maternity care where they choose. Of the more than 30 national maternity reviews conducted in as many years the themes around women seeking provision of personalised care, close to home with a known and trusted carer have remained the same, but without effective implementation (Bogossian, 2010).

For additional supporting documents, refer to Bibliography.

2.2. Previous and ongoing statewide maternity practice initiatives

Since 2007, Queensland Health has supported numerous initiatives and a range of ongoing activities for the provision of safer best practice informed maternity care for Queensland mothers, babies and families including, but not limited to:

- recruitment and employment throughout 2019 of an additional 100 midwives to support innovation, promote continuity, optimise safety and fill gaps in access for vulnerable and disadvantaged groups across the state
- re-establishment of birthing services at Beaudesert, Cooktown, and Ingham
- re-introduction of obstetric services to the primary birthing unit at Mareeba which had functioned without on-site caesarean capability for seven years
- establishment of Midwifery Group Practices in some areas of Queensland, for a limited number of women,
  - antenatal, intrapartum and postnatal care is provided within a caseload model by a known primary midwife with secondary backup midwife/midwives providing cover and assistance, with collaboration with doctors in the event of identified risk factors
  - antenatal care and postnatal care can be provided in the hospital, community or home with intrapartum care in a hospital or birth centre
- introduction of continuity of maternity carer models to provide seamless and integrated care, and the identification and management of risks
  - midwifery continuity of carer development was supported in Atherton, Proserpine, Longreach, Roma, Caboolture (Kilcoy), Ipswich (Laidley, Boonah, and Esk), Dalby and Logan (Beaudesert) under a Rural Maternity Initiative of the Queensland Health Maternity Unit
- commencement in 2011 of working relationships with a limited number of private practising midwives[5] in the community who are able to provide antenatal, intrapartum and postnatal care in collaboration with doctors in the event of identified risk factors;
  - antenatal, intrapartum and postnatal care can be provided in a range of locations with access to Queensland Health facilities when collaborative arrangements can be negotiated
- ongoing facilitation of the Statewide Maternity and Neonatal Clinical Network (SMNCN) to provide expert advice to Queensland Health and other bodies on a range of maternity and neonatal service issues and activities across Queensland; the network comprises multidisciplinary representation

[5] This federal legislation also enabled Queensland Health employed midwives with AHPRA (Australian Health Practitioner Regulation Agency) endorsement to provide services with Right of Private Practice (ROPP) under COAG Section 19(2) exemption for rural hospitals. It enabled midwives providing primary care to be authorised to order routine screening tests in pregnancy and postnatally under their own provider number.

from obstetrics, midwifery, neonatology, allied health, tertiary and non-government agencies, general practice, public health, Indigenous women and consumers from across the state

- development and maintenance of Queensland Clinical Guidelines providing clinicians and consumers with contemporary best practice informed clinical guidelines to facilitate high quality maternity and neonatal care with a reduction in unnecessary clinical variation and unnecessary displacement of pregnant women from their local care setting; these guidelines are widely consulted during development to ensure that they are relevant to rural and remote settings
- hosting the Queensland Maternal and Perinatal Quality Council (QMPQC) which collects and analyses clinical information regarding maternal and perinatal mortality and morbidity in Queensland to identify any trends; these trends inform recommendations to enable healthcare providers in Queensland to improve the safety and quality of services
- funding the Queensland Centre for Mothers and Babies (QCMB) which was a research centre based at the University of Queensland from 2008-2014; QCMB provided evidence-based consumer-focused maternity information to assist informed decision making for women
- more recently, commencing the Stillbirth Collaborative which aims to reduce the rate of stillbirth and improve care for parents and families
- funding HHS staff to access the Improving Perinatal Review and Outcomes Via Education (IMPROVE) program
  - IMPROVE provides education to healthcare professionals on how to use the Perinatal Society of Australia and New Zealand (PSANZ) Perinatal Mortality Guidelines to ensure mothers and families receive the best care in the hospital setting
  - IMPROVE covers appropriate practices around principles of bereavement care, communicating with parents about autopsy, clinical examination, placental and post-mortem examination, investigation, classification, and audit of stillbirth
- funding the statewide imminent birth training program for isolated or non-birthing facilities for management of unexpected births.
  - The program has trained more than 800 clinicians, including more than 50 clinicians who have trained as trainers to ensure the capability to train clinicians is maintained locally within HHSs
- provision of advisory and retrieval services for mothers and neonates by transfer of care to higher level facilities as clinically relevant for higher risk women and their babies both antenatally and after birth
- provision of telehealth advice from higher level CSCF facilities and real-time advice and education from clinicians through the Telehealth Emergency Management Support Unit (TEMSU) to assist clinicians in rural and remote facilities
- development of the 2018 Neonatal Services Care Plan which identifies opportunities to strengthen the existing neonatal health services in Queensland through initiatives such as:
  - service and workforce planning to continue to ensure the right staff in the right place
  - further enhancing the coordination of retrieval services across the state including enhanced information systems to improve cot management
  - to support clinicians to transfer neonates to appropriate levels of care
- development and maintenance of the Queensland Maternity Early Warning Tool (Q-MEWT) and Children's Early Warning Tool (CEWT), and Neonatal Early Warning Tool (NEWT) used to assist clinicians in recognising and responding to clinical deterioration

- conduct of the perinatal mental health and wellness project (2015–2017) – a trial of a collaborative model of mental health promotion, prevention and early intervention in the perinatal period, to improve the mental health and wellbeing of expectant and new parents
- development and implementation of the Aboriginal and Torres Strait Islander Perinatal Social and Emotional Wellbeing Screening Learning Package
- establishment of Newborn and Family Drop-in Services in 11 regional and rural services; all other rural maternity services were funded to provide postnatal contact such as a home visit.

2.2.1. Queensland Maternity Services Forum 2016

In November 2016, the Minister for Health and Minister for Ambulance Services announced that a maternity services forum would be held to focus on identifying systemic actions that could be implemented to improve the quality and outcomes for mothers and babies in public maternity services.

As a result of the statewide Maternity Services Forum held in November 2016, four Maternity Services Action Groups (MSAGs) were established to develop and implement the Maternity Services Forum Action Plan (the Action Plan) during 2017–2018.

The achievements include:

- development of a range of tools and initiatives aimed at fostering a more collaborative leadership culture
- identification of best-practice recommendations for antenatal education
- development of a guideline and supporting resources for partnering with women who decline recommended care
- development of a HHS policy template which supports clinician use of best practice clinical guidelines
- deployment of the Queensland Clinical Guidelines desktop icon to all 16 HHSs
- identification of a core suite of maternity indicators
- development of strategies and tools to support birthing facilities to implement continuity of carer models of care
- nine of the 15 HHSs providing maternity services assisting in the development of the decision-making framework (DMF)
- provision of workshops on use of the maternity DMF to HHSs with a maternity service
- provision of funding to support HHSs providing maternity services to review, develop or implement continuity of carer models using the DMF
- development of a draft Aboriginal and Torres Strait Islander Maternity Services Action Plan.

3. Maternity within the broader healthcare and societal context.

Health includes the dimensions of physical, mental and social well-being and is affected by social, economic, political, cultural and environmental factors. Environmental factors include the healthcare provider's approach and the birth environment[6].

Empowering women to have healthy pregnancies and safe births helps to achieve social and economic gains beyond the health sector (Singh et al., 2009). It sets the foundation for lifelong good health and wellbeing. It is well known that poor quality maternity care can result in maternal or perinatal mortality. However, it can also contribute to acute and chronic physical and psychological morbidity for women. This can have lasting effects on the physical and psychosocial health and wellbeing of the woman and baby (Renfrew et al., 2014), which in turn impacts on the family and community.

Within rural and remote communities, the presence or absence of a maternity service has repercussions for the broader community and the health services provided. Improving access to quality maternity and newborn care has a substantial, measurable impact on the health of women and families and can have an economic effect on communities (Singh et al., 2009, Kildea et al., 2016). Reducing the incidence of obesity, smoking and hypertension in parents has been shown to reduce the incidence in their children, grandchildren and future generations (Marmot et al., 2012). Children who experience a positive start in life are likely to do well at school, attain better paid employment and enjoy better physical and mental health in adulthood (Marmot et al., 2012). Maternity and newborn care are lynchpins for sustainable communities, medically, socially, and economically (Hoang et al., 2014).

3.1. Classifying rural and remote services

Several different classification systems have been developed to define remoteness and rurality in Australia (AIHW, 2017). These tend to define in terms of the size of a community, distance from population centres, and access to services. The analysis in this report will focus on the time it takes to travel by road to various levels of services to provide an indication of remoteness in terms of individual women and services.

> *It can be difficult to assess the implications of remoteness for health due to:*
>
> - *the interactions between remoteness, low socio-economic position and the higher proportion of Indigenous Australians in many of these areas compared with major cities*
> - *the variability in the distribution of disadvantage and of Indigenous Australians across all areas—for example, levels of disadvantage on the fringe of major cities can be more akin to those in rural/remote areas than to inner-city areas*
> - *gaps in the availability and coverage of health data in rural and remote areas, and in information available at the local area level.*
>
> *It is also difficult to measure whether there is adequate supply of medical services because of the influence of factors such as varying health-seeking behaviours, professional scope of practice, and health system efficiency across remoteness areas.*
>
> Australian Institute of Health and Welfare, 2017.

[6] The International Childbirth Initiative (ICI): 12 steps to Safe and Respectful MotherBaby-Family Maternity Care' was developed in 2018 to improve respectful maternity care to improve the safety, privacy and dignity of women whereby the woman is the final decision maker in her care. (ICI 2018)

3.2. Clinical Services Capability Framework – Maternity

The Clinical Services Capability Framework (CSCF) is a Queensland Health tool that outlines the minimum service and workforce requirements, as well as specific risk considerations required in both public and private health facilities to ensure safe and appropriately supported clinical services (Queensland Health, 2018). Categorisation is based on the hospital's self-assessment and rating of their maternity service into CSCF levels ranging from level 1 (lowest) to level 6 (highest).

The CSCF is intended for a broad audience including clinical staff, managers and health service planners. It is not intended to replace clinical judgment or service-specific patient safety policies and procedures, but to complement and support the planning and/or provision of acute and sub-acute health services.

CSCF levels 1 to 3 maternity services are provided in rural and remote public health services.

Table 1 provides an overview of the services provided for each level. Figure 1 shows the location of all facilities with a maternity service of a CSCF level 2 or above.

Information on Queensland birth rates and CSCF levels by year is provided in:

- Appendix B: Facility CSCF levels 2012−2019.
- Appendix C: Births by year and CSCF level 2–6 facilities.
- Appendix D: Births by year and CSCF level 1 and 'No level'.

Detailed information on the CSCF is available on the Queensland Health internet site: www.health.qld.gov.au/clinical-practice/guidelines-procedures/service-delivery/cscf.

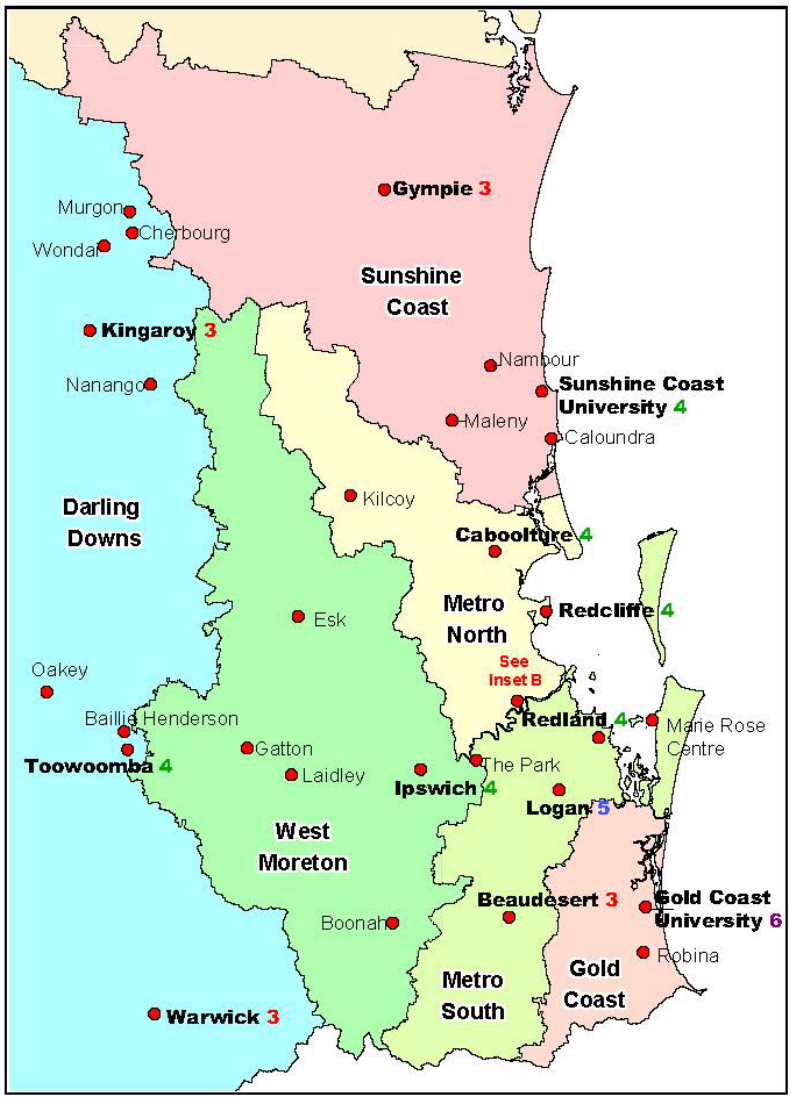
Table 1. Clinical Services Capability Framework level of service description (abbreviated)

Clinical Services Capability Framework	
Level	**Service description**
1	• Provides community antenatal and postnatal care only. • There are no planned births or maternity inpatient services.
2	• Provides access to antenatal care and inpatient postnatal stay as well as planned births for women of 37 weeks or greater gestation and with no identified risk factors, however, epidurals are not available to labouring women. • Access to functional operating theatre (not necessarily on-site) where birthing services are provided. • If operating theatre on site, may perform elective caesarean section for women at or beyond 39 weeks gestation who have experienced uncomplicated pregnancy.
3	• Provides community and inpatient care for antenatal and postnatal women without identified risk factors, and planned birth care for healthy women with pregnancy of 37 weeks gestation or greater and not expected to have labour or birth complications. • May offer women with relatively low-risk pregnancy and favourable Bishop (cervical assessment) score at term, an induction of labour locally. • May manage women who present in preterm labour at 35 weeks gestation or greater, with otherwise uncomplicated pregnancy, after consulting with higher level maternity and neonatal service. • Can perform elective caesarean section on women at or beyond 39 weeks who have experienced uncomplicated pregnancy.
4	• Provides maternity care for low- and moderate-risk women, but cannot care for women with complex, high-risk conditions. • May provide high risk antenatal clinics as satellite or outreach from higher level service. • Can care for pregnant women at 32 weeks gestation or greater if a continuous positive airway pressure (CPAP) device is accessible on-site for the baby, and the baby is expected to have a birth weight of 1,500 grams or more with no additional risk factors. • If a CPAP device not accessible on-site, the service can plan and deliver care for pregnant women at 34 weeks gestation or greater.
5	• Can provide planned care for women at 29 weeks gestation or greater with babies expected to have a birth weight of 1,000 grams or more, as well as providing a multidisciplinary service with capacity to manage all unexpected pregnancy and neonatal emergency presentations.
6	• Provides all levels of care, including the highest level of complex care for women with serious obstetric and fetal conditions requiring high-level multidisciplinary care.

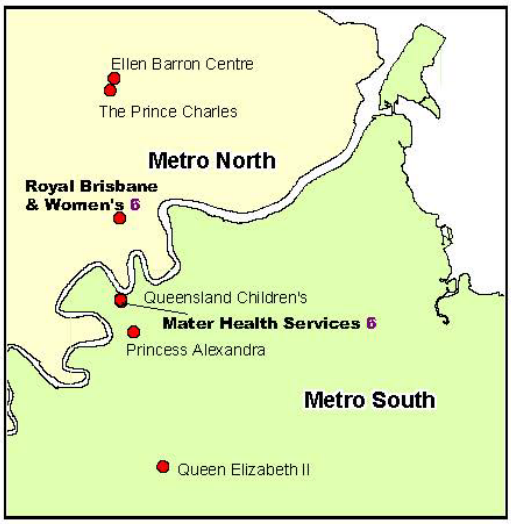
Prepared by: Statistical Reporting and Coordination, Statistical Services Branch, 11 May 2018
Hospital and Health Services by recognised public hospitals and primary health centres as at October 2017

Adapted by PSQIS 21 March 2019 to include maternity services CSCF levels

Figure 1. Hospital and Health Services, Queensland Health with recognised Public Hospitals and Primary Health Centres with Maternity Services CSCF level 2 – 6 highlighted



Inset A



Inset B

Figure 1 continued.

Note: map includes all HHS facilities, including those that do not provide any maternity services. Those facilities noted with a CSCF level 2 to 6 provide full maternity services including birthing. Other facilities that provide antenatal and postnatal services (CSCF level 1) are listed in Appendix B: Facility CSCF levels 2012–2019.

3.3. Supporting services

Maternity care does not occur in isolation and a range of support services, including considerations of caring for a well or unexpectedly sick newborn baby or mother, are required to be able to provide care in rural and remote services. Table 2 shows the minimum support service CSCF level requirements for CSCF level 1 to 3 maternity services, as detailed in the CSCF Maternity Services module.

Table 2. Support service CSCF level requirements for CSCF level 1–3 maternity services

Support services	Level 1		Level 2		Level 3	
	On-site	Accessible	On-site	Accessible	On-site	Accessible
Anaesthetic				3	3	
Intensive care						4
Medical imaging		3		3		3
Medication		1	2		3	
Neonatal		1	2		3	
Pathology		2		2		3
Perioperative (operating suite)				3	3	

On-site means staff, services and/or resources located within the health facility or adjacent campus including third party providers.

Accessible means ability to utilise a service (either located on-site or off-site) or skills of a suitably qualified person (who may be either on-site or off-site)—without difficulty or delay—via various communication mediums including but not limited to face-to-face, telehealth, telepharmacy, and/or outreach.

For support service CSCF level requirements for CSCF level 4-6 maternity services, refer to the CSCF Maternity Services module available on the Queensland Health internet site www.health.qld.gov.au/clinical-practice/guidelines-procedures/service-delivery/cscf

Where a woman's pregnancy or birth becomes complex and a higher level of maternity service is required, it is vital that efficient and safe mechanisms are in place within the existing level of service to facilitate consultation or referral to a higher level service. Retrieval Services Queensland and the Royal Flying Doctor Service (RFDS) work closely with rural and remote and regional services to facilitate the timely transfer of mothers and newborn babies who require services beyond the capability of rural and remote facilities.

3.3.1. Queensland Flying Obstetric and Gynaecology (FOG) Service

The FOG as part of the Flying Specialist Service, is a Queensland Health initiative that commenced on 4 July 1988. It provides specialist obstetrics and gynaecology services to women living in rural and remote areas of Queensland. The facilities currently visited by the FOG are: Roma, Charleville, Cunnamulla, St George, Goondiwindi, Longreach, Barcaldine, Stanthorpe, Dalby, Kingaroy, and Chinchilla

In Barcaldine and Cunnamulla, the FOG provides a consultative service. An elective operative service in addition to consultations is provided in the other facilities. The FOG provides a 24/7 emergency service for acute obstetric and gynaecological emergencies to the facilities routinely visited. A dedicated aircraft is available for the service at all times. It flies to different facilities four days a week.

The FOG Service has made a very significant impact on the delivery of specialist services to the women of outback Queensland, and also provides continuing education opportunities and professional support for remotely placed rural medical, nursing and midwifery staff[7].

[7] https://www.researchgate.net/publication/21098971_The_Flying_Obstetric_and_Gynaecology_Service_in_rural_Queensland_Its_first_two_years

3.3.2. Far North Regional Obstetric and Gynaecological Service

The Far North Regional Obstetric and Gynaecological Service (FROGS) is a cost-effective outreach service which provides equitable access to specialist care for people living in remote communities and aims to address many of the significant problems of women's healthcare in far north Queensland.

3.3.3. Telehealth Emergency Management Support Unit

The Telehealth Emergency Management Support Unit (TEMSU) acts as a video conference support service that is able to access and connect rural and remote facilities to nursing, senior medical officers and specialty services, such as obstetrics and midwifery.

To achieve the right fit, the TEMSU team works closely with staff in each HHS to define how the TEMSU model can support their local pathways, clinicians and patients.

3.4. Maternity workforce

Maternity care may be provided by a diverse range of clinicians (health practitioners) who provide maternity care within their scope of practice and are registered to legally practise by their associated professional national board.

3.4.1. Workforce roles

Good maternity care requires strong collaboration[8] between the following clinicians:

- Midwives – a midwife has the requisite qualifications to be registered with the Nursing and Midwifery Board of Australia (NMBA) to legally practise midwifery. Midwives are educated and skilled to provide comprehensive care and advice to women pre-conception, during pregnancy, labour and the postpartum period, and care for the baby. Midwives are educated, competent and required to identify complications, consult or refer care as per the Australian College of Midwives (ACM) National Midwifery Guidelines for Consultation and Referral[9] and to institute emergency measures for a mother or her baby. A midwife may practise in the home, hospitals, clinics, community health units, or in any other service. Midwives work collaboratively with doctors and other members of the healthcare team as appropriate where there are identified risk factors for the woman and/or baby (NMBA, 2018). Some midwives hold additional qualifications and are endorsed to prescribe medications or have other varied advanced skills. For example, midwives employed by Queensland Health may also be endorsed and recognised as a participating midwife with Right of Private Practice. Under the COAG Section 19(2) exemption: Billing for rural hospitals, they are able to utilise their Medicare provider number to order diagnostic tests such as ultrasound and pathology, and bulk bill for ambulatory services as own source revenue.
- Private Practising Midwives – midwives who work as sole practitioners, in partnership or in self-employed models, and are working in the private sector consistent with the NMBA quality and safety standards (NMBA 2017). They provide private midwifery services to women in a range of settings including the woman's home, the hospital, and other settings outside a hospital. They have collaborative arrangements in place with a doctor or health service and may apply to a hospital to be credentialed to admit clients and provide inpatient services. They can apply for a

[8] For a comprehensive definition of 'collaborative practice' see Department of Health, 2019. *Clinical Practice Guidelines: Pregnancy Care. Part B: Core Practices in pregnancy care, 7 Providing pregnancy care services.* Canberra: Australian Government Department of Health. https://beta.health.gov.au/resources/pregnancy-care-guidelines/part-b-core-practices-in-pregnancy-care/providing-pregnancy-care-services.

[9] Which are endorsed by the Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG)

Medicare provider number, which enables eligible women to claim Medicare rebates for services provided for which they have paid the midwife directly.

- General Practitioner Obstetricians (GP Obstetrician) – a GP with additional training in obstetrics, which may be formal such as the Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) Advanced Diploma or informal such as additional hospital-based training or experience in practice (RACGP, 2018). GP Obstetricians can manage normal pregnancy and birth and some levels of complicated cases. They can perform operative vaginal births and caesarean sections in appropriate cases. Not all GP obstetricians are Rural Generalists, but those who satisfy the definition of a Rural Generalist doctor outlined below are.
- Private Practising GP Obstetricians – a GP with additional training in obstetrics who offers the same services as a GP Obstetrician, as defined above, in the private sector using private health insurance and patient contribution as the funding model. They may also work part-time in a public hospital as a Visiting Medical Officer (VMO).
- Obstetricians – a medical officer with specialist education, training and experience in all areas of women's health and is a fellow of RANZCOG. In their full scope of practice as an obstetrician-gynaecologist they can look after women's reproductive needs from childhood through adolescence and adulthood, during pregnancy and birth as well as aging to menopause and beyond. An obstetrician is specifically trained to look after women in the pre-pregnancy, antenatal, intrapartum and postnatal periods. They are generally able to deal with all aspects of pregnancy, birth, and beyond in normal and complicated cases. They work collaboratively with midwives and other members of the healthcare team. They generally practise in secondary, tertiary and private hospitals, but can also practise in primary care settings.
- Private Practising Obstetricians – specialist medical officers with training in all areas of women's health. They offer the same services as an obstetrician, as defined above, in the private sector using private health insurance and patient contribution as the funding model. They may also work part-time in a public hospital as a VMO.

Other healthcare professionals who may be involved or consulted during pregnancy, labour, birth and the newborn period include, but are not limited to:

- Neonatologists – a paediatrician with a sub-specialisation in the medical care of newborn infants, especially the ill or premature newborn. They are a fellow of the Royal Australian College of Physicians and the Royal Australian College of Paediatrics and Child Health.
- Maternal-Fetal-Medicine specialists – an obstetrician with advanced knowledge and training in medical, surgical, obstetric, fetal, or genetic complications in pregnancy. They may perform prenatal tests, provide treatments for the mother or baby, or perform surgeries.
- Rural Generalists (RGs) – provide the following: comprehensive primary care for individuals, families and communities; hospital in-patient and/or related secondary medical care in the institutional, home or ambulatory setting; emergency care; extended and evolving service in one or more areas of focused cognitive and/or procedural practice as required to sustain needed health services locally among a network of colleagues; a population health approach that is relevant to the community; working as part of a multi-professional and multi-disciplinary team of colleagues. Not all rural doctors are RGs but all RGs work in rural locations by definition. Rural maternity units commonly employ RG obstetricians and RG anaesthetists.
- Allied health practitioners – trained professionals who are not doctors, midwives or nurses. They have specialised expertise in preventing, diagnosing and treating a range of conditions and illnesses. They often work within a multidisciplinary health team to provide specialised support for different patient needs. They include (but are not limited to) Aboriginal and Torres Strait Islander

health practitioners, audiologists, dieticians, genetic counsellors, occupational therapists, physiotherapists, psychologists, social workers, and speech pathologists.

- Child health nurses or midwives with child and family health certificate – a registered nurse or midwife with additional training in child health and who can provide information on breastfeeding, child health and development, and parenting skills.

3.4.2. Workforce requirements

Regardless of the model of care, all care must be woman-centred, collaborative, and cooperative. Appendix E: Models of maternity care identifies the different types of maternity models of care that are provided within Queensland.

Women may receive maternity care within their home, a community setting or hospital, and may be categorised by one or more health professionals and defined as:

- low risk: requiring primary care from a midwife[10], registered medical practitioner (general practitioner) or obstetrician
- moderate risk: requiring secondary care from a registered medical practitioner (general practitioner) or specialist obstetrician
- high risk: requiring tertiary care from a multidisciplinary maternity team within a specialised service, under the supervision of and in consultation with a specialist obstetrician.

It should be noted that a woman's level of risk, or complications during pregnancy does not define who can provide continuity of care to her during the pregnancy and birth. Where women have complications that require care in addition to that of her primary maternity care, there must be collaboration with other professional groups, with appropriate consultation and referral according to the woman's needs and wishes, with reference to the ACM National Midwifery Guidelines for Consultation and Referral.

Workforce requirements for each level of service are included in the CSCF. Specific workforce requirements of rural and remote services are included in Appendix F: Workforce requirements of CSCF level 1–3 maternity services.

In addition, other workforce requirements are noted by the CSCF Maternity Services Module overview to include:

- relevant staff in non-birthing facilities must attend education on imminent birth, preferably conducted by a midwife or obstetrician
- where birthing services are offered, multidisciplinary maternity staff have access to training including:
  - electronic fetal monitoring (e.g. RANZCOG fetal surveillance education program or similar) at least every 12 to 18 months
  - maternity emergency training (e.g. Practical Obstetric Multi-Professional Training (PROMPT) or Advanced Life Support in Obstetrics) at least three yearly, where possible
  - neonatal stabilisation and resuscitation program or similar with a refresher at least two yearly
- other on-site annual multidisciplinary team training inclusive of child safety training, education on normal birth, and breastfeeding competency
- consideration of non-midwifery staff employed in isolated and remote settings to attend the Maternity Emergency Care Course and midwives employed in similar settings to attend the

[10] As registered with NMBA

Midwifery UpSkilling Course (MIDUS), both conducted by CRANA*plus* and designed for remote and isolated settings

- nursing staff in maternity services may work in a supportive role under the supervision of a registered midwife or obstetrician.

3.4.3. Supporting rural and remote health workforce

To support the education and training of clinicians in rural and remote communities, and maintain a sustainable and stable workforce, linkages are established between heath service providers, such as Queensland Health and HHSs, and educational and training organisations such as regional training organisations and hubs, colleges (e.g. Australian College of Rural and Remote Medicine), and universities.

Within Queensland Health the Rural and Remote Clinical Support Unit supports safe and quality rural and remote healthcare through the production of clinical resources such as the Primary Clinical Care Manual, training, credentialing, medical advisory support, and primary healthcare information system services. Collaborations between networks such as the Statewide Maternity and Neonatal Clinical Network and the Statewide Rural and Remote Clinical Network have led to the development of training and educational resources such as imminent birth and neonatal resuscitation and stabilisation training programs.

Queensland Health through the Statewide Rural and Remote Clinical Network has developed a rural and remote health workforce strategy for Queensland – *'Advancing rural and remote service delivery through workforce: A strategy for Queensland 2017–2020'* (Queensland Health, 2017). The strategy sets out the overarching priorities and strategies for building the future rural and remote health workforce for Queensland. It offers a strategic pathway for building the system necessary to support, strengthen, and enable our workforce to deliver sustainable, consumer-centred healthcare into the future (Queensland Health, 2017).

In addition to education links, professional and clinical links are important in supporting the rural and remote health workforce. Public health services work in collaboration with local non-government organisations and private health service providers, such as general practitioners, primary healthcare networks, and Aboriginal and Torres Strait Islander Community Controlled Health Services.

3.5. Defining safety and risk in maternity

> *The person who lives the experience of safety within childbirth is the mother. It is her body, and her baby. Healthcare systems set up the parameters in which her experience is enacted (Smith et al., 2009). Health professionals are there to assess, to measure, to determine, to deem and to act (or not). All seek to be safe, yet the woman does not always feel safe.* *(Safety is an interpretive act* (Smythe, 2010))

How individuals interpret and define 'safety' and 'risk' depends on their role, experiences and to some extent their location, within the maternity context. Even within the three main groups of stakeholders, women, clinicians and health service managers, there are sub-groups with their own interpretations.

Although maternity services in Australia are designed to offer women and their babies the best care, they largely reflect modern western medical values and perceptions of health, risk and safety (Kildea et al., 2016). Health service managers tend to make service planning decisions based on clinical, operational, financial, political and legal risks. They and medical practitioners are often concerned that providing birthing in small rural and remote communities, especially where emergency surgical services are not available, would increase the clinical risk for women and babies (Barclay et al., 2016). Clinicians may consider it clinically safer to transfer a woman to a regional centre at 36 to 38 weeks of pregnancy to await the birth of her child.

Women's perceptions

> *"I had no concerns in regards to safety while birthing in [rural town]. The midwives and doctors are confident and committed to the role they play. I was a low risks case but had a traumatic first birth so they made sure I was happy and cared about my fears and worries. My first born was birthed in [regional city] and I was made to feel like a number. In [rural town] I had a one on one relationship with my midwife and I was comfortable and felt safe" (consumer – public submission).*

The decisions made by clinicians and health service providers based on their perceptions of safety and risk have implications for the clinical, social, cultural, spiritual, and financial risks for women, their babies, and their families.

Aboriginal and Torres Strait Islander people's definition of health incorporates not just physical wellbeing, but also the social, emotional and cultural wellbeing of individuals and the whole community. (Kildea et al., 2016). Cultural risks include the belief that not being born on their land breaks the links between strong culture, strong health, and the land, a link that is strengthened during birth (Kildea et al., 2016).

For all women, having to travel long distances for general maternity care and being away from their community and family while waiting for the birth of their child can increase a woman's stress, anxiety and depression, and adds significantly to the financial costs they incur (Gryzbowski et al., 2011). Clinical and medical risks can also be increased if the woman travels on country roads (potentially unsafe, long distance, variable phone service coverage, and risk of hitting animals), does not access antenatal care, or presents late in labour, to avoid the pressure to leave their community for birth (Kildea et al., 2016; Barclay et al., 2016).

Clinicians' perceptions

> *"Risk adverse obstetrician's need psychological support post adverse events outside of their control instead of increasing risk aversity and consequentially increasing caesarean rate."*
> *(partner/support person – public submission)*

In addition to considering the clinical safety of the women, clinicians need to consider their own psychological safety. For midwives and obstetricians to provide a safe and supportive service to women they need to feel safe and supported too. High levels of fear in a clinician, often induced by the

organisational culture, can impact on their professional practice such as reduced confidence to advise women about their birth options, and when caring for women in labour (Toohill et al., 2019). A psychologically safe work environment improves health and wellbeing, job commitment and satisfaction, and improves outcomes for the organisation as well as the women being cared for (Eales, 2018; Harvie et al., 2019). When clinicians feel safe, they are better able to support women to feel safe about having a voice regarding their choices and find ways to give women a sense of control within their maternity care encounters (Ebert et al., 2014).

As noted in this section, perceptions of clinical risk tend to be privileged over social risk in decisions about rural and remote maternity service planning (Barclay et al., 2016). Barclay et al., (2016) proposes a comprehensive risk model that should be considered in the planning and provision of rural and remote maternity services. The comprehensive risk model distinguishes between the concepts of risk described by women (social, cultural, emotional and personal finances) and those described by health service representatives (clinical, operational (including organisational culture), legal, health system financial, and political).

"Fear based care was used to leverage my partner towards the obstetricians preferred choice of birth, elective caesarean. Midwives used inference and threats to state that the child's welfare was more important than the Mothers choice.

Group threat is used to humiliate [the] mother if her choice is contrary to medical perspective. There is not respect of mother's choice. There is no advocacy, there is no alignment to policy or procedure even when it states their wishes should be respected."
(partner/support person – public submission)

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4. Stakeholder consultation - rural and remote forums

"The birthing journey is a major milestone in life.
It's not just clinical, its cultural, spiritual and family.
Its more than just 'delivering' a baby.
It's so much more."
(clinician – site visit)

4.1. Summary

The Taskforce engaged with key stakeholders in rural and remote Queensland regarding access to, and provision of, safe and sustainable woman-centred maternity care. Forums were convened between February and April of 2019 in Ingham, Mount Isa, Roma, Theodore and Chinchilla.

Consumer perspectives

"To make it safe for women – what we do for and to a woman can make or break that woman and family, and for generations" (clinician - site visit)

Consumers reported they want to be provided with information about their maternity options (antenatal, birth and postnatal) both locally and elsewhere, and want to be supported to access their preferred maternity options. Many women desired access to maternity services as close to home as possible.

Women identified advantages and disadvantages to receiving maternity care in a rural community. Continuity of care, where the woman is cared for by the same providers continuously throughout her antenatal, birth and postnatal period, and access to planned birthing within their local community influenced their satisfaction with the maternity services they receive. Care delivered within the local community was described as more personalised and having less impact on the daily life of the woman and her family.

Consumers recognised not all birthing options can be made available within rural communities. Leaving the community to access care was problematic for some women. This experience was influenced by the length of time and costs associated with being away from home, the distance being travelled and the availability of suitable accommodation and transport for the woman and her family. Women who need to travel to access care identified opportunities for improvements in subsidy and reimbursement schemes, transport and accommodation to lessen some of the impacts of travel on them and their families.

Aboriginal and Torres Strait Islander women and communities described a range of culturally specific maternity care needs. For some Aboriginal and Torres Strait Islander women, the experience of maternity care was influenced by their ability to birth on country. Aboriginal women in some communities told the Taskforce they want more welcoming environments within which to give birth and to see more Indigenous women in maternity workforce roles.

Consumers desire greater participation in maternity service design and review. They want to be engaged from the beginning of the maternity services planning process and on an ongoing basis throughout design and review. Aboriginal and Torres Strait Islander consumers would like to be consulted separately from other consumers, as well as participating in the broader consumer engagement process.

From a community perspective, maternity planning processes need to balance safety and risk when considering what maternity services they provide and where they provide them. Community members wanted HHSs to consider needs and preferences of local women, their willingness to accept limitations of receiving care in less resourced settings, and risks associated with having no planned birthing available locally when making maternity service decisions.

Clinician perspectives

Clinicians described a range of locally adapted maternity service models in place in rural communities. Models developed over time based on the workforce availability and capability to provide maternity services and local community needs and preferences.

The Taskforce heard about workforce shortages across all professional disciplines, both temporary (when staff members are on leave) and long-term (recruiting and retaining local maternity staff). In some cases, inability to retain a suitable workforce led to reduced or ceased delivery of some aspects of maternity care.

Providers described a range of difficulties in developing and maintaining their clinical skills in maternity care when working in a rural setting with limited numbers of pregnancies and births. Providers work alongside a range of other health professionals who also have to maintain their maternity skills in the setting of limited numbers of pregnancies and births. In some cases, providers need to travel to larger maternity centres periodically to develop and maintain their skills.

Training and skills development needs vary according to the scope of maternity services provided within the local facility and the maternity provider's clinical discipline, skills, experience and confidence. Training needs were described in maternity, neonatal, anaesthetic, emergency and cultural aspects of maternity care. Providers with specialised maternity skills (midwives, rural obstetricians and rural generalists with advanced obstetrics skills) and generalist providers (nurses, doctors, paramedics) described maternity training needs.

Providers expressed a preference for training to be provided locally wherever possible. Some training is more specialised and requires the provider to travel to another centre to access. Where required, providers report funding to support attendance and/or backfill of their positions is helpful.

Rural maternity services were described as configured as a network of services, from least to most specialised. Providers described the importance of developing and maintaining professional relationships across the network. A range of strategies were identified to strengthen these relationships. Linkages between general practice and other maternity services in the network were identified as important to maintaining collaborative maternity care in rural communities.

Providers reported that prompt access to patient transfer for women and babies with time-critical care needs is essential to the delivery of safe, sustainable rural and remote maternity services. These systems were described as largely accessible and timely for maternity providers working in rural and remote maternity service settings.

The Taskforce heard that the psychological safety of maternity service providers needs to be supported. Opportunities to improve access by providers across disciplines to regular structured and facilitated reflective practice were identified.

Providers reported that rural maternity models of care should be reviewed regularly and proactively by hospital and health service managers. Small changes in the availability of local rural maternity providers and changes in the socio-demographic characteristics of their local communities can have significant impacts on the sustainability of local rural maternity service delivery. Providers would like greater involvement in maternity service planning processes.

Hospital and Health Service perspectives

"Safety is not binary – there is a consequence for every decision you make"
(clinician - site visit)

HHS stakeholders report they review their maternity services on a regular basis and when there are changes to service availability in the wider community, e.g. opening or closing of maternity services within their referral network. The methods of service review, review scope and frequency of review that stakeholders described varied across HHSs.

Although HHSs recognise the importance of women and communities participating in maternity service review and design, the degree to which this occurs in practice varies across regions. Consumer feedback mechanisms were in place in all HHSs, including consumer representation on committees and advisory groups. On reflection HHS stakeholders identified opportunities to engage consumers earlier and more actively in maternity services review and design processes and to improve methods for identifying the cultural needs of maternity service users.

In reviewing maternity services, HHSs assess the scope of maternity services that can be safely and sustainably provided by local facilities within the HHS network, including considering which facilities can support planned birthing. HHS processes for conducting this assessment were not always structured or well documented.

Availability of planned birthing in local rural communities is a key consideration for HHS maternity service planners. Factors reported by stakeholders that limit the ability of local facilities to provide planned births include the size of the local population, the numbers of pregnant women in the local community, numbers of women wishing to or able to have a planned birth in the local community, and the availability of a suitably skilled, experienced workforce.

HHS stakeholders reported that all HHS facilities are required to be able to care for women with imminent (or unplanned) births.

Next steps

Findings from the stakeholder consultation, together with the findings from the public submission process and analysis of Queensland perinatal and maternity data, will inform the development of the RRMS Planning Framework to assist HHSs with planning, developing and delivering rural and remote maternity services.

4.2. Overview of forums structure and process

Forums were convened in February and April of 2019 in Ingham, Mount Isa, Roma, Theodore and Chinchilla. Forums were also held in referral sites of Townsville, Rockhampton and Toowoomba.

Invitees to the forums included:

- mothers who had had babies in the past two years
- community members
- HHS clinicians, managers, executives, and Board members,
- general practices
- Queensland Ambulance Services
- Royal Flying Doctors Services
- any rural organisation that could assist the Taskforce to find effective strategies to improve rural maternity services.

Independent facilitation

All forums were facilitated by an external facilitator from KP Health, an organisation separate from and independent of Queensland Health and HHSs in Queensland.

The views of forum attendees were sought regarding current maternity experiences and opportunities for improved maternity care.

After each forum, the facilitator and members of the Taskforce met with the executive leadership of the respective HHS to discuss their rural maternity service systems. This included system structure, service quality and sustainability, and approaches to planning and reviewing of rural maternity services.

The discussions of the forum were content-transcribed by the KP Health forum facilitator. Narrative was analysed thematically according to the topics that emerged. All views were captured in the content-transcription process.

Themes organised by stakeholder group

This section provides a narrative account of the themes identified in the forums. To comply with strict Queensland Health privacy laws, the results of all forum discussions are described in a way that ensures the anonymity of forum participants.

There are three sections, one for each stakeholder group. Namely:

1. Consumers (mothers, family of mothers, and community members)
2. Clinicians (internal and external to HHSs)
3. Health service managers/executive leaders.

4.3. Consumer perspectives

"Can I just find what works for me and go with it?" (consumer – site visit)

Consumers who participated in maternity taskforce consultations described that, ideally, they wanted access to maternity services where they:

- know their maternity options (antenatal, birthing and postnatal), both locally and elsewhere
- are informed about how to access their preferred maternity options, including:
  - service locations
  - risks and benefits
  - costs
  - transport and accommodation
  - cultural aspects of care
- are supported to access their preferred options.

Maternity care in a rural community

Consumers living in rural and remote areas expressed a desire for access to a broad range of preconception, antenatal, birth and postnatal health services. Many consumers desired access to these services as close to home as possible.

Community members recognised the challenge of providing rural areas with the full range of services that are available to women in urban areas. It was acknowledged that local maternity service options are impacted by such limitations as:

- the large geographical spread of women's residences
- small numbers of women birthing in some communities
- the challenges of attracting and retaining skilled workforce in rural and remote areas.

4.3.1. Experiences of receiving rural maternity care

"It's a more relaxed feeling. Partners can stay or visit late at night after work" (consumer – site visit)

Women described advantages and disadvantages to receiving maternity care in a rural community.

Advantages identified included:

- an experience of care that is more personalised
- more likely to receive care from the same provider over the course of their pregnancy, birth and postnatal period
- less impact on their daily life and their families' lives
- care received close to home means no need to travel long distances.

Disadvantages identified included:

- not all birthing options are available in rural communities
- if there are complications, obstetricians, anaesthetists or paediatricians are generally not available at the rural facility
- women with extra care needs (high-risk pregnancies) have to travel from their local area to be managed optimally

- in some rural communities, women need to travel to receive particular care components (e.g. tests, procedures)
- communication between different hospitals involved in their care is sometimes very poor which leads to delays in receiving adequate safe care
- subsidy and reimbursement schemes only partially cover the costs associated with travelling for maternity care and there are delays between when the funds are required to pay for transport and accommodation and when reimbursement is received
- when accommodation is provided there are sometimes limited or no cooking facilities
- receiving care in the local community affords less privacy for some women (especially those who work in the local health service).

"Need better explanation on what can go wrong. Got most of my information from Google" (consumer – site visit)

Women who participated in Taskforce consultations reported a tendency for their local health providers to describe only those maternity options that were available locally. They were not made aware of all their maternity options and how to access them. There were concerns raised that the local health providers, who should be the gateway for women to access their preferred options, are instead gatekeepers, who only suggest the options that align with their practices. This was a source of frustration for some women who were willing to travel to access their preferred maternity options.

4.3.2. Factors that affect the maternity experience

"You shouldn't have to retell stories" (consumer – site visit).

Whilst the maternity experience was described as largely positive by some women, it was quite negative for a number of other women. The factors cited as contributing to a negative maternity experience were:

- discontinuity of care, where women 'didn't see the same person twice' for their maternity care
- a lack of available planned birthing locally
- fear associated with the anticipation of, and actual risks of, travelling alone on rural roads while in labour.

Better continuity of care to benefit women in rural communities

"There's a connection to family and area" (consumer – site visit)

Continuity of care was described by women as seeing the same person (maternity provider) periodically throughout their pregnancy. Seeing multiple providers was acceptable to women if there was at least one provider with whom a therapeutic relationship was maintained throughout the pregnancy and postnatal period.

The benefits of continuity of care were described as:

- having someone to go to who could answer questions and provide support throughout the antenatal, birth and postnatal period
- receiving consistent advice (as opposed to the experience of women with no continuity of care, who described receiving advice from multiple different providers that is often conflicting)
- having someone who could advocate with other providers for the woman's maternity needs and wishes to be prioritised.

Communication and information sharing between providers was also described as improved where continuity of care was provided.

Local planned birthing is preferred by most women

"You expect doctors to tell you what needs to happen. You don't expect their values to get in the way. You don't question it. You think they have your best interests at heart. It's tricky to tell new mums to be well-informed" (consumer – site visit)

Local planned birthing was the preferred model of maternity care for most women who participated in the consultations. Other women preferred to travel because of:

- a desire to access higher level services with greater levels of obstetric, anaesthetic and/or paediatric services due to these models being perceived as safer
- a wish to access service models not available locally, such as birthing centres, private obstetricians or private midwives
- a desire for greater anonymity or amenity afforded by accessing care outside their local community.

For women who wished to access care locally, some described being unable to access planned birthing in their local community. For these women, having to travel was associated with:

- concerns about their baby being born before arrival at hospital
- increased financial burden on the family due to having to leave the family some time before the baby was due
- increased stress, feelings of isolation and loneliness
- decreased participation of the whole family in bonding with the new baby.

Leaving the community for birthing

"[The women] get lost in the machine in a large hospital" (GP – site visit)

The experience of leaving the local community to access maternity care was dislocating for some women. This experience was influenced by:

- the quality of accommodation and its suitability for extended family
- the availability of support for the woman's partner, family and other support people to travel to the centre where maternity care was being delivered
- the length of time the woman is away from home
- the costs associated with being away from home.

Some women reported they are reimbursed to go to their nearest facility, not to their preferred facility. If they must travel, women want to be supported to go to their preferred place to receive care—which for many is where their extended family and friends reside, not to where the nearest maternity facilities are.

In some cases, women who do not have access to planned birthing from their local health service described intentionally attending their local facility when in labour even though this facility does not perform planned births. This so-called "planned unplanned imminent birthing" was described as the only way they could receive clinician support to birth in their local community.

Postnatal care experiences

Some women were dissatisfied with the quality of their postnatal care. The Taskforce also met with women who received no postnatal care at all. For these women, numerous difficulties in the postnatal period were described, including difficulties with breastfeeding, relationships, infant settling and mental health.

Women described the factors that contributed to a lack of acceptable provision of postnatal care. These included:

- no continuity of midwifery care
- birthing care provided at a larger centre with no local postnatal follow-up arranged
- provision of private obstetric care at a larger centre with limited access by the mother to this centre for ongoing follow-up.

4.3.3. Maternity experiences

"It's exhausting explaining cross-cultural considerations all the time"
(community representative – site visit)

Aboriginal and Torres Strait Islander women who were consulted described a need for greater choice in available maternity options to better meet their needs. Some Aboriginal women described needing to travel well before the birth of their baby. For some of these women, their mothers, aunties or grandmothers were unable to travel or were not allowed to come into the birthing room due to the facility not wanting too many people in the room. In other cases, the person travelling with the expectant mother was not a good support for the mother –they travelled because they were available, not because they were well-suited to the role.

Aboriginal women told the Taskforce they want to see 'black faces on maternity', more welcoming environments within which to give birth, and more Aboriginal women in health roles that can support women who are receiving maternity care—particularly when giving birth.

Birthing on country

"My mob has had their cultural identity taken away. There's been psychological damage. [Referral hospital] is not our country" (community representative – site visit)

For Aboriginal and Torres Strait Islander women, the experience of maternity care was influenced by their ability to birth on country.

Birthing on country was described in various ways by the women who were consulted. Although practices varied across regions, the Taskforce was told birthing on country is a cultural tradition for women and newborns to connect with their ancestors' land.

Women reported that some traditions, such as welcoming a baby to country through smoking ceremonies, women with cultural authority being present at birth, naming practices, and related cultural practices were unable to be performed in hospitals away from country.

Women said being unable to birth on country was associated with impacts on the community, the young mother, the baby and their family. In some cases, people described a lasting sense of shame at being unable to birth on country.

4.3.4. Community participation in maternity service design and review

"We want safety discussions to include spiritual, cultural, physical, emotional, transport, and family"
(Aboriginal woman, community representative – site visit)

Local maternity service delivery impacts the community as a whole

The community's perspective is that local planned birthing services are important to local communities for attracting and retaining young families in the local community. Community stakeholders reported that people make decisions about whether they will live in a local community based on the availability of local services, including local maternity services.

Community stakeholders also described the sustainability of local hospital services overall as linked to the ongoing availability of planned birthing services. They described a need for community to advocate for the ongoing availability of planned birthing services, otherwise they might lose their local hospital altogether.

The Taskforce encountered a strong community focus on the availability of planned birthing within local communities. Communities also valued local access to antenatal and postnatal care, however these topics were not raised as often as planned birthing.

Communities want to participate in maternity planning

"We're at the table waiting for that [engagement] to happen"
(community representative – site visit)

Community members reported they want to participate with their health services in processes for developing and reviewing maternity services. They described currently either not being involved at all or being consulted later in the maternity review process, after health services managers had decided what services would be made available.

Some mothers who recently gave birth felt less able to participate due to the multiple competing demands on their time. However, other mothers reported they could contribute to health services processes for developing, reviewing and planning new services or changing existing services, particularly if planners 'come to where the mothers are'. Local play groups, mothers' groups and social networks were suggested as settings where planners could engage with mothers.

Other community members also described having limited mechanisms for meaningful participation in maternity planning decisions. In some cases, communities were unaware of who to engage with to discuss how to participate. In other cases, community members were aware of advisory groups or committees that included consumers, but were unsure of whether this form of participation was enough to have their concerns heard and addressed.

Participation of Aboriginal and Torres Strait Islander community members

"It's not been a process where Aboriginal mothers have been heard"
(community representative – site visit)

Aboriginal people on boards and advisory groups reported to the Taskforce that they need more time to yarn about their community's maternity needs and how these are best addressed. Formal meetings with an Aboriginal or Torres Strait Islander representative, such as Boards or consumer reference groups, were described as often time-pressured, and not enabling meaningful conversations to occur about culturally tailored care.

Some Aboriginal and Torres Strait Islander people indicated they would like to be consulted separately from other consumer groups as well as together with other consumers. Separate consultation affords Aboriginal and Torres Strait Islander consumers to more openly discuss cultural care needs.

4.3.5. Safety and risk considerations in maternity planning

From a community perspective, maternity planning processes need to balance safety and risk when considering what maternity services will be provided and where to provide them.

Some community stakeholders reported they believe safety decisions are made by HHSs based on the size of the community, the number of births by local women, the distance of the community from a larger hospital and the availability of doctors at the facility to provide emergency obstetric care.

These community members felt this concept of safety was too narrow and did not account for the risks associated with having no onsite planned birthing services at all. For most communities, the risk most frequently cited was the baby being 'born by the side of the road'.

From the community perspective, HHS decision-makers should also consider:

- the needs and preferences of local women and their willingness to accept risks for themselves and their babies, associated with receiving care in a local, less resourced setting
- the cultural impacts of any planned decisions
- risks of decisions to the sustainability of the local community as a whole
- the availability and willingness of local health service providers to continue to provide maternity services in a local, less resourced setting.

Some communities described experiences of HHS staff members informing them that local services would cease to be provided as they were "not safe". In some cases, these community members felt HHSs did not adequately balance the factors, both positive and negative, associated with these decisions to cease to provide local services.

4.3.6. What consumers want from Hospital and Health Services

Community members reported they want to participate with their health services in processes for developing and reviewing the maternity services.

Community members reported wanting greater transparency in how decisions about local maternity services are made by HHSs.

Some communities reported feeling as though HHSs made decisions about which maternity services would be provided in each local community in the absence of meaningful community consultation, and only involved the community once a decision had been made. Community members expressed a desire for greater involvement in discussions about their community's maternity needs before service decisions were made, and wanted greater input into the decision-making process.

4.4. Clinician perspectives

The Taskforce met with rural clinicians who deliver maternity care across a range of different service models and clinicians from regional hospitals who receive women from rural settings. Providers who participated in the consultations work:

- in continuity midwifery, core midwifery and private practice midwifery models
- as general practice shared care, visiting medical officer and senior medical officer roles
- as senior medical officers (some but not all of whom were also general practitioners) delivering maternity services and anaesthetics services in rural hospitals
- as obstetricians and/or in Flying Obstetrician models.

The Taskforce also met with hospital and community staff working in rural Director of Nursing/Midwifery and Director of Medical Services roles, registered nurses in ward and community roles, nurse educators, child and family nurses, theatre staff, paramedics, mental health professionals, Indigenous Health Workers, social workers and Aboriginal Liaison Officers.

Locally-adapted service models in place

"rural [birthing] is about risk reduction and looks different for each scenario" (clinician – site visit)

Each HHS described differences in the range of maternity services being delivered locally. Models in place in many rural communities were forms of the 11 maternity models described by the Australian Institute of Health and Welfare (AIHW) or hybrid models which combined different elements of the 11 AIHW models.

Reasons for adaptation of AIHW models were explored with stakeholders, who reported their maternity services had evolved over time in response to local workforce availability, skills and expertise.

Workforce shortages are an ongoing concern

"People move away when services close" (GP – site visit)

The Taskforce heard about workforce shortages in medical, midwifery and nursing roles across many different rural health settings. Both temporary workforce shortages (difficulty back-filling roles when staff members are on leave) and long-term workforce shortages (recruiting and retaining maternity staff) were described.

Health professionals view service discontinuity as undermining the confidence of local communities in the ability of local services to meet their care needs.

According to stakeholders, addressing both temporary and long-term workforce shortages was an ongoing concern for health service managers and influenced the continuity of some maternity services they could offer. In some cases, inability to retain a suitable workforce had led to cessation of delivery of maternity services in local communities, particularly planned birthing in some rural communities.

4.4.1. Experiences of delivering rural maternity services

"Some rural birth experiences are the best a woman can get" (clinician – site visit)

In each community visited by the Taskforce, doctors and midwives described working together closely to deliver maternity care. Providers reported they are generally well-known to one another because of the small size of the clinical community in rural towns.

Many providers who were consulted had been living in rural communities for some years. They report being attracted to the local community by the professional opportunities rural practice afforded (including

to provide continuity of care, to work to their maximum scope of practice) and due to personal circumstances (including attachments to the community through their personal relationships and/or family connections).

Providers also reported feeling that their role in the community was unsupported and undervalued by the larger birthing units. They suggested this was demonstrated by disrespectful and less than timely communication from clinical staff at the larger hospital they had to communicate with regarding the care of local women who were pregnant and birthing.

Providers reported a willingness to continue to provide maternity services in their local community because of their desire to continue to meet local needs. Many described feeling professionally valued by their local communities, which attracted them to continuing to provide clinical services rurally.

4.4.2. Maintaining professional skills in a rural practice setting

Providers described a range of difficulties in developing and maintaining their clinical skills in maternity care when working in a rural setting. Many of these challenges centre around the limited number of pregnancies and births in some rural communities.

Small communities have fewer pregnant women who need to be cared for. In some communities, providers report there are not enough pregnant women for all maternity providers in the community (doctors, midwives, nurses) to maintain their skills in their respective disciplines.

Fewer pregnant women means fewer births occurring among local women. Smaller communities are unable to provide planned birthing for women with high-risk pregnancies. The remaining low-risk births occur in communities with planned birthing by the doctors and/or midwives who practice maternity care. The number of planned births may be insufficient for all maternity providers to feel that they are maintaining their clinical skills.

This problem was reported to be further compounded by the need to roster clinicians so that they do not experience burnout. Providers described a tension between providing enough maternity workforce to manage on-call arrangements and mitigate risk of fatigue versus having enough women requiring maternity care for everyone to develop and maintain their professional skills and interest. According to some stakeholders, the more clinicians on the roster, the fewer births each clinician individually attends. Conversely clinicians, especially midwives with additional nursing qualifications, expressed that they are often rostered to the hospital to cover the general hospital needs, usually providing care for non-maternity inpatients. This meant the midwife was not available for maternity clients when needed due to having to fill the roster at the hospital.

In some cases, local communities do not provide planned birthing at all. For clinicians, this may limit their maternity scope of practice to pre-pregnancy, antenatal and postnatal care (and managing women who present with imminent birth). This scope of maternity practice can be professionally unrewarding for some skilled health professionals who have trained to use their full scope of practice, including attending planned births.

Professional skills need to be developed before they can be maintained. For early career professionals, the number of births in small communities may not afford them the volume of work they feel they require to continue to develop their skills.

Maternity workforce training and skills development

Maternity providers described considerable variability in the workforce training and skills development needs of their different clinical disciplines. Training needs also varied according to the level of experience of the health professional, their community's availability of back-up emergency support for women and babies with time-critical care needs, and the CSCF level of the facility where staff work.

Broadly the training areas described by clinicians were in the topics of:

- Maternity – evidence-based management of the woman through the pre-pregnancy antenatal, birth and postnatal periods
- Neonatal – care of the unwell newborn
- Anaesthetics – anaesthetic care to support delivery of birthing services
- Emergency – advanced resuscitation skills for mother and baby
- Cultural – the delivery of care that meets the cultural care needs of mothers and their families and communities.

Providers expressed a strong preference for training to be provided locally wherever possible, but recognised some training was highly specialised and that they would need to travel periodically to access training. Where this was required, providers reported they could benefit from funding to support attendance at training and backfill of their positions where possible. However, some providers advised they were unable to travel for professional development due to family commitments.

Some maternity professionals report they travel periodically to larger higher-volume maternity centres so they can continue to develop and maintain their maternity skills.

- Obstetric and anaesthetics medical professionals reported needing to travel for skills development or maintenance (senior medical officers, general practitioners).
- Some midwives reported having travelled to maintain skills.

Where providers have other clinical responsibilities in the local community, their need to travel meant women either receive care from another provider (where the position is back-filled or covered by another health professional) or the community is without its full complement of doctors, nurses or midwives during the time the health professional is away. This places a strain on the local community's workforce and contributes to discontinuity of care for the provider's regular patients/clients.

Health professionals in the health service that are not directly involved in the ongoing delivery of maternity care also have training needs. For example, ward nursing staff in some rural communities are required to manage the immediate post-birth care needs of women and their babies. These staff need ongoing skills development and maintenance to enable them to be confident in this role. Similarly, all rural facilities are required to be prepared to manage imminent/unplanned births should a woman present in labour. Not all facilities have midwifery trained staff available 24 hours a day to respond to these care needs. Facilities therefore need to provide education and training to staff to enable them to manage these presentations.

Workforce networks and partnerships

"Where's the culture of learning together?" (clinician – site visit)

Rural medical practitioners described the importance of professional relationships with their peers in their main referral centre. These relationships were viewed as necessary to enable them to feel supported in their rural maternity role, particularly for less experienced rural medical professionals.

Some rural medical practitioners told the Taskforce these relationships need to be strengthened. At present, providers do not routinely work together across organisational boundaries and between facilities to deliver seamless maternity care. As a result, clinicians in larger centres do not necessarily know what local providers can do, what equipment and resources they have, and about their skills and expertise. This affects the ease with which clinicians work together to manage complex care needs and address time-critical events for a mother and/or baby in an emergency.

Clinicians identified a range of strategies to strengthen relationships across organisations, mostly underpinned by strengthened peer networks through:

- conducting regular case conferences (including reciprocal peer review of transfers as the receiver and referrer of care)
- discussing case scenarios
- participating in shared training and skills development.

Larger centres may be inflexible in applying CSCF rules rather than supporting local services to enable women to birth as close to home as possible.

Linkages between general practice and maternity services

General practitioners (GPs) are involved in various ways in the delivery of maternity care in all rural communities the Taskforce visited. The scope of this role varies between general practitioners. Most general practitioners primarily deliver services in the pre-pregnancy, antenatal and postnatal periods. A smaller group of general practitioners provide planned birthing services, in obstetric or anaesthetic roles, or hospital emergency services which may include a requirement to deliver care to a woman with an imminent, unplanned birth.

Some general practitioners reported dissatisfaction with their changing role in delivering maternity care. The role of the general practitioner is to deliver continuity of care to their patients. Their experience of referring some of their patients to maternity services is that they do not see the mother again until after the pregnancy and birth. They reported that receiving discharge summaries from higher level services when a woman returned to the community was an area for improvement. Many GPs who were consulted expressed a preference to continue to be involved in the delivery of the woman's maternity care needs throughout the pregnancy, regardless of which maternity model the mother chooses.

4.4.3. The psychological safety of maternity providers

The Taskforce heard that the psychological safety of maternity providers needs to be supported. The Taskforce met with providers who have experienced psychological distress as a result of attending to the maternity care needs of women with adverse pregnancy outcomes.

Some providers told the Taskforce they had participated in de-briefing sessions after an adverse event had occurred. Some were offered access to employee assistance programs for counselling. Providers generally do not regularly participate in structured or facilitated reflective practice where they continue to be supported in their role on an ongoing basis, and where psychological distress can continue to be monitored for and worked on.

Providers described experiencing or observing a range of unintended consequences from births where adverse outcomes had occurred, and where reflective practices were not in place:

- Some providers had ceased to practice in the maternity field as a direct consequence of an adverse outcome. This contributed in some cases to a reduction in available maternity services, including loss of some planned birthing in rural facilities.
- Providers described hypervigilance as a response to adverse outcomes, whereby the provider adjusted their maternity practice by ordering more investigations; reviewed women more frequently throughout pregnancy, birth and postnatal periods than clinically indicated; and/or refused to provide maternity care for some women with more complex care needs who they had previously been willing to care for.

- Providers reported breakdowns in relationships between providers within and across healthcare organisations, and a 'blame culture' was perceived to have developed within some facilities leading to detrimental impacts on staff morale and workforce retention.

Maternity providers also reported that communities were not necessarily communicated with about the adverse events. In their opinion this had impacted consumer confidence in local services in some cases and led to women choosing to access services elsewhere. As a result, maternity services that had previously been viable were viewed as having become less sustainable.

4.4.4. Rural maternity service models need frequent review

The Taskforce heard that rural maternity models of care should be reviewed frequently and proactively by hospital and health service managers. Some clinicians believed this was not occurring or were unaware if this is occurring.

Some clinicians reported the socio-demographic characteristics of their local communities have changed in response to changes in industry and local employment.

In some cases, industry has declined in rural communities and the size of the local population has changed quickly. As a result, fewer pregnant women were receiving care within the local community, affecting the appropriateness of local service models.

In other cases, clinicians reported significant or impending challenges to the delivery of local maternity services due to the retirement of local, experienced maternity providers or loss of local maternity workforce from the community.

For a small rural community, these factors can have significant impacts on the delivery of local rural maternity services and should trigger planned review of local maternity services.

Supporting local workforce through changes in the scope of maternity services

The Taskforce heard local maternity providers describe the impacts of service system changes on local maternity service providers.

Where the CSCF of local services has been reduced, providers reported a de-motivating impact on the local maternity workforce. It can be difficult for some staff who continue to live in their local community to maintain their professional identity and, in some cases, professional status within the community. Clinicians reported that staff need to be supported in these transitions.

Managing patient transfers

"The further away from home you are – care is less personalised" (consumer – site visit)

Health professionals described prompt access to patient transfer for women and babies with time-critical care needs as essential to the delivery of safe, sustainable rural maternity services.

The Taskforce heard that patient retrieval services were largely accessible and timely for maternity providers working in rural settings. From time to time the capacity of retrieval services to quickly transfer mothers and babies can be exceeded. For this reason, all maternity stakeholders consulted reported that local rural staff must maintain their emergency management skills through frequent and ongoing training and professional development.

Stakeholders reported that retrievals were often for babies with time-critical care needs. In this circumstance, providers were strongly supportive of the need for mothers and family members to be supported to also travel to the site where the baby receives ongoing care. At present, family members are not necessarily supported to travel, which causes distress and family dislocation.

4.4.5. What clinicians want from Hospital and Health Services

Maternity service providers were asked what they need from HHSs to support improved rural maternity services decision-making.

"Planned holistic care that is a wrap-around from antenatal care to early childhood" (clinician – site visit)

Improved planning processes

The Taskforce heard clinicians want improved planning processes, where they can be involved in decisions regarding:

- the scope of rural maternity services that are offered
- the maternity CSCF of local facilities.

Clinicians want HHSs to continue to work with local maternity providers to identify the local workforce education and training needs and establish how these can best be addressed. Many clinicians view strengthening of professional networks between different facilities in the HHS maternity network as important to improving the function of maternity services regionally.

Improved systems to support psychological safety of staff

"It's evolution, not revolution" (clinician – site visit)

Providers felt HHSs are accountable for the psychological safety of staff, and that systems and processes for supporting all maternity providers could be improved. Structured/facilitated reflective practices and support should be ongoing and embedded within usual practice, rather than time-limited and only in response to serious adverse outcomes.

Review of some policies and guidelines

"Policies are designed for bigger hospitals and don't work in smaller facilities" (clinician – site visit)

Clinicians recognised a need for policies and guidelines that inform local decision-making regarding the care of women. Some felt policies and guidelines were too rigid and need to be reviewed. In particular:

- Some rural providers felt they could safely care for women whose body mass index was marginally higher than the cut-off for local services to support a planned birth and that these cases could be considered on a case-by-case basis with higher level services in the maternity network.
- Providers felt the requirement for some women to travel four weeks or more before birth to a centre that performs planned births was overly disruptive to women, their families and communities.

4.5. Hospital and Health Service perspectives

HHS Board members, Executive and managers were consulted. They report they regularly review their maternity services. In developing and reviewing these services, stakeholders report they consider a range of factors, including:

- the maternity care needs of the local community across the continuum of antenatal, birthing (planned and imminent/unplanned) and postnatal care
- the availability of local workforce, resources and infrastructure to meet women's maternity care needs
- the feasibility for the HHS to provide the required workforce, resources and infrastructure to better meet needs, if gaps are identified.

Stakeholders did not report they consider all 11 of the AIHW maternity models per se in their planning processes or how these can be offered in individual communities.

4.5.1. Planning births in local communities

"You can't decide this in an office. You need a proper process over time"
(community representative – site visit)

In general, planning processes for HHSs are oriented toward providing planned births as close to home as possible.

Planning across HHSs was not informed by set numbers of births or pregnancies that determined whether a local service could be provided or not. For example, no Hospital and Health Service manager consulted reported they use a set number of births to determine whether or not a local service can be provided.

In some cases, planned births are not able to be supported by managers of the HHS. The Taskforce heard that factors that influence the ability of facilities within the HHS to provide planned births include but are not limited to:

- the size of the local population
- numbers of pregnant women in the local community
- numbers of women wishing or able to have a planned birth in the local community
- availability of a suitably skilled, experienced maternity workforce.

Planning challenges facing health service managers

"[Community groups] are both the vehicle and the fuel [to get local support]"
(community representative – site visit)

The distance of the local community from other services that are better resourced to provide maternity care was a consideration for managers in their planning processes. The Taskforce heard numerous examples of responses to these planning challenges, including:

- In small rural communities where the nearest planned birthing service is a long distance away (e.g. eight hours or more by road) managers put into place policies where the woman travelled to the birthing centre several weeks before the estimated birth date.
- Communities with larger populations or with close proximity to a well-resourced maternity service could generally support more maternity service models, providing a suitably skilled and experienced workforce could be recruited and retained to support each model.

The Taskforce found that some HHSs only provide planned births if there is an onsite capability for an emergency caesarean section (i.e. medical officers credentialed in anaesthetics and obstetrics). Other HHSs do not have this requirement and may provide primary midwifery services for low-risk births.

The Taskforce observed that the risk appetite of the HHS executive or senior obstetrics staff were factors that influenced this local aspect of maternity service decision-making.

4.5.2. Degree of consumer engagement

Although HHS stakeholders recognised the importance of women and communities participating in the maternity service review and development process, the degree to which this occurred in practice varied across regions.

In all cases, consumer feedback was sought from maternity service users. This feedback informs planning decisions by managers. Some HHSs reported they have maternity-specific committees or advisory groups. Others incorporate maternity service considerations into the roles and functions of generic consumer advisory committees and groups.

On reflection, most managers consulted felt they could strengthen their mechanisms for maternity consumer engagement and involve consumers earlier in the planning process.

Addressing cultural care needs of service users

"Family are the biggest advocates, especially if the woman is sick and has trouble understanding medical stuff." (community representative – site visit)

Stakeholders reported various ways in which the cultural needs of maternity service users were identified in planning processes. Some HHSs have Aboriginal and Torres Strait Islander representatives who inform about cultural care needs, including for maternity care. The cultural care needs of other groups were generally more difficult for managers to identify and respond to through committee representation.

The culturally-specific maternity care needs of Muslim women were identified by some managers as an area where improved staff education and training could be provided.

Birthing environments

"Safety in childbirth is more than just a healthy mum and baby" (clinician – site visit)

Consumers identified a need for HHS planners to explicitly consider the environments within which women receive maternity care, including the birthing environment.

On reflection, stakeholders agreed with consumer feedback that maternity environments need to be welcoming, comfortable, private, afford the woman and her family with amenity and be culturally appropriate. However, these factors were often omitted from consideration when reviewing and developing maternity services. Further, consumer engagement and often clinician engagement to improve maternity environments was not currently prioritised as part of maternity service review activities in most HHSs.

4.5.3. System architecture and governance

"Return of birthing has changed the psyche of the hospital [for the better]" (GP – site visit)

Rural maternity services are configured in a network model, with 'hubs' (higher CSCF level services) and 'spokes (lower CSCF level services) delivering care across the network. A major planning consideration is determining which services are hubs and which are spokes, and what workforce, infrastructure and resources are required to enable each facility to fulfil its role in the maternity service network.

Some managers identified opportunities for the roles of higher-level maternity services and their accountabilities to lower-level services to be strengthened through maternity planning processes. This included:

- provision of workforce education and training
- establishing and maintaining workforce networks and relationships
- supporting delivery of systems for reflective practice oriented toward the psychological safety of staff.

5. Public submissions

"My concern is that maternity services have been removed from my extended family's area in remote/rural Queensland. In the short term, this has taken away the rights of pregnant women in the area to safely have their pregnancy and birth monitored close to their support group (partners, children, friends), the rights of partners, children and friends to be there in support of pregnant and birthing women and the jobs of local residents. In the long term, the future growth of these remote and rural towns and surrounds will suffer, as families and communities will be forced to choose to reside in areas where maternity services are available, whether to use themselves, for family members or as a possible job" (consumer – public submission)

5.1. Summary

The submission process commenced on 3 December 2018 with the opening of the online submission portal and call for submissions by email to a wide range of stakeholders through the Statewide Maternal and Neonatal Clinical Network distribution list and the Clinical Excellence Queensland distribution list, which have over 10,000 recipients combined, and consumer groups such as Health Consumers Queensland, Maternity Consumer Network, and Maternity Choices Australia. The submission process officially closed on 18 February 2019 at midnight. A small number of submissions was received after that date and were accepted.

A total of 309 submissions was received from individual members of the public, professional bodies and interested groups. Of the 309 submissions, 295 were submitted online, and 15 by email. There were 1,624 views of the online portal. Table 3 shows the types of roles that respondents had, with the majority being women who had used maternity services in the past five to 10 years and midwives.

Table 4 and Figure 2 show the rurality category of the respondent as chosen by themselves, compared with the official rurality index of the postcode they provided (as classified by the Australian Statistical Geography Standard (ASGS) Remoteness Structure)[11]. The majority of respondents were noted to be from rural areas, as identified by postcode or though self-identification.

Table 3. Respondents' roles and recency of experience with a maternity service.

Role	In the last 5 years		More than 5 years ago		Total	
	No.	%	No.	%	No.	%
Administrator	11	3.7%		0.0%	11	3.7%
Consumer	3	1.0%	2	0.7%	5	1.7%
General Practitioner	5	1.7%		0.0%	5	1.7%
GP obstetrician	23	7.8%		0.0%	23	7.8%
Midwife	78	26.5%	6	2.0%	85	28.8%
Nurse	16	5.4%	3	1.0%	19	6.4%
Obstetrician	5	1.7%		0.0%	5	1.7%
Partner / support person / relative	17	5.8%	2	0.7%	19	6.4%
Woman who has used maternity services in Qld	76	25.9%	24	8.2%	100	33.9%
Other[1]	22	7.5%	1	0.3%	23	7.8%
Total	**256**	**87.1%**	**38**	**12.9%**	**295**	**100.0%**

[1] includes allied health practitioners, health service administrators and managers, GP anaesthetists, neonatologists, paediatricians, Indigenous health workers, dual qualified nurse midwives, academics and researchers, and women planning to use Queensland Health maternity services

Table 4. Rurality of respondents (self-chosen) compared with ASGS remoteness classification[11]

	Major Cities	Inner Regional	Outer Regional	Remote	Very Remote	#N/A	Total
Regional Qld	16	55	19	4	-	2	**96**
Rural Qld	6	47	81	8	3	2	**147**
Remote Qld	-	3	6	8	15	-	**32**
Other	5	9	5	1	-	-	**20**
Total	**27**	**114**	**111**	**21**	**18**	**4**	**295**

[11] Australian Statistical Geography Standard (ASGS) Remoteness structure
http://www.abs.gov.au/websitedbs/d3310114.nsf/home/remoteness+structure

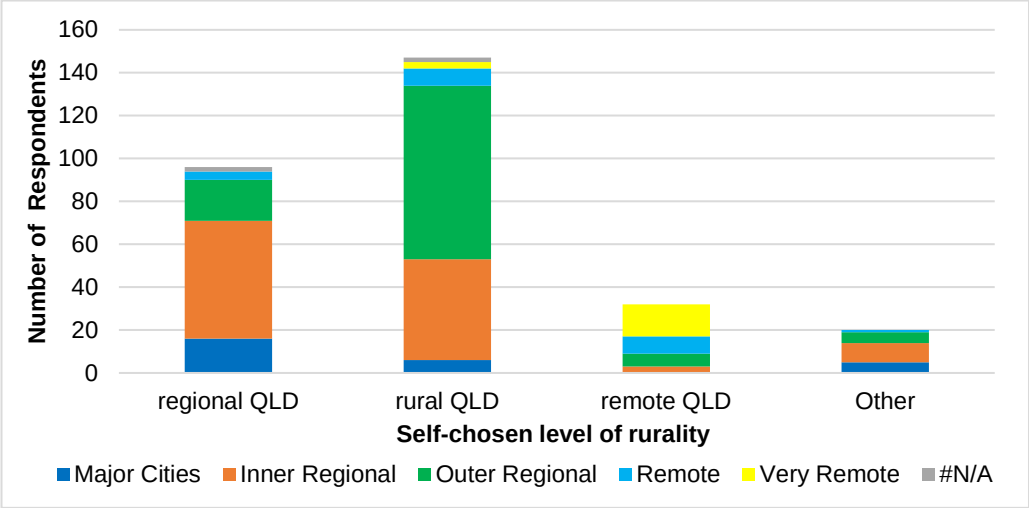

Figure 2. Rurality of respondents (self-chosen) compared with ASGS remoteness classification

The range of issues, concerns, suggestions and positive feedback spanned the key areas of service delivery, staffing, patient experience, safety, and funding, in addition to general aspects of maternity services.

5.2. Service delivery

"Decentralise health services. Restructure health services to wrap around the woman, her community and the midwife. Prioritise midwifery continuity of care models that are accessible to all women regardless of where they live." (clinician – public submission)

Location and access to services were key issues identified in the submissions. The specific aspects included; lack of available services (inability to access services close to home), the closure of some smaller services, lack of private options available in rural areas across Queensland, availability of special care nursery beds and lack of support services such as lactation consultations, and antenatal parenting classes.

Continuity of care was also raised in relation to community care and follow-up as well as the lack of culturally appropriate services.

Respondents identified limited options available in rural and remote areas (e.g. waterbirth, homebirth, telehealth) and the more traditional models of care that are available are not meeting current needs. Respondents noted differing opinions between midwife-led models and medical models of care. The provision of maternity services within generalist areas and by generalist staff was also highlighted, including postnatal care in general wards by nursing staff without specific midwifery training as well as early pregnancy assessments carried out in emergency departments. The models of care in some rural areas also lack the option to provide antenatal and postnatal care locally, with the transfer to a larger service for birth.

Issues were also raised in relation to a range of protocols and guidelines, specifically related to neonatal retrievals (declining to activate before the baby is born), difficulties in referring to tertiary centres, variation in pain relief options across services, inconsistency in guidelines, policies and models of care offered, e.g. fetal surveillance and review and sign-off of cardiotocography (CTGs). Early discharge back to a local hospital was noted as problematic where local hospital staff do not possess the appropriate skills and support services, and resources are not in place.

A number of suggestions related to increasing or re-opening more services that are close to home (accessible, appropriate, safe, effective and affordable) and expanding models of care were provided in the submissions to alleviate or reduce the issues identified. Additionally, access to appropriate medical and midwifery staff, funding for midwifery group practices and midwifery navigators in non-metropolitan areas, the use of telehealth and collaborative models of care, and credentialing of GPs, GP obstetricians, and private obstetricians with the health service to provide care at the hospital were suggested. Homebirths, waterbirths and culturally appropriate models of care (e.g. birthing on country) were also suggestions offered for consideration.

5.3. Staffing

"My suggestion, increase the digital support to rural and regional areas - experts at the end of the phone using today's technology. Increase telemedicine. Establish trusted relationships between clinicians in rural/remote and tertiary referral centres so face to face visits for patients are reduced. Even take the staff from rural and remote to the high- risk teams and ensure the competency assessments match, so they trust both ways the assessment via telemedicine. Review positive outcomes in opposition to the variances of bad outcomes to help develop the decision tree/algorithm for when to transfer." (partner/support person – public submission)

Issues in relation to staffing of rural maternity services were raised. This included a perceived lack of qualified or experienced staff in local areas (including medical, nursing and lactation support), and a perceived lack of appropriate training and education for staff, both locally and at higher level facilities, and the ability for staff to maintain professional skills where case numbers are low. Respondents indicated they felt there are also difficulties associated with retaining staff and commented on the lack of incentives to work in non-metropolitan areas, as well as differing incentives for medical officers, and nursing and allied health staff. Cultural awareness of staff and reports of workplace conflict between and within disciplines, staff morale, reliance on agency staff, and the impact of all of these on productive teamwork and staff burnout were also raised as issues.

Associated with the issues identified, there were a number of suggestions to increase staff numbers, provide incentives to retain staff, and for provisions of options for clinicians to increase and maintain skills. Suggestions also included; establishing a permanent pool of staff to backfill in rural areas, allocation of non-clinical tasks to administration staff where possible, support for staff following on from adverse events, and identification of consequences that result from a lack of teamwork.

5.4. Consumer experience

"Our hospital started delivering babies again a few years ago. Before that I had to travel to deliver. I was terrified of something happening on the highway. We stayed at friends on the lounges. And went back and forwards. Thank God it is local again." (consumer – public submission)

The consumer experience and the impacts this has on both women and their families is importantly a key issue identified in the submissions. A range of impacts on women and their families was identified for situations when they are required to travel away from home to receive antenatal care, postnatal care or for the birth of their baby. This includes financial strain; emotional impacts of being separated from family and support networks, as well as their safety with the risks of travelling long distance on Queensland outback roads. Practical issues associated with caring for older children whilst away or having young children traveling with them for appointments was also identified. The understanding and support from staff in relation to all of these factors, or lack thereof, was also raised as a key issue impacting on the consumer journey and overall experience of care.

Additionally, retrieval services can have implications for the mother's experience as their child may be taken to a larger tertiary service, rather than a service closer to them.

In relation to woman's choice and rights, respondents identified a lack of options or choices close to where they live, and variation in advice provided to enable the mother to make an informed choice. Respondents also highlighted that a range of different clinicians offering advice, opinions and management of care can result in confusion for the mother and family. It was stated that women and families have a right to give birth in the community where they live.

It was also mentioned that the overall experience and outcomes could lead to postnatal mental health concerns for women, which may also not be identified without the necessary support services available.

A range of suggestions was made in relation to communicating appropriately with consumers and providing more information on why it may be necessary to birth away from home. Provision of information to help understand the risks associated with the range of options and decisions would be useful. Provision of easily accessible information about the Patient Transport Subsidy Scheme eligibility was requested (an example was given where a mother was deemed ineligible for the subsidy as her baby was not born at the closest hospital, despite the hospital being flooded). Further suggestions included; provision of a list of local family friendly accommodation options, and services available for day care or babysitting when required to be away from home. Suggestions also included the provision of education about optimum pre-pregnancy health.

Additional suggestions for improving the consumer experience articulated in the submissions included having a range of consumers involved in the planning and development of services and models of care, increasing the involvement of women in decision making and providing all options for care, providing respect when choices are made by women and their families, and making available more options for treatment as a private patient (including in a public hospital).

Suggestions also included enhanced advocacy for women, including options for patient advocacy and having a support person available for women when they arrive in a larger town/city for birth.

5.5. Safety

"I had great maternity care for both my pregnancies at a rural hospital, but due to an emergency Caesar first time around, had to travel to an unknown hospital a fair distance away to give birth the second time. The care from the rural hospital was so much better than the city one. Would rather have given birth there even with the risks" (consumer – public submission)

A number of issues were identified in relation to safety, ranging from those at a broad system level to more specific hospital level and were related to the safety of the mother, baby and staff. Many of the safety issues identified were closely aligned and overlap with some of the other issues identified in relation to service delivery, models of care, women's experience and staffing. In relation to staffing, the issues were focused on limited specialist and qualified staff and variations in skill mix and levels, potentially impacting on safety and quality. The lack of support available for clinicians in the case of an adverse event was also raised.

Aligned to women's experience and service delivery, unplanned presentations for birthing was identified as a key safety risk. Whilst the birth may be planned at a different facility, the mother may present to their local emergency department, in a hospital that has no or minimal maternity services.

The provision of incorrect information to women, not obtaining patient consent, non-compliance with recommended guidelines and juggling culturally appropriate care while meeting clinical and safety requirements were all identified as issues to be addressed.

Concerns were raised by respondents from clinical areas regarding the professional and legal safety for clinicians when a woman declines recommended maternity care. It was noted by one respondent that Queensland Health is developing and trialling a guideline for clinicians partnering with women who

decline recommended care[12] but they felt there needed to be greater clarity regarding legal protection and indemnity for clinicians[13].

In alignment with the women's experience, the respondents commented that the mother and family being required to travel sometimes very long distances for birthing and appointments can be high risk. Some respondents indicated that women may feel they have little choice but to refuse to leave their community to birth and subsequently put themselves and their baby at risk of not receiving appropriate medical and support services. Additionally, due to distances required to be travelled, there is also the risk of birthing out of hospital without clinical support while in labour, and also the risk associated with driving long distances and during the evenings.

Effective communication was also identified as a key issue, with discharge summaries not being received by local hospital services, and a lack of, or poor, communication between different services and hospitals, including between patients and clinicians and between clinicians within and across services. It was suggested a clear governance structure is required for clinical care, audit and review, ongoing education and maintenance of skills. Good governance in maternity services may include multidisciplinary clinical case conferences, and there should be clear processes for information sharing amongst all care providers and the women.

5.6. Funding

"There needs to be a whole of government push to accept the slightly higher cost of running a CSCF level 3 maternity service. The government needs to acknowledge that this provides a certain level of stability and capability to a rural hospital (beyond a maternity service) that cannot be underestimated."
(GP – public submission)

A range of issues in relation to funding were identified in the submissions such as: additional funding for resources, staffing, training and incentives; the inclusion of Medicare item numbers for midwives; access to bulk-billed ultrasound scans; insurance options for private midwives to cover all areas of pregnancy care; and adequate and affordable indemnity solutions for all clinicians to enable them to practice women-centred care.

Funding for additional supports for women required to travel and leave their communities, such as transport options (Patient Travel Subsidy Scheme is not enough), child care options, and the provision of suitable long-term accommodation options, was a key suggestion in the submission.

It was also identified that an increase in funding is required in some rural areas for additional, or upgrades to, infrastructure and equipment.

5.7. Other/general issues

"These rural hospitals take a personal touch and they need to stay"
(partner/support person – public submission)

Other important issues that were raised include too much paperwork for clinicians, the inability or refusal of some clinicians to provide statistics to women to help in decision making, a lack of respect by both staff and patients and the effect this has on service delivery and women's experience, and the increased incidence of obesity and Gestational Diabetes Mellitus. Major haemorrhage protocols were mentioned in

[12] Guideline: *Partnering with the woman who declines recommended care*. https://www.health.qld.gov.au/consent/html/pwdrmc

[13] As noted in the Guideline: *Partnering with the woman who declines recommended maternity care* - Support for clinicians is in place under usual indemnity policies. HHSs should ensure clinicians have immediate and ongoing access to guidance, advice and support, executive team, and legal as required. Consultation and referral considerations should include assessing risk, escalating and implementing appropriate risk mitigation strategies as per local HHS Risk Management Framework and requirements with HHS executive support as required.

relation to some local services having limited blood product resources and not being equipped to follow best practice. In relation to postnatal care, some respondents suggested breastfeeding rates are not measured, and often the six weeks follow-up of baby and mother are not being conducted to the expected standard. An increased focus on general health and wellbeing during pregnancy to improve mum and newborn health post-birth, and improving health literacy, particularly in rural and remote areas were also identified as strategies that needed to be addressed.

Whist a number of key issues were highlighted within the submissions, it needs to be recognised that there was also some very positive feedback, specifically that excellent high-quality care is being provided in rural and remote areas across Queensland, by compassionate staff who are providing helpful and informative support for women and their families.

"Allow for communities and Aboriginal community-controlled health organisations [to] lead the conversations for their own trajectories. Too often this responsibility is taken forcibly without consultation. Our successes are ours to own and so are our wins!" (consumer – public submission)

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6. Data analysis

"Traveling for 100s of [kilometres] to the nearest open maternity ward to give birth is not fair on us who live in rural areas as we are away from our families and that in itself is not healthy for us"
(consumer – public submission)

"Transferring women out of town is not always the safest provision of care when it is only based on the physical health"
(clinician – public submission)

6.1. Access to maternity services in rural and remote areas in Queensland

The availability of maternity services within Queensland varies by HHS and the proportion of women who need to utilise a service outside of the HHS in which they reside gives a very broad indication of the degree to which services are available locally. Table 5 shows the proportion of women who gave birth outside of the HHS of usual residence in each HHS from 2013 to 2017. For HHSs where a large proportion of births occurred outside of the HHS, the HHSs where the majority of births occurred are listed.

Table 5. Proportion of women who gave birth in the Hospital and Health Service (HHS) of their usual residence, Queensland, 2013–2017

HHS of usual residence	HHS where birth occurred (where < 90% occurred in HHS of usual residence)	Births	Total births	% Births in HHS of usual residence
Torres and Cape		720	2,236	32%
	Cairns and Hinterland	*1,387*		
	Townsville	*720*		
Central West		397	587	68%
	Central Queensland	*57*		
	Townsville	*30*		
South West		1,196	1,556	77%
	Darling Downs	*273*		
West Moreton		12,906	16,509	78%
	Metro South	*2,248*		
	Darling Downs	*1,038*		
North West		2,366	2,674	89%
	Townsville	*176*		
	Cairns and Hinterland	*88*		
Mackay		8,019	8,675	92%
Wide Bay		9,779	10,432	94%
Central Queensland		10,958	11,498	95%
Sunshine Coast		14,168	14,949	95%
Darling Downs		13,337	13,846	96%
Metro South		51,191	53,396	96%
Metro North		37,039	38,602	96%
Gold Coast		21,994	22,749	97%
Cairns and Hinterland		13,391	13,659	98%
Townsville		12,594	12,704	99%

Count includes Queensland residents who gave birth in public facilities only.

Women who live in rural and remote areas are more likely to give birth in facilities with lower service capability due to the level of local maternity service that is available. Table 6 shows the current number of facilities with maternity services (CSCF>=2) by remoteness area. Figure 3 shows the proportion of births by rurality of usual residence and CSCF level of the facility where the birth occurred. A small percentage of these births occurred in facilities that do not have planned birthing i.e. CSCF level 1.

Table 6. Maternity service facilities (CSCF >=2) by remoteness area

Remoteness area	n	CSCF level [(a)]				
		2	3	4	5	6
Major Cities	8			4	1	3
Inner Regional	12		6	6		
Outer Regional	14	1	11		1	1
Remote	4		3	1		
Very Remote	2		2			

(a) As at 15 April 2019

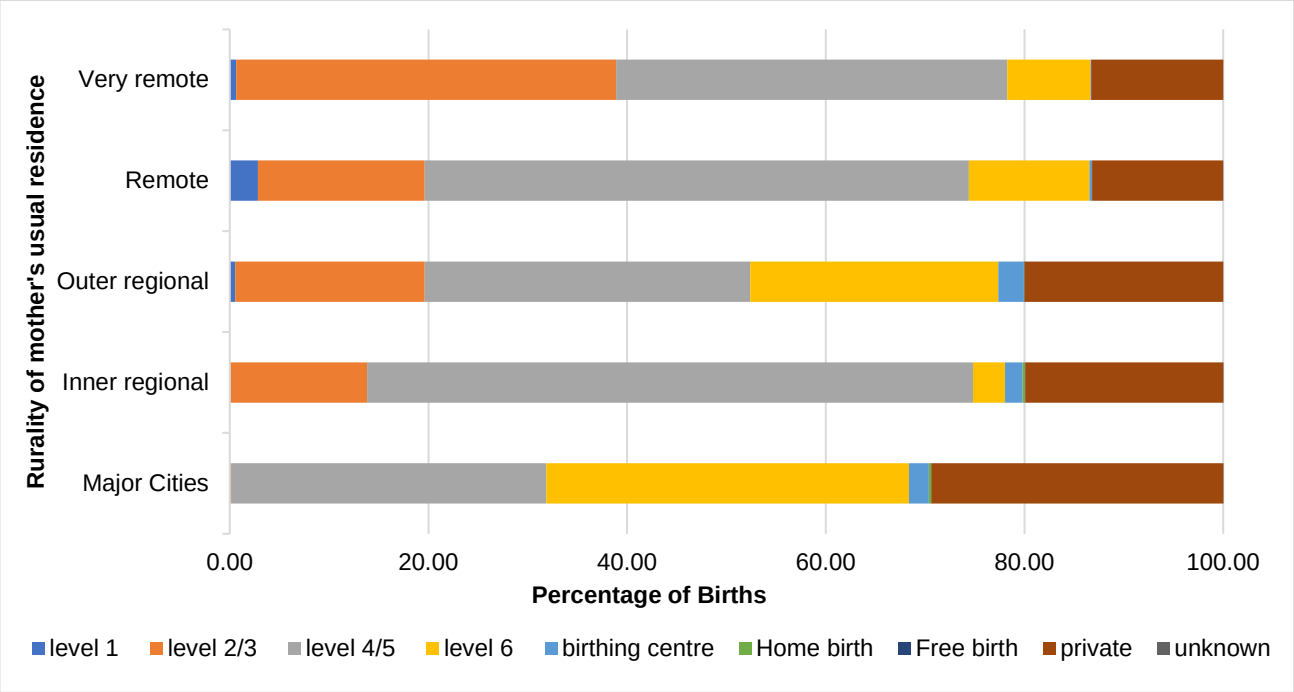

Figure 3. Proportion of births by rurality of usual residence and facility type and Clinical Service Capability Framework level, Queensland 2014/15-2016/17

It is interesting to note that the *Maternity Outpatient Clinic Patient Experience Survey 2017* (Queensland Health, 2019b) and the *Maternity Patient Experience Survey 2014–2015* (Queensland Health, 2015a) show that mothers' overall satisfaction with, and rating of the maternity care they received (including antenatal, labour, birth, and postnatal care), were highest for women who attended CSCF level 3[14] facilities. This finding is supported by a review of the use of the Queensland Normal Birth Guideline by Toohill et al. (2017). They found that in rural sites midwives' professional confidence was higher than those in regional and metropolitan services, and that empowered midwives were more likely to instil more positive outcomes in women. The midwives in the rural sites were more able to work to their scope of practice, which enabled them to support the women's physiological processes during labour and birth.

[14] CSCF level 2 facilities were not included in the analysis due to small number of facilities.

6.1.1. Changes in access over the past few decades

Between 1996 and 2005 a total of 39 Queensland Health facilities stopped providing birthing services (Figure 4), with the majority of the closures occurring in rural and remote areas. Whilst the reasons for each of the closures is not centrally recorded, the closures do coincide with changes to the indemnity insurance industry, the collapse of Australia's largest medical insurer, and significant increases in indemnity insurance premiums for obstetricians. (Zinn, 2002; Zinn, 2003). These changes contributed to an estimated 15 per cent to 20 per cent of obstetrician and gynaecologists leaving the profession (Zinn, 2003).

From 2005 to 2010 there were no closures and work commenced on re-establishing birthing services in a number of rural locations. From 2011 to 2017 there were six closures and five maternity services opened, including Beaudesert, Cooktown and Ingham, which had previously closed. Service names and year of closure are provided in Appendix G. Whilst birthing services ceased in these communities, antenatal and postnatal services are still provided in many of them. Closures were due to a number of factors including difficulties in recruitment and retention of clinical staff.

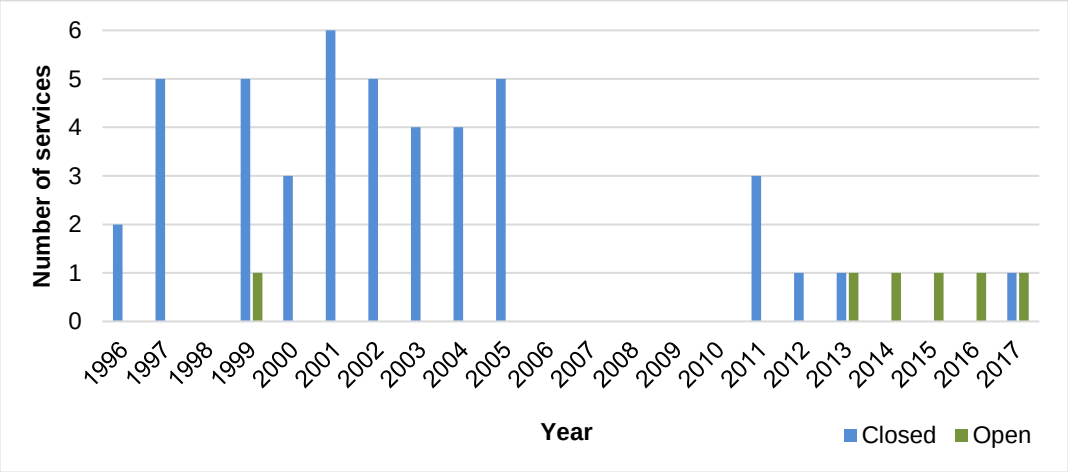

Figure 4 Number of birthing services that closed or opened between 1996 and 2017

6.2. Comparison of perinatal outcomes in Queensland for women who live in rural and remote areas with those in urban areas

In Queensland in 2016 the overall perinatal mortality rate (including all neonatal deaths, regardless of gestation and birthweight) was 9.4 per 1,000 births and included:

- 402 stillbirths or 6.4 stillbirths per 1,000 births
- 191 neonatal deaths or 3.1 neonatal deaths per 1,000 live births.

The perinatal mortality rate in Queensland is similar to the national rate. Based on the most recent Australia's Mothers and Babies report from the Australian Institute of Health and Welfare, Queensland's perinatal mortality rate (including only neonatal deaths and stillbirths where the baby was at least 400 grams or 20 weeks gestation) of 9.1 per 1,000 births compares well with the Australian average rate of 9.0 per 1,000 births (AIHW, 2018a).

The perinatal mortality rate is higher for Aboriginal and Torres Strait Islander women as shown in Table 7 (Queensland Health, 2019c). This is comparable to the national perinatal mortality rate for Aboriginal and Torres Strait Islander women of 14.8 per 1,000 births (AIHW, 2018a).

Table 7. Perinatal deaths by Indigenous status of mother, Queensland, 2016

Indigenous status of mother	Type of perinatal death						Total births
	Stillbirth		Neonatal death		Total		
	No.	Rate[(a)]	No.	Rate[(b)]	No.	Rate[(a)]	No.
Aboriginal and/or Torres Strait Islander	41	*9.7*	20	*4.8*	61	*14.4*	4,230
Neither Aboriginal nor Torres Strait Islander	361	*6.2*	171	*2.9*	532	*9.1*	58,545
Total[(c)]	**402**	***6.4***	**191**	***3.1***	**593**	***9.4***	**62,779**

(a) Per 1,000 births of specified Indigenous status of mother.

(b) Per 1,000 livebirths of specified Indigenous status of mother.

(c) Includes perinatal deaths with not stated Indigenous status of mother.

6.2.1. Factors associated with risk of perinatal mortality

There are many risk factors that increase the likelihood of stillbirth or neonatal death. Medical conditions and risk factors found in a recent multivariate analysis to contribute to an increased risk of stillbirths and/or neonatal death are shown in Figure 5.

Perinatal risk factors and outcomes 2007/08–2011/12

Key findings of a multivariate analysis of the relationship between perinatal risk factors and adverse perinatal outcomes.

Risk ratios

The numbers given are adjusted risk ratios, which represent the chance of an event in a group exposed to a risk compared to a group not exposed to that risk. The risk ratios are adjusted to assume that other risk factors are the same between groups. For instance, if maternal diabetes has an adjusted risk ratio of 3.3 for preterm birth, women who have diabetes are 3.3 times as likely to have a premature birth as women who do not, assuming that other risk factors (e.g. obesity) are constant between those groups. Risk ratios are shown only when significant at $p < .05$. Some risk factors with significant risk ratios are omitted from this document (e.g. low birth-weight for gestational age).

Risk ratio

	Stillbirth	Neonatal death	Preterm birth
Maternal factors			
Obesity The mother has a Body Mass Index (BMI) more than 30.(1)	1.5 x	1.3 x	
Overweight The mother has a Body Mass Index (BMI) between 25 and 29.99.(1)	1.3 x		
Underweight The mother has a Body Mass Index (BMI) less than 20.(1)			1.4 x
Diabetes The mother has been diagnosed with diabetes prior to current pregnancy.	2.0 x		3.3 x
Hypertension The mother has been diagnosed with hypertension prior to current pregnancy.			2.5 x
Indigenous status The mother identifies as Indigenous.			1.2 x
Previous stillbirth The mother has had a stillbirth prior to current pregnancy.			1.9 x
Pregnancy factors			
Antepartum haemorrhage The mother has an antepartum (before birth) haemorrhage.	1.6 x	1.4 x	3.8 x
Insufficient antenatal visits The mother attends less than five antenatal visits during the pregnancy.	1.4 x	1.3 x	2.1 x
Pre-eclampsia The mother is diagnosed with pre-eclampsia.			4.6 x
Smoking The mother smokes after 20 weeks gestation.			1.4 x

(1) Compared to mothers with a Body Mass Index (BMI) in the healthy weight range (20 to 24.99).
(2) Compared to women aged 20 to 34 years.
* Socio-Economic Indexes for Areas

Data Source: Perinatal Data Collection, Queensland Health, 2007/08–2011/12.
For full report see www.health.qld.gov.au/hsu/peri/indigenous-peridisparity.pdf created by the Health Statistics Branch in collaboration with the Queensland Maternal and Perinatal Quality Council and the Aboriginal and Torres Strait Islander Health Unit.

Figure 5. Risk factors associated with an increased risk of stillbirth and neonatal deaths and preterm birth, Queensland, 2007/08-2011/12

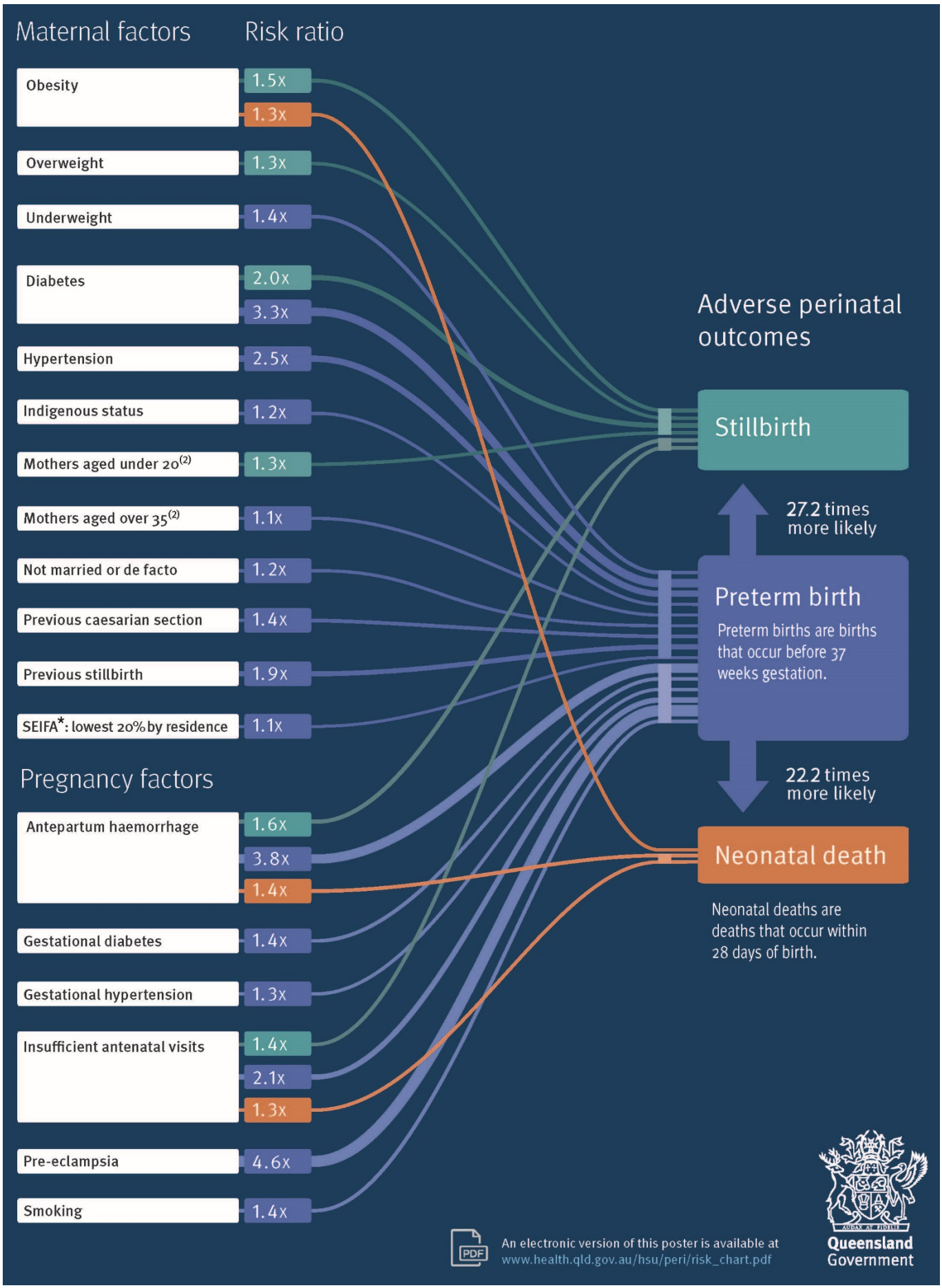

Figure 5 continued.

6.2.2. Variation in perinatal outcomes by remoteness of usual residence

When no other risk factors are considered, rates of preterm births and perinatal deaths are found to be higher in babies born to mothers who live in a remote/very remote location, and lower for mothers who live in urban locations (Utz et al., 2014; Table 8). Similar variation is also evident nationally, with babies born to mothers who lived in remote and very remote areas being found to be 65% more likely to die in the perinatal period than those born to women who lived in major cities and inner regional areas in 2013–2014 (perinatal mortality rate = 15.2 per 1,000 births compared with 9.2 per 1,000 births, respectively) (AIHW, 2018b).

However, rates of risk factors known to increase the chance of adverse perinatal outcomes occurring are also higher in rural and remote locations (Table 8). When risk factors were adjusted for in statistical models that calculated the chance of neonatal mortality, stillbirths and preterm births occurring, the probability of these outcomes occurring was not found to be higher in rural and remote areas than in urban areas (Utz et al., 2014). The presence of risk factors in this group and their potential impact on outcomes indicates that improved access to preventative and primary health programs are needed.

Table 8. Variation in selected perinatal outcomes and risk factors by rurality, Queensland, 2014/15–2016/17

Rate of perinatal mortality and selected perinatal risk factors, 2014/2015–2016/2017p., by remoteness of mothers' usual residence, compared with mothers usually residing in major cities, Queensland

Lower rate than mothers usually residing in major cities(a)	Higher rate than mothers usually residing in major cities(a)

	Mortality			Gestation and birthweight of singleton babies		Risk factors		
Remoteness of mothers' usual residence	Stillbirth(b)	Neonatal death(c)	Perinatal death(d)	Babies born preterm (<37 weeks)(e)	Babies born of low birth weight (<2500g)(f)	Mothers attending <5 antenatal visits(g)	Mothers smoking after 20 weeks gestation(h)	Obese mothers (30+ BMI)(i)
Major cities	6.2	2.9	9.1	6.5	4.9	4.2	7.2	17.7
Inner regional	7.3	3.4	10.7	7.3	5.2	4.2	14.2	24.6
Outer regional	6.6	3.4	10.0	7.5	5.7	5.0	13.7	21.2
Remote	8.1	4.3	12.3	8.5	6.9	4.2	19.9	24.0
Very remote	11.9	5.3	17.2	7.6	6.8	4.5	28.4	27.4
Queensland	**6.6**	**3.1**	**9.7**	**6.8**	**5.1**	**4.3**	**10.0**	**19.7**

Accompanying notes:

p. = preliminary (2017 data are preliminary and subject to change.)
Source: Perinatal Data Collection (PDC). Extracted 14/08/2018.
Excludes non-Queensland residents.
Remoteness of mothers' usual residence is determined by the Accessibility/Remoteness Index of Australia (ARIA+), Australian Geography Standard (ASGS) 2011.

(a) Comparison of usual residence with major cities was assessed statistically by comparing observed number with expected number based on rate among mothers living in major cities. Statistical comparisons are sensitive to sample size and may yield unintuitive results. For example, the rate of babies born preterm (<37 weeks) is higher among very remote mothers than inner regional mothers, but only inner regional mothers are considered to have higher rates than mothers in major cities. This result is due to a larger sample of mothers in inner regional areas, resulting in narrower confidence intervals.
(b) Rate per 1,000 births.
(c) Rate per 1,000 livebirths; mortality within 28 days of live birth.
(d) Rate per 1,000 births; stillbirth or neonatal death.
(e) Rate per 100 livebirths. Excludes multiple births, stillbirths and records of unknown gestation.
(f) Rate per 100 livebirths. Excludes multiple births, stillbirths and records of unknown birthweight.
(g) Rate per 100 pregnant women. Excludes mothers with unknown number of antenatal visits, births with unknown gestation weeks and births at less than 32 weeks gestation.
(h) Rate per 100 pregnant women. Excludes mothers with unknown smoking status after 20 weeks.
(i) Rate per 100 pregnant women. Excludes records of unknown Body Mass Index (BMI).

Queensland Government

6.2.3. Variation in perinatal outcomes by geographical area of usual residence

There is also variation in perinatal outcomes and risk factors that can be observed when comparing rates for smaller geographical areas. Table 9 shows variation by Queensland Health HHS area. It can be seen that HHSs with higher rates of adverse outcomes also tend to have higher rates of risk factors. This highlights the importance of considering risk factors when comparing adverse perinatal outcomes by area. If analysis is being done to enable conclusions about differences in quality of care at the time of birth between areas to be made, then it is important to statistically 'adjust' analyses for risk factors that are not related to quality of care at the time of birth.

Table 9. Variation in selected perinatal outcomes and risk factors by Hospital and Health Service of usual residence, Queensland, 2014/15–2016/17

Rate of perinatal mortality and selected perinatal risk factors, 2014/2015-2016/2017p., by Hospital and Health Service (HHS) of mothers' usual residence, compared with Queensland

HHS lower than Qld(a) | HHS higher than Qld(a)

	Mortality			Gestation and birthweight of singleton babies		Risk factors		
HHS of mothers' usual residence	Stillbirth(b)	Neonatal death(c)	Perinatal death(d)	Babies born preterm (<37 weeks)(e)	Babies born of low birth weight (<2500g)(f)	Mothers attending <5 antenatal visits(g)	Mothers smoking after 20 weeks gestation(h)	Obese mothers (30+ BMI)(i)
Cairns and Hinterland	7.4	3.4	10.7	7.7	6.1	5.6	15.0	17.8
Central Queensland	6.7	3.2	9.9	6.8	4.7	4.4	13.8	23.6
Central West	15.0	0.0	15.0	7.2	5.9	2.9	10.9	24.0
Darling Downs	7.8	4.7	12.5	7.9	5.7	4.1	14.2	26.3
Gold Coast	6.1	1.9	8.0	6.1	4.4	5.4	4.9	13.8
Mackay	6.8	2.2	9.0	6.1	4.3	2.3	10.9	24.2
Metro North	5.8	3.0	8.8	6.6	5.1	2.3	7.1	17.9
Metro South	6.3	2.9	9.2	6.6	5.0	5.1	7.4	18.1
North West	6.4	5.9	12.2	9.4	6.9	5.4	20.2	25.1
South West	4.3	2.6	6.9	6.6	5.5	4.0	17.0	24.3
Sunshine Coast	6.6	2.6	9.1	6.2	4.5	3.2	8.9	14.5
Torres and Cape	13.8	7.0	20.7	8.4	8.3	3.9	38.6	30.2
Townsville	6.7	3.8	10.5	7.9	5.9	4.8	11.6	21.7
West Moreton	7.4	3.7	11.0	7.1	5.3	5.5	14.7	28.8
Wide Bay	7.7	3.6	11.3	7.9	6.1	5.7	18.3	25.1
Queensland	**6.6**	**3.1**	**9.7**	**6.8**	**5.1**	**4.3**	**10.0**	**19.7**
Australia - 2016 (j)	6.7	2.4	9.0	8.5	6.5	6.3	7.3	19.5

Accompanying notes:

p. = preliminary (2017 data are preliminary and subject to change.)
Source: Perinatal Data Collection (PDC). Extracted 14/08/2018.
Excludes non-Queensland residents.
Mothers with an unknown HHS of usual residence are included in Queensland totals only.

(a) Comparison of HHS with Queensland assessed statistically by comparing observed number in HHS with expected number in HHS based on Queensland rate. Statistical comparisons are sensitive to sample size within each HHS and may yield unintuitive results. For example, rates babies born preterm (<37 weeks) in Metro South and South West are equal, but only Metro South is considered better than Qld. This result is due to a larger sample from Metro South, resulting in narrower confidence intervals.
(b) Rate per 1,000 births.
(c) Rate per 1,000 livebirths; mortality within 28 days of live birth.
(d) Rate per 1,000 births; stillbirth or neonatal death.
(e) Rate per 100 livebirths. Excludes multiple births, stillbirths and records of unknown gestation.
(f) Rate per 100 livebirths. Excludes multiple births, stillbirths and records of unknown birthweight.
(g) Rate per 100 pregnant women. Excludes mothers with unknown number of antenatal visits, births with unknown gestation weeks and births at less than 32 weeks gestation.
(h) Rate per 100 pregnant women. Excludes mothers with unknown smoking status after 20 weeks.
(i) Rate per 100 pregnant women. Excludes records of unknown BMI.
(j) Sourced from Australian Institute of Health and Welfare 2018. Australia's mothers and babies 2016—in brief. Perinatal statistics series no. 34. Cat no. PER 97. Canberra: AIHW.

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It is also possible to examine outcomes and risk factors for smaller areas. Figure 6 shows variation in smoking rates by ABS statistical areas (SA2s) and Figure 7 shows variation in births prior to 28 weeks gestation. This shows that there is substantial variation in risk factors that are likely to affect outcomes and service requirements within larger areas such as ARIA+ categories and HHSs which can make results of analysis of outcomes for larger geographical areas difficult to clearly interpret. This variation also has important implications for service planning and targeting of prevention initiatives.

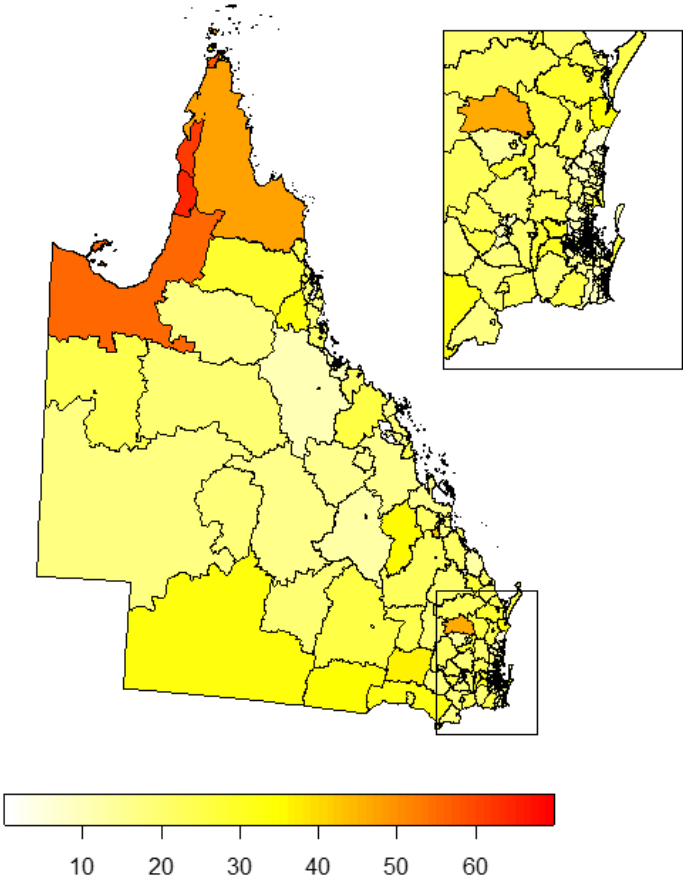

Figure 6. Variation in rates of smoking during pregnancy by SA2, Queensland, 2013–2017

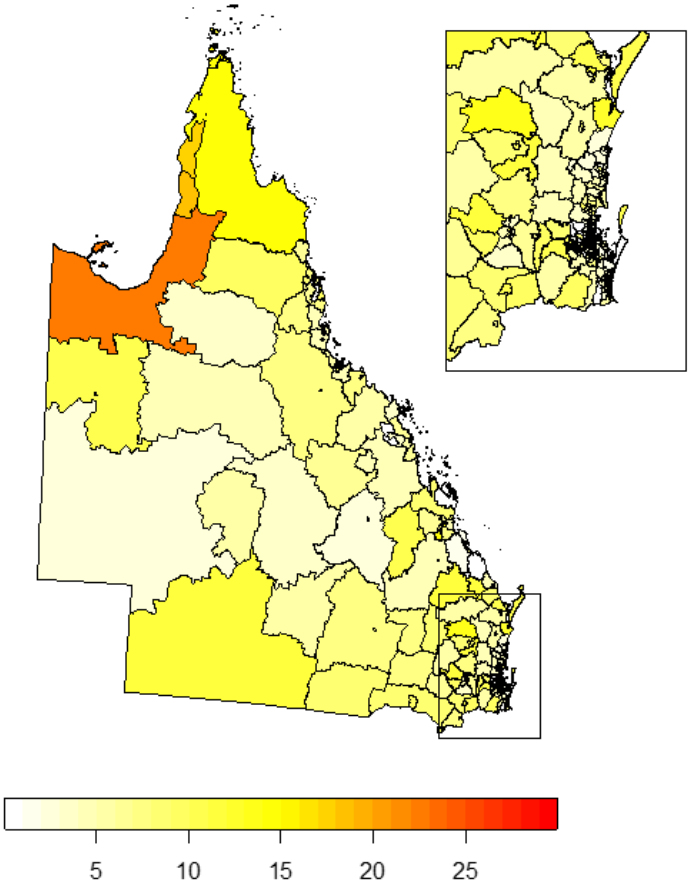

Figure 7. Variation in rates of births at less than 28 weeks gestation by SA2, Queensland, 2013–2017

6.3. Variation in perinatal outcomes by access to maternity services

A key question that has not specifically been investigated in Queensland is whether variation in access to services for women in rural and remote areas has an association with perinatal outcomes. To investigate this question, it is necessary to look more specifically at access to maternity services. In a study conducted in Canada that investigated this issue (Grzybowski et al., 2011), 'access to services' was defined based on a measure of distance by road from usual residence to the closest maternity service with caesarean service capability.

Access was further sub-categorised for those who resided within one hour of a maternity service based on the clinical services capability of the local service. This definition of access was adopted for the examination of this question in the Queensland context with minor adaptation where required. Regression analysis methods were used to assess the association between access and selected perinatal and maternal outcomes, with statistical adjustment for risk factors that are known to increase the risk of adverse maternal and perinatal outcomes but that are not on the causal pathway between 'access' to services and the outcomes of interest.

6.3.1. Method

Births that were in scope for the analysis were all singleton births that were allocated to Queensland public hospitals for mothers whose usual residence was in Queensland. Stillbirths were included where the birth occurred at 20 or more weeks gestation or where the baby was at least 400g and all livebirths were included regardless of weight or gestation. Data were extracted from the Queensland Perinatal Data Collection (PDC) for the period 2013 to 2017. A total of 221,711 mothers/babies were available for analysis. The Queensland Health Master Linkage File was used to identify additional episodes of care related to these births from the Queensland Hospital Admitted Patient Data Collection for identification of all associated diagnoses for mothers.

Babies with major congenital anomalies and/or births coded as terminations of pregnancy were excluded from selected analyses (where indicated) to more clearly focus on the relationship between outcomes and services (n=2,382). Interstate/overseas mothers (n=1,024) were excluded from all analyses because they were typically classified in the four hours or more group, which introduced confounding between risk factors and demographic details in analyses. For example, interstate mothers who happened to give birth in Queensland were more likely to have a preterm birth.

The main explanatory variable, access to services, was defined using a measure of travel time by road from the usual residence of women with in-scope births to the nearest hospital with caesarean section services. Categories used for analysis were under one hour, one hour or more and less than two hours, two hours or more and less than four hours, four hours or more. Women who lived within one hour of a service were further categorised depending on the CSCF level of their local service. The Queensland Health CSCF version 3.2 categories for maternity services were used to define these subcategories. Based on CSCF documentation, hospitals with a level 2[15] or higher maternity service capability were categorised as having a regularly utilised caesarean section capability. Service levels were categorised as providing specialist (CSCF level 4, 5 and 6) or primarily primary care or mixed primary care and specialist (CSCF level 2[15] and 3) services.

Travel time was calculated using an R software package that compares the geocoded geographic coordinates of the mother's usual residence with those of the nearest hospital, allowing for connecting

[15] Facilities of level 2 maternity service capability are not necessarily able to perform caesarean sections. Only level 2 facilities that had a caesarean capable operating theatre were categorised as having caesarean section capability.

roads and speed limits. Variation due to traffic conditions is not included in the estimate of travel time, however, given that the lowest category used in analyses was under one hour it is expected that the accuracy of the estimate would be adequate. That is, traffic in urban areas in Queensland is unlikely to cause travel time for women to exceed one hour. Women with a usual residence on an island were considered separately with most being included in the four hours or more category. Women with a usual residence on an island that was very close to the mainland or close to Thursday Island were included in the two hours or more and less than four hours category (including Badu, Coochiemudlo, Karragarra, Lamb, Macleay, North/South Stradbroke and Russell Islands). Hammond Island was included in the one or more and less than two hours category due to its very close proximity to Thursday Island.

Variables included in models to adjust for the underlying risk status of a birth varied depending on the outcome being modelled. Variables used for risk adjustment were those found to be associated with the outcome in univariate analysis that were not considered to be on the causal pathway between the outcome and access to services at the time of birth. Variables available for risk adjustment in Queensland data were maternal age, parity, diabetes (pre-existing and gestational), antepartum haemorrhage (greater than or equal to 20 weeks), hypertension (pre-existing and gestational), maternal smoking, maternal Body Mass Index (BMI), reported antenatal care attendance, previous stillbirth, Indigenous status of the mother, socio-economic status (SEIFA), marital status, pre-eclampsia and gestational age.

Descriptive statistics were generated to compare the prevalence of risk factors (smoking, maternal overweight and obesity, maternal age, diabetes diagnosis, Indigenous status, socio-economic status, marital status, parity), reported antenatal service attendance, preterm birth rates and selected perinatal outcomes by access to services. Outcome rates were then compared by service access categories after adjustment for risk factors using hierarchical Poisson regression methods. Outcomes included in risk adjusted models were preterm births, unintended births before arrival at hospital, stillbirth, neonatal death, and selected indicators of neonatal morbidity (Apgar score of three or less at five minutes, resuscitation (intermittent positive pressure ventilation (IPPV) via endotracheal tube (ETT), external cardiac massage, adrenalins/sodium bicarbonate and/or other drugs), and hypoxic ischemic encephalopathy (HIE)).

6.3.2. Results

Table 10 shows the distribution of women who were in scope for the analysis by access to service categories. The majority of women in Queensland live within one hour of a maternity service with caesarean section capability.

Table 10. Number of mothers by Indigenous status of mother and distance to maternity services with specialist caesarean section capability, Queensland, 2013–2017

Distance category	Indigenous		Non-Indigenous		Total	
	n	%	n	%	n	%
<1 hr; CSCF level 4 or higher	12,708	66.4	178,197	88.0	190,905	86.1
<1 hr; CSCF level 2/3	3,352	17.5	18,197	9.0	21,549	9.7
1-1:59 hrs	1,032	5.4	4,387	2.2	5,419	2.4
2-3:59 hrs	397	2.1	1,389	0.7	1,786	0.8
4+ hrs	1,637	8.6	415	0.2	2,052	0.9
Total	**19,126**	**100.0**	**202,585**	**100.0**	**221,711**	**100.0**

Mothers of unknown/not stated Indigenous status (n=14) included with non-Indigenous mothers.

6.3.3. Limitations

Some analyses contain high numbers (i.e. up to 3.5 per cent) of records with missing data elements. This is primarily due to missing data for BMI. The proportion of records with missing data varied by distance category and there was a slightly higher proportion of missing data for mothers who lived further from maternity services for some data items. The impact of missing data on the interpretation of results was checked through examining the characteristics and outcomes of women with missing data, assessing the relationship between outcomes and distance for women with missing data and by conducting analyses excluding data items with large proportions of missing data. It was concluded that missing data did not have a significant impact on analyses, results and interpretation.

6.3.4. Maternal risk factors and socio-demographic characteristics

"Most of the rural services are very safe and capable but need a whole of system support network to remove the culture of disempowering women." (clinician – public submission)

Table 11 shows the prevalence of maternal risk factors and socio-demographic characteristics of mothers that are associated with poorer perinatal outcomes by access to service categories. Women who live four hours or more from a maternity service with specialist caesarean section capability have higher rates of all risk factors than women who live close to services. This is largely related to the high proportion of Indigenous women who fall into this category and the higher rates of risk factors that occur among Indigenous women in Queensland (Utz et al., 2014).

Table 11. Prevalence of selected risk factors and socio-demographic characteristics of mothers, by distance category, Queensland, 2013–2017

	Risk factors							Socio-demographic / other factors			
Distance category	**Smoking %**	**Smoking after 20 weeks %**	**Overweight/obese %**	**Age less than 20 or Over 35 %**	**Pre-existing Diabetes %**	**Gestational diabetes %**	**Less than recommended number of antenatal visits %**	**Not married/de facto %**	**Indigenous %**	**Multiparous %**	**Bottom SEIFA quintile %**
<1 hr; CSCF level 4 or higher	15.6	12.6	43.9	21.3	1.0	12.6	35.9	20.2	6.7	59.8	24.7
<1 hr; CSCF level 2/3	23.2	19.8	49.3	20.4	1.2	13.8	28.9	24.3	15.6	63.9	35.2
1-1:59 hrs	24.2	20.9	49.1	21.2	1.6	10.9	34.6	24.0	19.0	65.7	55.0
2-3:59 hrs	27.0	23.8	51.5	19.4	2.1	11.8	34.3	23.0	22.2	68.3	52.6
4+ hrs	46.9	41.7	45.7	26.5	3.8	14.1	38.5	50.5	79.8	67.3	80.3
Total	**16.9**	**13.8**	**44.7**	**21.3**	**1.0**	**12.7**	**35.2**	**21.0**	**8.6**	**60.5**	**27.2**

Excludes mothers of unknown smoking status, body mass index, age, parity, marital status and SEIFA where relevant to percentage calculation.

Mothers of unknown/not stated Indigenous status (n=14) included with non-Indigenous mothers.

When risk factors and socio-demographic characteristics are broken down by both distance and Indigenous status (Table 12) it can be seen that the rates are higher for Indigenous women than for non-Indigenous women regardless of distance and there is some evidence of increases in risk factors with increasing distance from services in both Indigenous and non-Indigenous women. The small numbers of women in some of the subgroups in Table 12 means that care should be taken when interpreting this information.

Table 12. Prevalence of selected risk factors and socio-demographic characteristics of mothers, by Indigenous status of mother and distance category, Queensland, 2013–2017

		Risk factors							Socio-demographic / other factors		
Indigenous status of mother	Distance category	Smoking %	Smoking after 20 weeks %	Overweight/obese %	Age less than 20 or over 34 %	Pre-existing diabetes %	Gestational diabetes %	Less than recommended number of antenatal visits %	Not married/de facto %	Multiparous %	Bottom SEIFA quintile %
Indigenous	<1 hr; CSCF level 4 or higher	42.3	37.1	49.9	25.0	1.8	11.9	48.0	48.9	67.9	41.6
	<1 hr; CSCF level 2/3	49.9	45.0	53.8	25.4	2.4	14.6	39.8	49.0	70.3	54.5
	1-1:59 hrs	51.1	46.0	55.2	25.0	3.6	15.4	48.9	46.7	71.0	65.6
	2-3:59 hrs	50.5	47.1	63.5	24.7	4.0	12.8	39.1	46.6	69.3	84.4
	4+ hrs	55.7	50.2	46.3	28.2	4.6	14.2	41.4	59.0	69.6	93.3
	Total	**45.4**	**40.3**	**50.9**	**25.3**	**2.3**	**12.8**	**45.9**	**49.6**	**68.7**	**50.5**
Non-Indigenous	<1 hr; CSCF level 4 or higher	13.7	10.8	43.5	21.0	0.9	12.6	35.1	18.2	59.2	23.5
	<1 hr; CSCF level 2/3	18.3	15.2	48.5	19.5	0.9	13.6	26.9	19.8	62.7	31.6
	1-1:59 hrs	17.9	15.0	47.7	20.3	1.1	9.9	31.2	18.7	64.4	52.5
	2-3:59 hrs	20.4	17.1	48.1	17.9	1.5	11.4	32.9	16.2	68.0	43.5
	4+ hrs	12.1	8.5	43.1	20.0	0.5	13.5	27.0	17.1	58.1	28.9
	Total	**14.2**	**11.4**	**44.1**	**20.9**	**0.9**	**12.6**	**34.2**	**18.3**	**59.7**	**25.0**

Excludes mothers of unknown smoking status, body mass index, age, parity, marital status and SEIFA where relevant to percentage calculation.

Mothers of unknown/not stated Indigenous status (n=14) included with non-Indigenous mothers.

6.3.5. Antenatal visits

Table 13 shows the proportion of mothers who were recorded as having attended the recommended minimum number of antenatal visits (relative to the gestational age at which a birth occurred; see Glossary for details) by access to service categories. The relative risk of attending the recommended minimum number of antenatal visits by distance for each access category relative to the group of women who reside within one hour of a specialist facility (the reference category) is also shown.

Both a crude ratio and the ratio adjusted for parity are shown to remove any effect of women who have had a previous birth being less likely to attend antenatal care for a subsequent pregnancy since this was found to vary by access category (Table 11). The proportion of women who attended the recommended minimum antenatal visits was found to be largely unaffected by distance to services.

Women who lived within one hour of a primary care or mixed care maternity service facility had slightly higher rates of attendance than other categories. This suggests that access to a maternity service with caesarean section capability does not impact on access to antenatal care. This result is not surprising since antenatal services are provided in Queensland by many hospitals that do not have caesarean section capability and also by various primary care service providers.

The finding that 35 per cent of women (and 46 per cent of Indigenous women) are not attending the recommended minimum antenatal visits across the state is of concern, however, given the relationship between antenatal care and perinatal outcomes that has previously been identified (Utz et al., 2014). It is possible that this is under-reported in the available data, though there has been a lot of education to improve collection of this information in Queensland and the use of the Pregnancy Health Record system across service providers in Queensland also facilitates completion of this data item regardless of where antenatal care is accessed.

Table 13. Proportion of mothers who attended recommended minimum antenatal visits and relative risk ratios by distance category, Queensland, 2013–2017

Distance category	Attended recommended antenatal visits	Total mothers	% Attended recommended antenatal visits	Relative risk ratio (RRR; 95% CI)	Adjusted[1] RRR (95% CI)
<1 hr; CSCF level 4 or higher	121,720	190,119	64.0	-	-
<1 hr; CSCF level 2/3	15,249	21,455	71.1	1.11 (1.09, 1.13)	1.12 (1.10, 1.14)
1-1:59 hrs	3,526	5,389	65.4	1.02 (0.99, 1.06)	1.03 (1.00, 1.07)
2-3:59 hrs	1,170	1,779	65.8	1.03 (0.97, 1.09)	1.04 (0.98, 1.10)
4+ hrs	1,257	2,041	61.6	0.96 (0.91, 1.02)	0.97 (0.92, 1.03)
Total	**142,922**	**220,783**	**64.7**		

Excludes mothers with an unknown number of antenatal visits and pregnancies that ended in termination (n=928).

[1] Relative risk ratio adjusted for parity (multiparous vs nulliparous). Excludes one mother where data elements relevant to calculation were unknown.

"We have a problem with attendance to the hospital clinic for [Aboriginal and Torres Strait Islander] women however, I believe it is not because they "don't care about their health" or are "intimidated by the hospital", I think it is more to the point there is no Indigenous Maternity Worker, no [midwifery group practice] at the [Aboriginal Medical Service] located here and a separation of culture through birth. They need to feel safe and respected throughout the pregnancy journey."
(clinician – public submission)

6.3.6. Preterm births

Table 14 shows rates of preterm births (births prior to 37 weeks gestation) by access to services category and relative risk ratios for each access category compared with the reference category[16]. Both crude ratios and ratios adjusted for known risk factors for preterm birth (Utz et al., 2014) are shown.

The results show that while crude rates of preterm birth are higher in women living further from services the risk adjusted rates are not higher. This result indicates that higher rates of preterm birth among women who live further from services are related to maternal risk factors and not distance to services. The risk status and increased risk of preterm birth among women who live further from services is an important issue to consider when planning maternity services in Queensland.

Table 14. Proportion of babies born preterm and relative risk ratios by distance category, Queensland, 2013–2017

Distance category	Preterm births	Total births	% Preterm births	Relative risk ratio (RRR; 95% CI)	Adjusted[1] RRR (95% CI)
<1 hr; CSCF level 4 or higher	13,226	188,863	7.0	-	-
<1 hr; CSCF level 2/3	1,623	21,314	7.6	1.09 (1.03, 1.14)	1.01 (0.96, 1.06)
1-1:59 hrs	407	5,354	7.6	1.09 (0.98, 1.20)	0.94 (0.85, 1.05)
2-3:59 hrs	140	1,765	7.9	1.13 (0.96, 1.34)	0.96 (0.80, 1.14)
4+ hrs	231	2,031	11.4	1.62 (1.43, 1.85)	0.98 (0.85, 1.13)
Total	**15,627**	**219,327**	**7.1**		

Excludes babies of unknown gestational age, pregnancies that ended in termination and pregnancies where a major congenital anomaly was identified (n=2,384).

[1] Relative risk ratio adjusted for parity (multiparous vs nulliparous), Indigenous status of mother, smoking status, body mass index, whether mother had pre-existing diabetes/pre-existing hypertension and age of mother. Excludes 4,408 births where data elements relevant to calculation were unknown, 1,063 of these were preterm

[16] The reference category is the group of women who reside within one hour of a specialist facility.

6.3.7. Gestational age

The distribution of gestational age of births by distance from services was examined to better understand the risk status of births occurring across the service access categories. Table 15 shows that there was a higher proportion of very preterm births recorded for women who lived more than four hours from maternity services with specialist caesarean section capability relative to other groups. To better capture this variation, all analyses requiring adjustment by gestational age used these more specific gestational age categories rather than the broader 'preterm' category.

Table 15. Gestational age of births by distance category, Queensland, 2013–2017

Distance Category	Less than 24 weeks[1]	24-27 weeks	28-36 weeks	37+ weeks	Total
<1 hr; CSCF level 4 or higher	538	666	12,479	176,741	190,424
%	0.3	0.4	6.6	92.8	100.0
<1 hr; CSCF level 2/3	77	81	1,520	19,822	21,500
%	0.4	0.4	7.1	92.2	100.0
1-1:59 hrs	19	20	380	4,985	5,404
%	0.4	0.4	7.0	92.3	100.0
2-3:59 hrs	4	5	136	1,638	1,783
%	0.2	0.3	7.6	91.9	100.0
4+ hrs	17	12	206	1,809	2,044
%	0.8	0.6	10.1	88.5	100.0

Excludes babies of unknown gestational age and pregnancies that ended in termination.

[1] Includes livebirths and stillbirths of at least 400 grams or at least 20 weeks

6.3.8. Stillbirths

Table 16 shows the rate of stillbirths by access to service category and relative risk ratios for each access category compared with the reference category[17]. It includes both crude ratios and ratios adjusted for:

1) parity, maternal Indigenous status, maternal age, previous stillbirth, pre-existing diabetes, pre-existing hypertension, smoking and maternal overweight/obesity and
2) the factors listed in 1, pre-eclampsia, antepartum haemorrhage, gestational diabetes, antenatal care attendance and gestational age.

The highest rates of stillbirth were found in babies born to women who lived four hours or more from maternity services with specialist caesarean section capability. Those rates were double those of women who lived within one hour of maternity services with that capability. Women who lived one hour or more and less than two hours from such services also had higher stillbirth rates, though this difference was not found to be statistically significant.

After adjustment for risk factors the stillbirth rates for all access categories were not found to be significantly higher than those in the reference category[17]. This result suggests that the higher rates of risk factors among women in more remote areas plays a large part in the higher rates of stillbirths observed for these categories. The presence of risk factors in this group and their potential impact on stillbirth outcomes should be considered when planning maternity services in Queensland.

Table 16. Stillbirth rate and relative risk ratios by distance category, Queensland, 2013–2017

Distance category	Stillbirths	Total births	Stillbirth rate (per 1,000 births)	Relative risk ratio (RRR; 95% CI)	Adjusted[1] RRR (95% CI)	Adjusted[2] RRR (95% CI)
<1 hr; CSCF level 4 or higher	836	188,865	4.4	-	-	-
<1 hr; CSCF level 2/3	99	21,314	4.6	1.05 (0.85, 1.29)	0.97 (0.78, 1.21)	0.99 (0.79, 1.25)
1-1:59 hrs	28	5,354	5.2	1.18 (0.81, 1.72)	1.00 (0.66, 1.52)	1.09 (0.72, 1.65)
2-3:59 hrs	7	1,765	4.0	0.90 (0.43, 1.89)	0.65 (0.27, 1.57)	0.81 (0.34, 1.96)
4+ hrs	18	2,031	8.9	2.00 (1.26, 3.19)	1.33 (0.79, 2.25)	1.21 (0.71, 2.04)
Total	**988**	**219,329**	**4.5**			

Excludes pregnancies that ended in termination and pregnancies where a major congenital anomaly was identified (n=2,382).

[1] Relative risk ratio adjusted for parity (multiparous vs nulliparous), Indigenous status of mother, age of mother, whether mother had a previous stillbirth, whether mother had pre-existing diabetes/pre-existing hypertension, smoking status and body mass index. Excludes 4, 410 births where data elements relevant to calculation were unknown, 108 of which were stillborn

[2] Relative risk ratio adjusted for parity (multiparous vs nulliparous), Indigenous status of mother, age of mother, whether mother had a previous stillbirth, whether mother had pre-existing diabetes/pre-existing hypertension/pre-eclampsia/antepartum haemorrhage/gestational diabetes, smoking status, body mass index, whether mother had recommended minimum antenatal visits and gestational age. Excludes 4,635 births where data elements relevant to calculation were unknown, 112 of which were stillborn.

[17] The reference category is the group of women who reside within one hour of a specialist facility.

6.3.9. Neonatal deaths

Table 17 shows the rate of neonatal deaths by access to services category and relative risk ratios for each access category compared with the reference category[18]. It includes both crude ratios and ratios adjusted for:

1) parity, maternal Indigenous status, maternal age, previous stillbirth, pre-existing diabetes, pre-existing hypertension, smoking and maternal overweight/obesity and
2) the factors listed in 1, pre-eclampsia, antepartum haemorrhage, gestational diabetes, gestational hypertension, antenatal care attendance and gestational age.

The highest rates of neonatal deaths were found for babies born to women who lived four hours or more from maternity services with specialist caesarean section capability. Those rates were over two times those of women who lived within one hour of maternity services with that capability.

After adjustment for risk factors the neonatal death rates for all access categories were not found to be significantly higher than those in the reference category[18]. This result suggests that the higher rates of risk factors among women in more remote areas plays a large part in the higher rates of neonatal deaths observed for these categories. The presence of risk factors in this group and their potential impact on neonatal death outcomes should be considered when planning maternity services in Queensland.

Table 17. Neonatal death rate and relative risk ratios by distance category, Queensland, 2013–2017

Distance category	Neonatal deaths	Total livebirths	Neonatal death rate (per 1,000 livebirths)	Relative risk ratio (RRR; 95% CI)	Adjusted[1] RRR (95% CI)	Adjusted[2] RRR (95% CI)
<1 hr; CSCF level 4 or higher	401	188,029	2.1	-	-	-
<1 hr; CSCF level 2/3	52	21,215	2.5	1.15 (0.86, 1.53)	1.03 (0.75, 1.41)	1.11 (0.80, 1.53)
1-1:59 hrs	10	5,326	1.9	0.88 (0.47, 1.65)	0.63 (0.30, 1.33)	0.77 (0.36, 1.64)
2-3:59 hrs	3	1,758	1.7	0.80 (0.26, 2.49)	0.79 (0.25, 2.46)	1.28 (0.40, 4.08)
4+ hrs	9	2,013	4.5	2.10 (1.08, 4.06)	1.19 (0.57, 2.48)	1.11 (0.53, 2.33)
Total	**475**	**218,341**	**2.2**			

Excludes stillbirths, pregnancies that ended in termination and pregnancies where a major congenital anomaly was identified (n=3, 370).

[1] Relative risk ratio adjusted for parity (multiparous vs nulliparous), Indigenous status of mother, age of mother, whether mother had a previous stillbirth, whether mother had pre-existing diabetes/pre-existing hypertension, smoking status and body mass index. Excludes 4,302 births where data elements relevant to calculation were unknown, 80 of which were neonatal deaths.

[2] Relative risk ratio adjusted for parity (multiparous vs nulliparous), Indigenous status of mother, age of mother, whether mother had a previous stillbirth, whether mother had pre-existing diabetes/pre-existing hypertension/pre-eclampsia/antepartum haemorrhage/gestational diabetes/gestational hypertension, smoking status, body mass index, whether mother had recommended minimum antenatal visits and gestational age. Excludes 4,523 births where data elements relevant to calculation were unknown, 80 of which were neonatal deaths.

[18] The reference category is the group of women who reside within one hour of a specialist facility.

6.3.10. Neonatal morbidity

Tables 18, 19, 20 show the rates of indicators of neonatal morbidity by distance category. Indicators of neonatal morbidities considered were Apgar score less than four at five minutes, resuscitation and hypoxic ischemic encephalopathy (HIE). After adjustment for risk factors none of these factors was higher for babies born to women who lived further from maternity services with specialist caesarean section capability.

Table 18. Proportion of babies with Apgar less than 4 at 5 minutes and relative risk ratios by distance category, Queensland, 2013–2017

Distance category	Apgar<4 at 5 minutes	Total births	% Apgar<4 at 5 minutes	Relative risk ratio (RRR; 95% CI)	Adjusted[1] RRR (95% CI)	Adjusted[2] RRR (95% CI)
<1 hr; CSCF level 4 or higher	1,537	188,624	0.8	-	-	-
<1 hr; CSCF level 2/3	194	21,299	0.9	1.12 (0.96, 1.30)	1.05 (0.90, 1.24)	1.07 (0.91, 1.25)
1-1:59 hrs	44	5,345	0.8	1.01 (0.75, 1.36)	0.85 (0.61, 1.18)	0.90 (0.64, 1.25)
2-3:59 hrs	11	1,763	0.6	0.77 (0.42, 1.39)	0.63 (0.33, 1.22)	0.75 (0.39, 1.45)
4+ hrs	30	2,027	1.5	1.82 (1.27, 2.61)	1.18 (0.78, 1.77)	1.04 (0.69, 1.57)
Total	**1,816**	**219,058**	**0.8**			

Excludes babies of unknown Apgar at 5 minutes, pregnancies that ended in termination and pregnancies where a major congenital anomaly was identified (n=2,653).

[1] Relative risk ratio adjusted for parity (multiparous vs nulliparous), Indigenous status of mother, age of mother, whether mother had a previous stillbirth, whether mother had pre-existing diabetes/pre-existing hypertension, smoking status and body mass index. Excludes 4,366 births where data elements relevant to calculation were unknown, 189 of which had an Apgar<4 at 5 minutes.

[2] Relative risk ratio adjusted for parity (multiparous vs nulliparous), Indigenous status of mother, age of mother, whether mother had a previous stillbirth, whether mother had pre-existing diabetes/pre-existing hypertension/pre-eclampsia/antepartum haemorrhage/gestational diabetes, smoking status, body mass index, whether mother had recommended minimum antenatal visits and gestational age. Excludes 4,591 births where data elements relevant to calculation were unknown, 195 of which had an Apgar<4 at 5 minutes.

Table 19. Proportion of babies who received resuscitation and relative risk ratios by distance category, Queensland, 2013–2017

Distance category	Resuscitation	Total births	% Resuscitation	Relative risk ratio (RRR; 95% CI)	Adjusted[1] RRR (95% CI)	Adjusted[2] RRR (95% CI)
<1 hr; CSCF level 4 or higher	2,801	188,865	1.5	-	-	-
<1 hr; CSCF level 2/3	343	21,314	1.6	1.09 (0.97, 1.21)	1.05 (0.94, 1.18)	1.05 (0.93, 1.18)
1-1:59 hrs	68	5,354	1.3	0.86 (0.67, 1.09)	0.83 (0.64, 1.06)	0.86 (0.67, 1.10)
2-3:59 hrs	29	1,765	1.6	1.11 (0.77, 1.60)	1.11 (0.76, 1.61)	1.19 (0.82, 1.73)
4+ hrs	29	2,031	1.4	0.96 (0.67, 1.39)	0.78 (0.52, 1.17)	0.80 (0.54, 1.21)
Total	**3,270**	**219,329**	**1.5**			

Resuscitation includes resuscitation via IPPV via ETT, external cardiac massage, adrenalins/sodium bicarbonate and/or other drugs. Excludes pregnancies that ended in termination and pregnancies where a major congenital anomaly was identified (n=2,382).

[1] Relative risk ratio adjusted for parity (multiparous vs nulliparous), Indigenous status of mother, age of mother, whether mother had a previous stillbirth, whether mother had pre-existing diabetes/pre-existing hypertension, smoking status and body mass index. Excludes 4,410 births where data elements relevant to calculation were unknown, 804 of which received resuscitation.

[2] Relative risk ratio adjusted for parity (multiparous vs nulliparous), Indigenous status of mother, age of mother, whether mother had a previous stillbirth, whether mother had pre-existing diabetes/pre-existing hypertension/pre-eclampsia/antepartum haemorrhage/gestational diabetes/gestational hypertension, smoking status, body mass index, whether mother had recommended minimum antenatal visits and gestational age. Excludes 4,635 births where data elements relevant to calculation were unknown, 842 of which received resuscitation.

Table 20. Proportion of babies with hypoxic ischemic encephalopathy (HIE) and relative risk ratios by distance category, Queensland, 2013–2017

Distance category	HIE	Total births	% HIE	Relative risk ratio (RRR; 95% CI)	Adjusted[1] RRR (95% CI)	Adjusted[2] RRR (95% CI)
<1 hr; CSCF level 4 or higher	367	170,050	0.2	-	-	-
<1 hr; CSCF level 2/3	31	19,229	0.2	0.75 (0.52, 1.08)	0.76 (0.52, 1.11)	0.78 (0.53, 1.14)
1-1:59 hrs	6	4,764	0.1	0.58 (0.26, 1.31)	0.54 (0.22, 1.31)	0.55 (0.23, 1.33)
2-3:59 hrs	5	1,565	0.3	1.48 (0.61, 3.58)	1.68 (0.69, 4.08)	1.71 (0.71, 4.15)
4+ hrs	3	1,815	0.2	0.77 (0.25, 2.39)	1.06 (0.33, 3.45)	1.08 (0.33, 3.51)
Total	**412**	**197,423**	**0.2**			

Excludes births prior to 1 July 2013 (due to coding changes in HIE), pregnancies that ended in termination and pregnancies where a major congenital anomaly was identified (n=24,288).

[1] Relative risk ratio adjusted for parity (multiparous vs nulliparous), Indigenous status of mother, age of mother, whether mother had pre-existing diabetes/pre-existing hypertension, smoking status and body mass index. Excludes 4,012 births where data elements relevant to calculation were unknown, 19 of which had HIE.

[2] Relative risk ratio adjusted for parity (multiparous vs nulliparous), Indigenous status of mother, age of mother, whether mother had pre-existing diabetes/pre-existing hypertension/ pre-eclampsia/antepartum haemorrhage/gestational hypertension, smoking status, body mass index, whether mother had recommended minimum antenatal visits and gestational age. Excludes 4,203 births where data elements relevant to calculation were unknown, 20 of which had HIE

6.3.11. Born Before Arrival

Born Before Arrival (BBA) refers to a baby being born outside of a hospital at a location that is not the intended place of birth, e.g. hospital car park or on the way to hospital in an ambulance or car. It includes babies born at home where the mother at the onset of labour intended to have her baby in a hospital but actually gave birth at home. It does not include home births that were planned.

Babies that are BBA have an increased risk of adverse outcomes compared with babies who are not BBA. For example, preterm birth is 1.4 (95% CI: 1.2-1.5) times as likely and perinatal death is 1.2 (95% CI: 0.9-1.6; adjusted for gestational age) times as likely for babies who are BBA.

Table 21 shows the rates of BBA by access to services category and relative risk ratios for each access category compared with the reference category[19]. Since it would be expected that multiparous women, having had a previous baby, and therefore with an increased chance of a precipitous labour and birth, would have an increased BBA risk, outcomes were adjusted for parity. Other factors found to be significantly associated with BBA were antenatal care attendance and gestational age. It includes both crude ratios and ratios adjusted for (1) parity and (2) parity, antenatal care and gestational age.

The highest rates of BBA occurred among women who lived one or more and less than two hours from a maternity service with caesarean section capability. The rate for women in this category was significantly higher than for those who resided within one hour of a specialist maternity service, and remained significantly higher even after adjustment for parity, antenatal care attendance and gestational age. Other access categories were not significantly different from the reference category[19].

Rates of BBA in women who lived more than four hours from a maternity service with caesarean capability were slightly (though not statistically significantly) lower than in the reference category[19], which may reflect the increased planning and travel to access services prior to due dates that occurs for these women within current models of maternity care. It may also be due to out-of-hospital births that may occur for this group that are not registered or reported to the Perinatal Data Collection (PDC). This cannot be assessed with existing data sources though.

Table 21. Rate of babies born before arrival and relative risk ratios by distance category, Queensland, 2013–2017

Distance category	BBA	Total babies	BBA rate (per 1,000 births)	Relative risk ratio (RRR; 95% CI)	Adjusted[1] RRR (95% CI)	Adjusted[2] RRR (95% CI)
<1 hr; CSCF level 4 or higher	1,919	190,298	10.1	-	-	-
<1 hr; CSCF level 2/3	192	21,521	8.9	0.88 (0.76, 1.03)	0.84 (0.73, 0.98)	0.90 (0.78, 1.04)
1-1:59 hrs	85	5,413	15.7	1.56 (1.25, 1.94)	1.45 (1.17, 1.81)	1.47 (1.18, 1.83)
2-3:59 hrs	25	1,784	14.0	1.39 (0.94, 2.06)	1.26 (0.85, 1.87)	1.29 (0.87, 1.92)
4+ hrs	20	2,052	9.7	0.97 (0.62, 1.50)	0.89 (0.57, 1.38)	0.86 (0.56, 1.34)
Total	**2,241**	**221,068**	**10.1**			

Excludes home births that were planned (n=643).

[1] Relative risk ratio adjusted for parity (multiparous vs nulliparous).

[2] Relative risk ratio adjusted for parity (multiparous vs nulliparous), mother having had recommended minimum antenatal visits and gestational age. Excludes 381 births where data elements relevant to calculation were unknown, 14 of which were BBA.

[19] The reference category is the group of women who reside within one hour of a specialist facility.

"The closest hospital with a delivery service is 90 mins drive away from my home. This is excruciating if you are forced to travel this far, on country roads, often with multiple roadworks, often with heavy vehicles on the road, whilst in established labour!" (consumer– public submission)

The increased risk for BBA for women who live one hour or more and less than two hours from services and the potential importance of existing models of care for preventing BBAs from occurring among women living further from services are important factors to consider when planning maternity services in Queensland. Table 22 shows the ten SA2s (statistical area level 2) with the highest BBA rates by distance category. Only SA2s that had a BBA count of at least three are tabulated.

Table 22. Top 10 statistical area level 2s (SA2) with highest rates of babies born before arrival by distance category, Queensland, 2013–2017

Distance category	Statistical Area Level 2 (SA2)	BBA	BBA Rate (per 1,000 births)
<1 hr; CSCF level 4 or higher	Pittsworth	8	34.2
	Fairfield - Dutton Park	5	28.4
	Kirwan - East	14	27.1
	Samford Valley	5	25.6
	Upper Caboolture	3	25.0
	Aitkenvale	8	24.3
<1 hr; CSCF level 2/3	Maryborough Region - South	6	57.1
	Crows Nest - Rosalie	5	50.5
	Kilkivan	3	20.8
	Kingaroy Region - North	12	19.8
	Cooloola	3	19.7
	Herberton	4	18.4
1-1:59 hrs	Herberton	5	63.3
	Kingaroy Region - North	3	58.8
	Redland Islands	4	35.7
	Esk	4	35.7
	Agnes Water - Miriam Vale	6	31.1
	Broadsound - Nebo	8	26.8
2-3:59 hrs	Redland Islands	14	53.4
4+ hrs	Torres Strait Islands	9	28.4
	Palm Island	5	18.0

Excludes home births that were planned (n=643) and SA2s that had a BBA count of 2 or less.

Because distance to services is measured from geocoded address of usual residence to geocoded address of a facility, SA2s can be included in multiple distance categories.

Figure 8 shows that BBA rates in Queensland have been steadily increasing over time, with the increase being generally evident across all gestational age groups. Comparison with national rates is complicated due to missing data for New South Wales and Western Australia, and fluctuation in reported rates in Victoria for this place of birth category. However, the increasing rate and the existence of variation by distance to services suggests that there is potential for reduction of BBA rates in Queensland.

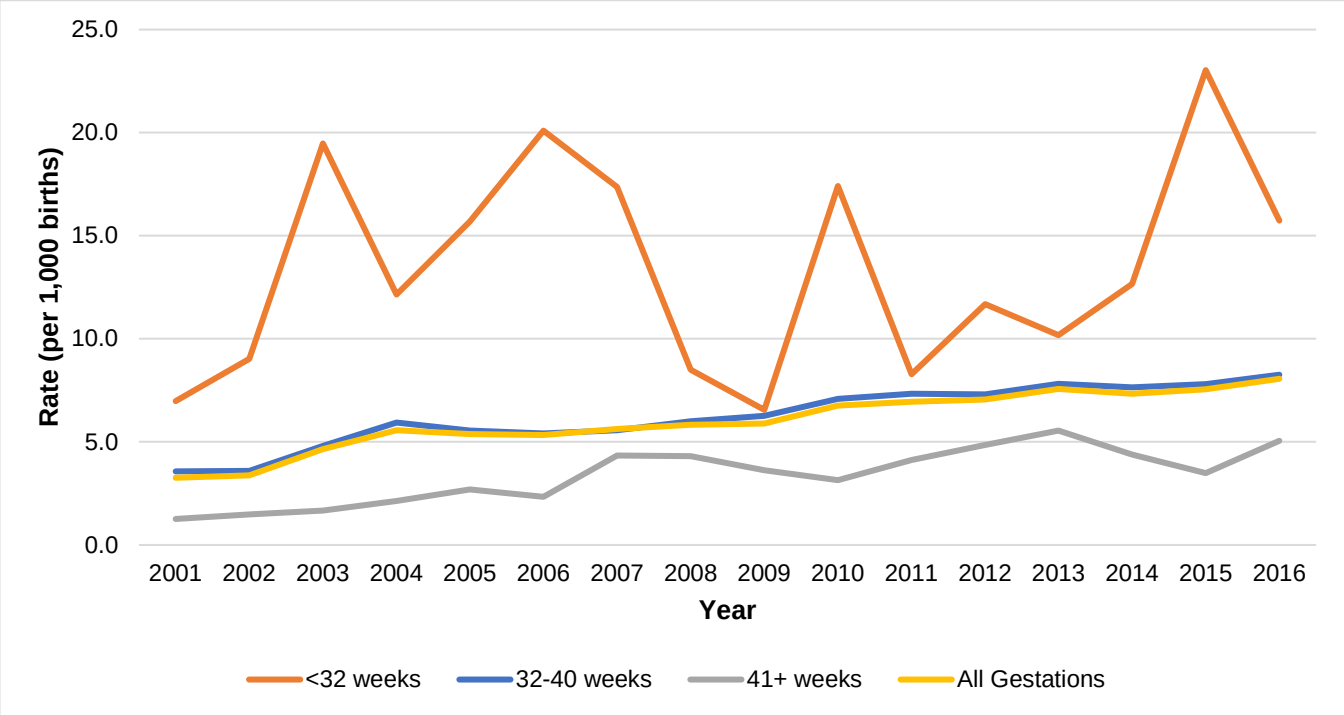

Figure 8. Births before arrival (BBA), by gestational age category, Queensland, 2001-2016

6.3.12. Neonatal retrievals

Neonatal retrievals are coordinated through Retrieval Services Queensland (RSQ) with two neonatal retrieval hubs. The Royal Brisbane and Women's Hospital coordinates retrievals from central and south east Queensland and northern New South Wales (Metro North HHS 2019). The Townsville Hospital coordinates retrievals for northern Queensland, including the Torres Strait.

Data was obtained from these two services to identify the number of babies transferred within 7 days of birth from CSCF level 1/2/3 facilities to higher level facilities (CSCF level 4/5/6). The below data analysis includes babies born from April 2015 to December 2018.

A total of 398 neonatal retrievals were included in the data. The majority were from CSCF level 3 facilities (n=372; 93.5 per cent). In Table 23 the small number of retrievals from CSCF level 1 facilities (n=18; 4.5 per cent) is consistent with these facilities being services that don't provide *planned* birthing. They are healthcare facilities where women and their families would seek urgent care in unplanned preterm births.

Table 23. Retrieval of babies from CSCF level 1/2/3 facilities by gestational age at retrieval (< 37 weeks or >= 37 weeks), April 2015 – December 2018.

Gestational age at retrieval	Level 1		Level 2		Level 3		Total	
	No.	%	No.	%	No.	%	No.	%
<37 weeks	16	88.9%	6	75.0%	145	39.0%	167	42.0%
>= 37 weeks	2	11.1%	2	25.0%	227	61.0%	231	58.0%
Total	**18**	**100.0%**	**8**	**100.0%**	**372**	**100.0%**	**398**	**100.0%**

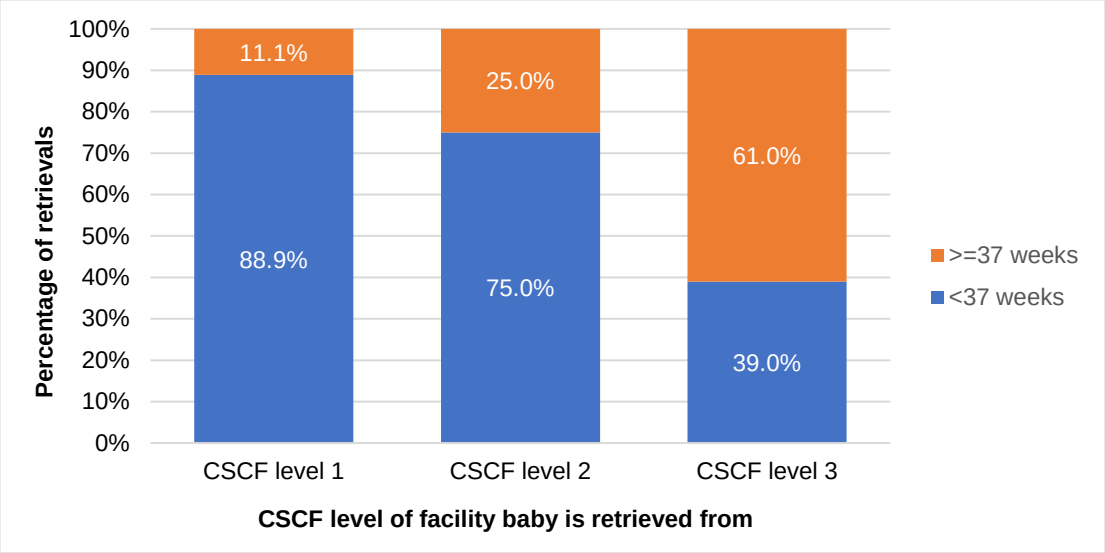

Figure 9. Percentage of babies retrieved from CSCF level 1/2/3 facilities by gestational age at retrieval (<37 weeks or >= 37 weeks), April 2015 – December 2018.

Table 23 and Figure 9 show that for CSCF levels 1 and 2, prematurity (less than 37 weeks gestation) accounts for the majority of retrievals (88.9 per cent and 75.0 per cent, respectively) from those facilities. The transfer of premature babies (less than 37 weeks gestation) from CSCF level 1/2/3 facilities is to be expected and is in line with the CSCF service descriptions (Table 1).

Figure 10 shows that for babies at greater than or equal to 37 weeks gestation, respiratory conditions account for the largest proportion of neonatal retrievals (68.3 per cent), followed by neurological conditions (9.6 per cent), accounting for around 78 per cent of these retrievals.

For babies less than 37 weeks gestation 76 per cent are for prematurity, followed by respiratory conditions (18.6 per cent). These two reasons account for around 95 per cent of retrievals of babies less than 37 weeks gestation from CSCF level 1, 2 and 3 facilities.

Overall, respiratory conditions are the reason for the majority of neonatal retrievals, followed by prematurity. The combined proportion of these two reasons make up approximately 80% of all neonatal retrievals from CSCF level 1, 2 and 3 facilities. Neurological conditions is the only other condition group with above 5 per cent of neonatal retrievals.

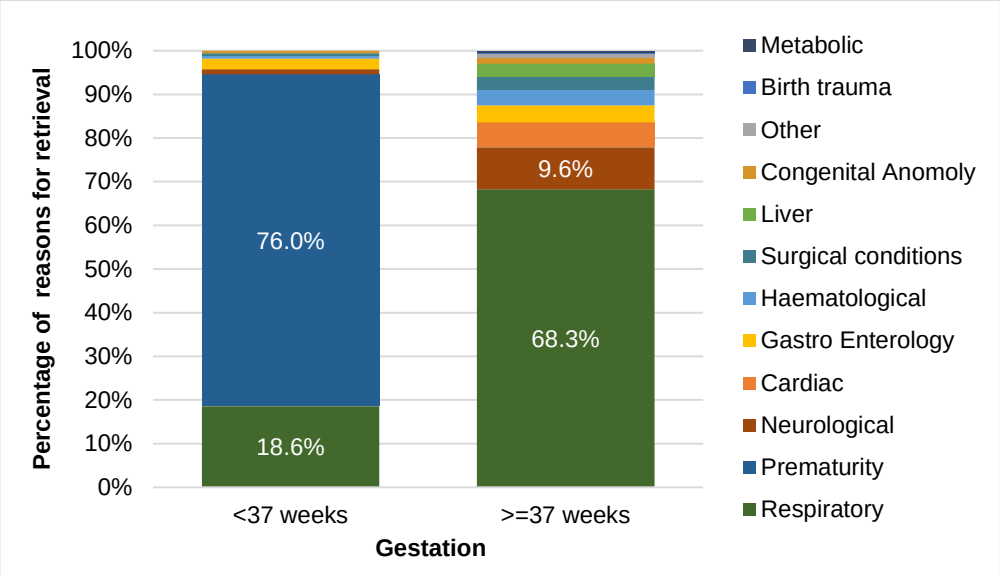

Figure 10. Reasons for retrieval for babies retrieved from CSCF level 1/2/3 facilities by gestational age at retrieval (<37 weeks or >= 37 weeks), April 2015 – December 2018.

The neonatal retrieval data highlight the need for staff at CSCF level 1 and 2 facilities to have imminent birthing skills as well as basic neonatal resuscitation skills and access to appropriate urgent neonatal retrieval services. Importantly the data also recognises the need at level 3 facilities for urgent access to retrieval services for advanced neonatal care of both preterm and term babies.

6.4. Characteristics of women giving birth in catchment areas within a one hour driving distance from rural and remote facilities.

A method has been developed in Canada and refined for use in Australia to examine the extent to which population 'need' determines the availability of maternity services in rural and remote areas (Schuurman et al., 2016; Rolfe et al., 2017). The Australian adaptation of the measure is called the Australian Rural Birthing Index (ARBI) (Longman et al., 2015). This method allows assessment of the suitability of the level of maternity service offered by a rural facility compared to a measure of service 'need'. Service need is estimated based on population residing in the catchment area (within one hour driving distance), number of births occurring for women in the catchment area, demographic factors (proportion Indigenous population), socio-economic status and a proxy for isolation (driving time to the nearest facility with caesarean section capability).

This was examined for rural facilities in Queensland. Following the method used by Rolfe et al. (2017) this analysis focused on one hour catchments around rural facilities that were selected using two exclusion criteria. Facilities with greater than 50 per cent of their catchment population in 'Major Cities' or 'Inner Regional' locations were excluded, as were those whose catchments overlapped with ABS Mesh Blocks containing a Usual Resident Population of greater than 25,000 persons. Where there was an overlap between multiple catchments the *population* was attributed to all relevant facility catchments. The *number of births* in each catchment, however, were assigned differently: where there was overlap between catchments and one of the catchments was for a higher-level facility, the number of births was attributed to the higher-level facility. For example, if a mother lived within one hour of both a level 1 and a level 3 facility then her birth was attributed to the level 3 facility catchment. Where a mother lived within one hour of two level 1 facilities her birth was included in the catchments for both facilities. Therefore, where there are multiple small facilities in an area, care should be taken in interpreting the information. In addition to the above factors, the current analysis also looked at the proportion of out-of-catchment births relative to all births for a catchment area.

Perinatal outcomes are strongly related to the presence of risk factors and these have been found in the above and previous analyses (Utz et al., 2014) to be overrepresented in women living in rural and remote areas in Queensland. For this reason, the prevalence of risk factors in births over a recent five-year period (2013–2017) for women residing in hospital catchment areas was also examined to provide information to support planning of services and models of care for women residing in these areas.

Table 24 shows populations, numbers of births in a five-year period and risk and socio-demographic factors for catchment areas around in-scope Queensland facilities. The current CSCF level for the facility is also shown. Hospitals with a CSCF level of 2 or above are considered to have a maternity service.

It should be noted that CSCF level has changed for some Queensland facilities during the period included in Table 24 which may impact on some of the figures (e.g., Cooktown was a level 1 facility for the majority of the period but is now a level 3 facility which explains the relatively high rate of babies born external to the catchment for Cooktown Hospital). Risk factors and socio-demographic variables for the women from these catchments who gave birth were divided into tertiles[20] and colour coded to show areas with the highest proportion of risk factors/Indigenous population/lowest socio-economic status (coloured red), those with a medium level (coloured orange) and those with the lowest level (coloured green), relative to the other births in the rural and remote facility catchment areas in-scope for this analysis.

Table 25 provides details of how the factors included in Table 24 were defined.

[20] A 'tertile' contains a third of the population

Table 24. Population, numbers of births in a five-year period, risk and socio-demographic characteristics of women giving birth in catchment areas within one hour driving distance from rural and remote facilities, Queensland, 2013–2017[21, 22]

Facility	HHS	Current CSCF level	Catchment Popn.	Birth count	Born external to catchment %	Indigenous %	Age less than 20 or over 34 %	Overweight/obese %	Gest. age <37 wks %	Gest. age <28 wks %	Previous stillbirth %	Smoking %	Bottom SEIFA quintile %	High
Forsayth	CAH	NL	496	29	100.0	6.9	24.1	51.7	17.2	0	0	25.0	0	2
Georgetown	CAH	NL	544	26	100.0	7.7	19.2	50.0	11.5	0	0	24.0	0	1
Mount Garnet OC	CAH	NL	5,391	79	100.0	34.2	19.0	45.6	12.7	1.3	1.3	39.2	73.2	4
Baralaba	CTQ	1	5,886	142	100.0	93.0	29.6	42.8	12.7	2.8	2.8	63.8	24.5	6
Biloela	CTQ	3	12,060	565	47.1	9.0	18.4	48.3	8.8	0.7	1.8	17.8	12.4	0
Blackwater	CTQ	1	20,999	325	98.2	12.9	11.1	49.8	9.5	0.6	2.2	22.9	8.8	0
Capella OC	CTQ	NL	21,196	253	100.0	4.0	19.4	49.2	11.1	1.2	0	12.0	5.0	0
Duaringa OC	CTQ	NL	8,521	70	100.0	14.3	14.3	50.7	10.0	1.4	4.3	26.1	29.2	1
Emerald	CTQ	3	24,258	1,456	19.5	5.6	16.1	46.8	7.2	0.8	0.7	15.7	13.3	0
Moura	CTQ	1	5,344	53	100.0	9.4	13.2	52.0	11.3	0	5.7	30.8	14.1	1
Theodore	CTQ	1	4,074	57	68.4	10.5	14.0	56.6	10.5	0	5.3	29.1	16.5	2
Woorabinda	CTQ	1	2,215	136	93.4	97.1	30.1	44.7	13.2	2.9	2.9	65.9	51.9	7
Alpha	CTW	1	868	37	97.3	2.7	13.5	40.5	0	0	2.7	21.6	0	1
Aramac	CTW	1	1,920	88	98.9	12.5	23.9	50.6	9.1	1.1	1.1	13.8	14.9	1
Barcaldine	CTW	1	2,388	118	99.2	11.9	20.3	54.8	10.2	0.8	1.7	12.8	12	1
Blackall	CTW	1	1,471	74	98.6	8.1	16.2	52.8	17.6	0	1.4	21.6	71.6	2
Longreach	CTW	3	3,455	224	18.8	12.1	19.2	48.4	10.7	2.2	1.8	19.2	0	1
Winton	CTW	1	1,214	57	100.0	12.3	8.8	52.6	7.0	0	0	14	24.9	0
Chinchilla	DDS	2	14,526	671	66.2	10.6	20.0	49.8	9.1	1.2	1.8	23.1	35.3	0
Glenmorgan OC	DDS	NL	2,309	71	100.0	9.9	18.3	45.1	7.0	0	5.6	12.7	17.5	1
Goondiwindi[23]	DDS	3	7,980	485	26.0	25.6	22.3	55.8	9.1	1.9	2.3	26.7	18.6	4
Inglewood	DDS	1	5,908	213	99.1	9.9	16.9	54.9	9.4	1.9	3.3	29.7	43.2	3
Meandarra OC	DDS	NL	3,158	115	100.0	14.8	16.5	54.6	12.2	2.6	0	28.9	34.7	3
Tara	DDS	1	12,350	131	96.2	17.6	19.1	53.7	12.2	2.3	1.5	40.0	38.9	4
Taroom	DDS	1	2,522	75	98.7	2.7	13.3	51.5	2.7	2.7	0	13.3	21.1	1
Texas	DDS	1	2,895	132	98.5	12.9	18.2	53.5	12.1	3.0	3.0	36.7	52.2	5
Wandoan Clinic	DDS	NL	4,535	78	100.0	2.6	12.8	49.3	2.6	2.6	0	12.8	36.7	1
Clermont	MAC	1	5,729	184	97.8	3.3	22.3	49.4	12.5	1.6	0	16.4	12.8	2
Collinsville	MAC	1	3,386	85	98.8	7.1	20.0	52.9	10.6	1.2	3.5	28.2	52.9	2
Dysart	MAC	1	5,430	221	97.7	6.3	14.5	54.7	5.9	0.5	2.3	16.0	6.7	1
Moranbah	MAC	1	9,949	415	98.8	6.3	14.9	54.4	10.4	0.5	1.9	16.7	0	1

[21] Table 24 does not include all birth facilities. Details of inclusion criteria are included in the analysis description above. 'NL' indicates the facility has no CSCF level for maternity services i.e. it does not provide maternity services.

[22] Note: Where there was overlap between catchments and one of the catchments was for a higher-level facility, the number of births was attributed to the higher-level facility. For example, if a mother lived within one hour of both a level 1 facility and a level 3 facility then her birth was attributed to the level 3 facility catchment. Where a mother lived within one hour of two level 1 facilities her birth was included in the catchments for both facilities.

[23] Goondiwindi is on the Qld/NSW border. This data does not include the actual catchment population as a significant proportion have NSW postcodes.

Facility	HHS	Current CSCF level	Catchment Popn.	Birth count	Born external to catchment %	Indigenous %	Age less than 20 or over 34 %	Overweight/obese %	Gest. age <37 wks %	Gest. age <28 wks %	Previous stillbirth %	Smoking %	Bottom SEIFA quintile %	High
Marie Rose Centre	MST	NL	2,384	107	97.2	39.3	27.1	51.4	9.3	0.9	1.9	27.1	32.4	2
Cloncurry	NTW	1	2,943	204	96.6	28.9	17.6	52.0	15.7	2.5	2.5	25.0	26.0	3
Doomadgee	NTW	1	1,483	155	98.7	99.4	33.5	41.8	17.4	2.6	5.8	67.7	100.0	7
Julia Creek	NTW	1	1,285	41	100.0	12.2	9.8	47.5	9.8	0	0	24.4	0	0
Mornington Island	NTW	1	1,141	92	100.0	92.4	31.5	33.7	15.2	1.1	2.2	68.5	100.0	5
Mount Isa	NTW	4	19,013	2,000	6.1	28.5	21.0	51.3	10.9	1.0	1.4	18.5	11.3	0
Normanton	NTW	1	1,370	132	97.7	81.1	35.6	43.7	11.4	1.5	1.5	38.6	88.2	4
Charleville	STW	3	4,101	231	26.0	22.1	16.0	48.9	9.5	1.3	1.7	21.3	22.2	0
Cunnamulla	STW	1	1,365	94	91.5	61.7	27.7	60.9	10.6	0	0	40.4	74.7	5
Dirranbandi	STW	1	1,342	49	100.0	38.8	18.4	64.6	8.2	2.0	6.1	36.7	27.6	5
Mitchell	STW	1	1,895	100.0	96.0	28.0	18.0	53.1	9.0	2.0	1.0	27.3	42.0	1
Morven OC	STW	1	786	26	100.0	7.7	7.7	57.7	7.7	0	0	3.8	18.7	1
Mungindi	STW	1	977	40	97.5	10.0	7.5	52.6	5.0	0	0	35.9	0	1
Quilpie	STW	1	638	45	100.0	28.9	11.1	51.2	8.9	0	4.4	20.0	39.7	1
Roma	STW	3	9,973	636	15.7	13.8	16.2	51.9	8.5	0	2.0	18.6	10.7	0
St George	STW	3	3,677	250	24.0	31.2	16.8	50.2	12.4	1.2	2.4	34.7	21.3	4
Surat	STW	1	4,944	49	98.0	14.3	20.4	44.9	6.1	0	8.2	16.3	12.1	1
Charters Towers	TVL	1	11,009	486	96.5	22.2	19.8	46.7	10.7	1.0	2.1	19.1	39.0	0
Hughenden	TVL	1	1,678	86	98.8	20.9	17.4	57.1	5.8	1.2	0	16.3	34.5	1
Ingham	TVL	3	16,060	397	82.4	18.9	24.7	42.9	11.1	2.8	2.3	21.5	44.3	3
Richmond	TVL	1	930	44	100.0	18.2	9.1	40.9	6.8	0	0	25.0	22.7	0
Aurukun PHC	TAC	1	1,305	109	99.1	99.1	24.8	24.3	14.7	2.8	3.7	61.5	98.9	7
Bamaga	TAC	1	6,673	39	100.0	97.4	20.5	71.8	17.9	2.6	2.6	48.7	68.4	7
Coen PHC	TAC	NL	397	28	100.0	75.0	14.3	53.6	7.1	0	7.1	21.4	84.1	4
Cooktown	TAC	3	4,032	174	68.4	33.3	21.8	42.7	11.5	2.3	2.3	34.5	55.6	7
Hope Vale PHC	TAC	NL	1,750	118	100.0	86.4	25.4	59.5	15.3	1.7	0	53.0	86.9	7
Injune	TAC	1	1,547	31	96.8	6.5	16.1	66.7	0	0	0	19.4	20.4	1
Joyce Palmer HS	TAC	1	2,451	282	92.9	98.2	26.2	41.7	17.7	2.8	1.8	49.6	99.8	6
Kowanyama PHC	TAC	NL	973	111	99.1	97.3	29.7	23.6	14.4	0	1.8	65.5	97.0	5
Laura PHC	TAC	NL	540	27	100.0	55.6	18.5	63.0	3.7	0	0	46.2	28.0	3
Lockhart River PHC	TAC	NL	775	85	97.6	94.1	34.1	38.3	20.0	2.4	2.4	70.2	98.1	7
Malakoola PHC	TAC	NL	4,938	317	100.0	58.0	21.5	47.0	10.1	2.8	0.6	32.4	19.9	3
Pormpuraaw PHC	TAC	NL	753	60	100.0	91.7	26.7	30.0	11.7	0	0	62.7	100.0	5
Thursday Island	TAC	3	6,673	611	41.2	83.5	31.4	63.7	10.6	4.1	3.8	43.0	68.4	7
Weipa	TAC	1	4,938	317	98.1	58.0	21.5	47.0	10.1	2.8	0.6	32.4	19.9	3
Wujal Wujal PHC	TAC	1	999	58	100.0	65.5	19.0	39.6	10.3	5.2	1.7	31.0	77.6	4
Eidsvold	WBY	1	6,357	141	98.6	20.6	21.3	56.8	7.8	0.7	0.7	19.1	60.2	2
Gayndah	WBY	1	7,155	242	95.0	10.7	21.9	59.4	7.9	0.4	2.5	20.7	61.9	4
Monto	WBY	1	3,175	91	98.9	4.4	17.6	47.1	12.1	0	1.1	20.2	34.0	1
Mount Perry HC	WBY	NL	2,794	45	100.0	11.1	28.9	64.4	22.2	0	2.2	24.4	88.9	4
Mundubbera	WBY	1	6,185	258	98.8	17.8	22.5	60.1	9.3	0.8	2.3	22.1	60.5	4

Table 25. Definitions of factors included in Table 24

Factor	Description
Birth count	Number of births in defined catchment for the 5-year period, 2013–2017
Indigenous (%)	Proportion of births in the catchment where the mother was recorded as Aboriginal and/or Torres Strait Islander
Age less than 20 or over 34 (%)	Mother age <= 19 years or >= 35 years
Overweight/obese (%)	BMI of >= 25
Gest. age < 37 wks (%)	Gestational age < 37 weeks
Gest. Age < 28 wks (%)	Gestational age < 28 weeks
Previous stillbirth (%)	Previous stillbirth recorded
Bottom SEIFA quintile (%)	Proportion of catchment population in SEIFA decile 1 or 2
High	Count of 'high' tertiles for each risk criteria

Abbreviations:

CAH	Cairns and Hinterland
CTQ	Central Queensland
CTW	Central West
DDS	Darling Downs
GOL	Gold Coast
MAC	Mackay
MHS	Mater Health Service
MNT	Metro North
MST	Metro South
NTW	North West
STW	South West
SCT	Sunshine Coast
TVL	Townsville
TAC	Torres and Cape
WTM	West Moreton
WBY	Wide Bay
CSCF	Clinical Service Capability Framework
HHS	Hospital and Health Service
MPHC	Multi-Purpose Health Centre
NL	No level recorded
OC	Outpatients Clinic
PHC	Primary Health Centre

7. Discussion

The information obtained through the three main processes undertaken by the Taskforce give valuable insights into the benefits, risks, and outcomes related to the current care provided to Queensland women who live in rural and remote locations. It is recognised that a healthy mother and baby, who are physically, psychologically, and emotionally well, is a fundamental healthcare goal; and continuous improvement in maternity services to provide best practice care is required on an ongoing basis.

Factors that impact upon maternal and neonatal clinical risks are much more prevalent in rural and remote women, particularly among Indigenous women in Queensland. The fact that 80 per cent of the women living four or more hours from a birthing service are Indigenous shows that universal healthcare is not being achieved but instead the inverse care law, where *'the availability of good medical care tends to vary inversely with the need for it in the population served' (Hart, 1971),* is occurring and those people are given the least accessible opportunities to help shape the health system.

Some risk factors are preventable and antenatal care offers a unique opportunity to provide women with information, support and treatment to prevent poor outcomes. This relies on culturally capable providers networked into a multidisciplinary team with outreach services. Based on reported data it seems that there is room for improvement in rates of women attending the recommended minimum number of antenatal visits with approximately 45 per cent of Indigenous women and approximately 30 per cent of non-Indigenous women across all CSCF categories not attending the recommended number. This suggests that improved access to high quality, culturally appropriate antenatal care is needed. Risk factors such as smoking, overweight and obesity are likely to require targeted interventions at a whole-of-population level. This can include a multipronged approach, e.g. social and health support, access to primary and preventative health programs, access to affordable quality food.

Models of care at the time of birth that are used for high risk births in very rural areas appear to be allowing access to appropriate care, but the travel that this often involves can be difficult and very costly both financially and psychologically for women and their families. It also ignores the desire of Indigenous women to birth on country, and of all women to birth as close to home as possible, which were strongly indicated through the stakeholder analysis and public submission processes.

Workforce and infrastructure availability are important considerations for planning services and determining appropriate models of care, in addition to the service needs and risk levels included in this report. Consideration needs to be given to the potentially protective effect of CSCF level 2 maternity services, i.e. birthing services that do not necessarily include onsite caesarean capability. They can have a protective effect for even the high-risk women in that community. A locally situated midwife can establish and maintain a clinical and therapeutic relationship with the woman, which can include early intervention, stabilisation and efficient transfer when required (Kruske et al., 2015; Schultz et al., 2014).

An area for further investigation is the BBA rate in Queensland. The rate of BBAs has increased in Queensland over the past 10 years and is particularly high for women who live one hour or more and less than two hours away from a maternity service. Further analysis could be done to assess characteristics of pregnancies that result in BBAs, in particular, looking at where and to whom these are occurring. In addition, assessment of service models used in areas with high rates of BBAs is warranted.

Overall, in terms of clinical outcomes, Queensland maternity services are enabling high quality care at the time of birth for women, regardless of rurality. When clinical risk factors that are not related to quality of care at the time of birth are adjusted for, perinatal outcomes are similar for women regardless of how far they live from services. However, this does not change that fact that small but important numbers of women do not have access to local birth services and rates of poor outcomes such as preterm births, stillbirths and neonatal deaths are higher in remote areas where there are less services, which tend to be of a lower CSCF level. This is an important area that requires further investigation to determine how to improve services and reduce modifiable risk factors. There is also a lack of measures of outcome and

quality of service from the user perspective. Patient Reported Outcomes and Experience measures must be part of the quality surveillance of the system. What might be judged as quality services from the current limited data view may actually be delivering something quite different from the end user perspective.

It is clear women want to be informed about all their maternity options, not just the ones that are locally available. They want continuity of carer within welcoming, comfortable, culturally appropriate services as close to home as possible. They need reliable adequate support and resources (including for older children and support persons) when they have to travel away from home for several weeks to access maternity services. Community members and clinicians want to be involved in, not just consulted on, the development and review of maternity services. They want transparency in how decisions are made, and for more than just clinical safety to be considered.

Aboriginal women in some communities told the Taskforce they want more welcoming environments within which to give birth, and to see more Indigenous women in maternity workforce roles. Aboriginal and Torres Strait Islander consumers would like to be consulted separately from other consumers as well as participating in the broader consumer engagement process.

Clinicians want to be supported by the heath service to provide continuity of carer in a safe, collaborative environment. They want adequate support and resources to maintain their professional skills and work to their full scope of practice. They want good peer networks and mutually respectful relationships with the higher-level services they refer to. Clinicians and women want good communication and clear processes in place for when women are transferred between services.

Consideration needs to be given by HHSs to what services and supports can be provided in rural and remote Queensland to reduce risk factors that increase the risk of perinatal death and to improve attendance at antenatal appointments. These risk factors need to be addressed before a woman is pregnant as well as supporting the woman through her pregnancy, birth and those first few critical weeks and months after the birth. For example, increasing access to continuity of carer services can improve outcomes for women of all “risk” categories.

Infrastructure and system levers, such as policy, planning, reviewing and co-designing services with consumers, funding models, and clinical guidelines should be viewed from a rural and remote perspective to ensure they support and enable the provision of safe, high quality health services in general, and maternity services in particular.

8. Conclusion

The Rural Maternity Taskforce (the Taskforce) was established to explore what steps can be taken to minimise risk for mothers and babies in rural and remote communities, whilst providing services as close as possible to where they live.

This has been realised through consultation with consumers of maternity services, concerned community members, healthcare providers across public and private organisations, health service decision makers, and relevant maternity experts.

An understanding of the issues, concerns and expectations of the rural and remote communities has been achieved through face-to-face consultation at the rural and remote forums, through public submissions, and through the data analysis. This information has enabled the development of an appropriate set of recommendations (page 5) that support and enable the provision of suitable woman-centred care as close as possible to where women live, whilst enabling good outcomes for mothers and babies in rural and remote communities.

Further, a Rural and Remote Maternity Services Planning Framework is in development. This has been informed through the consultation processes and is presented for discussion at the Maternity Summit in June 2019. This Framework will assist HHSs with planning, developing and delivering rural and remote maternity services.

A healthy mother and baby, who are physically, psychologically, spiritually, and emotionally well is a fundamental healthcare goal, and continuous improvement in maternity services to provide best practice care is required on an ongoing basis.

Appendix A: Terms of reference

Purpose

To advise the Minister for Health and Minister for Ambulance Services on the safety of current rural maternity services in Queensland and what steps can be taken to minimise risk for mothers and babies in rural and remote communities, whilst providing services as close as possible to where they live.

Output

1. **A technical report on the safety of current rural maternity services in Queensland**

   This technical report is to include:

   - Mapping of current maternity and birthing services across rural and remote Queensland.
   - An assessment of the quantum and variation in mortality and morbidity for mothers and babies, between different locations in Queensland with a specific focus on rural and remote communities.
   - Analysis of the factors that influence this variation including maternal factors, geographical factors, and service access factors.
   - An assessment of any other indicators that should be taken into account in determining outcomes for mothers and babies, including patient reported experience and outcomes.

2. **A decision-support guide[24] for HHSs to support decision-making on rural and remote maternity service provision.**

   This evidence-based guide:

   - will deliver practical guidance to support decision-makers responsible for operating rural maternity services
   - should include decision-support tools for communities, clinicians and management when considering how to review, configure and support rural maternity services, with a focus on safety and sustainability
   - should provide best practice community and clinician engagement approaches
   - should complement the existing Clinical Service Capability Framework (CSCF) for maternity and other relevant regulatory and policy context for Queensland
   - should complement *Our Future State: Advancing Queensland's Priorities - Give all our children a great start.*

Methodology

The Taskforce should ensure appropriate opportunity for stakeholder consultation and input, especially in respect of Output 2. This would include an opportunity for public submissions and a key stakeholder summit.

[24] Known as the Rural and Remote Maternity Services Planning Framework.

Stakeholder engagement

There is a significant number of stakeholders in rural maternity services. It is not possible to have all stakeholders represented on the Taskforce. To ensure that stakeholder voices can be considered, it is proposed that the Taskforce would invite public submissions. In addition, in the late stages of the Taskforce deliberations, a summit of key stakeholders is proposed to outline the findings and preliminary recommendations to test with stakeholders.

Taskforce membership

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(Photo not supplied)

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(Photo not supplied)

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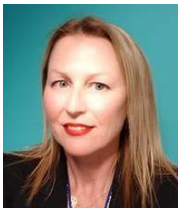

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Appendix B: Facility CSCF levels 2012−2019

The CSCF levels in the table are as per the published levels (Queensland Health 2019a). It should be noted that the CSCF levels have not been static or uniform for all sites across this period, or within some 12-month periods.

Where a CSCF level is not stated for a facility it is noted as 'NL', (No level).

Changes in CSCF level are noted with blue for an increase in level and yellow for a decrease in level.

Facility	HHS	2012	2013	2014	2015	2016	2017	2018	2019
Alpha MPHS	CTW	1	1	1	1	1	1	1	1
Aramac PHC	CTW	1	1	1	1	1	1	1	1
Atherton	CAH	3	3	3	3	3	3	3	3
Augathella	STW	1	1	1	1	1	1	1	1
Aurukun PHC	TAC	1	1	1	1	1	1	NL	NL
Ayr	TVL	3	3	3	3	3	3	3	3
Badu Island PHC	TAC	1	1	1	1	1	1	NL	NL
Bamaga Hospital	TAC	1	1	1	1	1	1	1	1
Baralaba MPHS	CTQ	1	1	1	1	1	1	1	1
Barcaldine MPHS	CTW	1	1	1	1	1	1	1	1
Beaudesert	MST	1	1	1	1	3	3	3	3
Bedourie PHC	CTW	NL	NL	NL	1	1	1	1	1
Biggenden MPHS	WBY	1	1	1	1	1	1	1	1
Biloela	CTQ	3	3	3	3	3	3	3	3
Birdsville	CTW	NL	NL	NL	1	1	1	1	1
Blackall	CTW	1	1	1	1	1	1	1	1
Blackwater	CTQ	1	1	1	1	1	1	1	1
Boigu Island PHC	TAC	1	1	1	1	1	1	NL	NL
Bollon	STW	NL	NL	1	1	1	1	1	1
Boonah	WTM	NL	NL	1	1	1	NL	NL	NL
Boulia	CTW	1	1	1	1	1	1	1	1
Bowen	MAC	1	1	1	1	1	1	1	1
Bundaberg	WBY	3	4	4	4	4	4	4	4
Burketown PHC	NTW	1	1	1	1	1	1	1	1
Caboolture	MNT	3	4	4	4	4	4	4	4
Cairns	CAH	5	5	5	5	5	5	5	5
Camooweal PHC	NTW	1	1	1	1	1	1	1	1
Capricorn Coast (Yeppoon)	CTQ	1	1	1	1	1	1	1	1
Charleville	STW	3	3	3	3	3	3	3	3
Charters Towers	TVL	2	2	2	1	1	1	1	1
Cherbourg	DDS	1	1	1	1	1	1	1	1
Childers	WBY	1	1	1	1	1	1	1	1
Chinchilla	DDS	1	1	2	2	2	2	2	2
Clermont	MAC	1	1	1	1	1	1	1	1
Cloncurry	NTW	1	1	1	1	1	1	1	1
Coen PHC	TAC	1	1	1	1	1	1	NL	NL
Collinsville	MAC	1	1	1	1	1	1	1	1
Cooktown MPHC	TAC	1	1	1	1	1	3	3	3
Cunnamulla	STW	1	1	1	1	1	1	1	1

Facility	HHS	2012	2013	2014	2015	2016	2017	2018	2019
Dajarra PHC	NTW	1	1	1	1	1	1	1	1
Dalby	DDS	3	3	3	3	3	3	3	3
Dauan PHC	TAC	1	1	1	1	1	1	NL	NL
Dirranbandi	STW	1	1	1	1	1	1	1	1
Doomadgee	NTW	1	1	1	1	1	1	1	1
Dysart	MAC	1	1	1	1	1	1	1	1
Eidsvold MPHS	WBY	1	1	1	1	1	1	1	1
Emerald	CTQ	3	3	3	3	3	3	3	3
Erub (Darnley) Island PHC	TAC	1	1	1	1	1	1	NL	NL
Esk	WTM	1	1	1	1	1	NL	NL	NL
Gatton	WTM	1	1	1	1	1	NL	NL	NL
Gayndah	WBY	1	1	1	1	1	1	1	1
Gin Gin	WBY	1	1	1	1	1	1	1	1
Gladstone	CTQ	3	3	3	3	3	3	3	3
Gold Coast	GOL	4	4	6	6	6	6	6	6
Goondiwindi	DDS	3	3	3	3	3	3	3	3
Gurriny Yealamucka PHC (Yarrabah)	CAH	NL	NL	NL	NL	NL	1	1	1
Gympie	SCT	3	3	3	3	3	3	3	3
Hervey Bay	WBY	4	4	4	4	4	4	4	4
Home Hill	TVL	NL	NL	NL	NL	NL	NL	1	1
Hope Vale PHC	TAC	1	1	1	1	1	1	NL	NL
Hughenden	TVL	1	1	1	1	1	1	1	1
Iama (Yam) Island PHC	TAC	1	1	1	1	1	1	NL	NL
Ingham	TVL	1	1	1	1	3	3	3	3
Inglewood MPHS	DDS	1	1	1	1	1	1	1	1
Injinoo PHC	TAC	1	1	1	1	1	1	NL	NL
Injune	STW	1	1	1	1	1	1	1	1
Innisfail	CAH	3	3	3	3	3	3	3	3
Ipswich	WTM	4	4	4	4	4	4	4	4
Isisford	CTW	1	1	1	1	1	1	1	1
Jericho	CTW	NL	NL	NL	NL	NL	NL	NL	1
Joyce Palmer HS (Palm Island)*	TVL	1	1	1	1	1	1	1	1
Julia Creek	NTW	1	1	1	1	1	1	1	1
Jundah	CTW	1	1	1	1	1	1	1	1
Karumba PHC	NTW	1	1	1	1	1	1	1	1
Kilcoy	MNT	1	NL	NL	NL	NL	NL	NL	NL
Kingaroy	DDS	3	3	3	3	3	3	3	3
Kowanyama PHC	TAC	1	1	1	1	1	1	NL	NL
Kubin Island	TAC	1	1	1	1	1	1	NL	NL
Laidley	WTM	1	1	1	1	1	NL	NL	NL
Laura PHC	TAC	1	1	1	1	1	1	NL	NL
Lockhart River PHC	TAC	1	1	1	1	1	1	NL	NL
Logan	MST	4	4	4	4	5	5	5	5
Longreach	CWT	3	3	3	3	3	3	3	3
Mabuiag PHC	TAC	1	1	1	1	1	1	NL	NL
Mackay	MAC	4	4	4	4	4	4	4	4
Magnetic Island	TVL	NL	NL	1	1	1	1	1	1
Maleny	SCT	1	1	1	1	1	1	1	1

Facility	HHS	2012	2013	2014	2015	2016	2017	2018	2019
Mareeba	CAH	3	3	3	3	3	3	3	3
Maryborough	WBY	1	1	1	1	1	1	1	1
Masig (Yorke) Island PHC	TAC	NL	NL	1	1	1	1	NL	NL
Mater Mothers' Public[25]	MHS	6	6	6	6	6	6	6	6
Miles	DDS	1	1	1	NL	1	1	1	1
Millmerran MPHS	DDS	1	1	1	1	1	1	1	1
Mitchell	STW	1	1	1	1	1	1	1	1
Monto	WBY	1	1	1	1	1	1	1	1
Moranbah	MAC	1	1	1	1	1	1	1	1
Mornington Island	NTW	1	1	1	1	1	1	1	1
Morvan	STW	1	1	1	1	1	1	1	1
Mossman	CAH	1	1	1	1	1	1	1	1
Mount Isa	NTW	4	4	4	3	3	3	4	4
Mount Morgan	CTQ	1	1	1	1	1	1	1	1
Mount Perry Health Centre	WBY	1	1	1	NL	NL	NL	NL	NL
Moura	CTQ	1	1	1	1	1	1	1	1
Mundubbera MPHS	WBY	1	1	1	1	1	1	1	1
Mungindi	STW	1	1	1	1	1	1	1	1
Muttaburra	CTW	1	1	1	1	1	1	1	1
Nambour	SCT	4	4	4	4	4	4	1	1
Napranum (Malakoola) PHC	TAC	1	1	1	NL	NL	NL	NL	NL
New Mapoon PHC	TAC	1	1	1	1	1	1	NL	NL
Ngurupai (Horn) Island PHC	TAC	1	1	1	1	1	1	NL	NL
Normanton	NTW	1	1	1	1	1	1	1	1
Oakey	DDS	1	1	1	1	1	1	1	1
Pormpuraaw PHC	TAC	1	1	1	1	1	1	NL	NL
Poruma (Coconut) Island PHC	TAC	1	1	1	1	1	1	NL	NL
Proserpine	MAC	3	3	3	3	3	3	3	3
Quilpie	STW	1	1	1	1	1	1	1	1
Redcliffe	MNT	4	4	4	4	4	4	4	4
Redland	MST	3	3	3	3	4	4	4	4
Richmond	TVL	NL	NL	1	1	1	1	1	1
Rockhampton	CTQ	4	4	4	4	4	4	4	4
Roma	STW	3	3	3	3	3	3	3	3
Royal Brisbane and Women's	MNT	6	6	6	6	6	6	6	6
Saibai Island PHC	TAC	1	1	1	1	1	1	NL	NL
Sarina	MAC	1	1	1	1	1	1	1	1
Seisia PHC	TAC	1	1	1	1	1	1	NL	NL
Springsure MPHS	CTQ	NL	NL	1	1	1	1	1	1
St George	STW	3	3	3	3	3	3	3	3
St Paul's PHC	TAC	1	1	1	1	1	1	NL	NL
Stanthorpe	DDS	3	3	3	3	3	3	3	3
Sunshine Coast University	SCT	NL	NL	NL	NL	NL	4	4	4
Surat	STW	1	1	1	1	1	1	1	1

[25] Although not a public hospital, the Mater Hospital, South Brisbane is funded by Queensland Health to provide public hospital services. It does not have a published CSCF level but is a super-specialised service operating at a CSCF level 6.

Facility	HHS	2012	2013	2014	2015	2016	2017	2018	2019
Tambo	CTW	1	1	1	1	1	1	1	1
Tara	DDS	1	1	1	1	1	1	1	1
Taroom	DDS	1	1	1	1	1	1	1	1
Texas MPHS	DDS	1	1	1	1	1	1	1	1
Thargomindah	STW	1	1	1	1	1	1	1	1
Theodore MPHS	CTQ	1	1	1	1	1	1	1	1
Thursday Island Hospital	TAC	3	3	3	3	3	3	3	3
Toowoomba	DDS	4	4	4	4	4	4	4	4
Townsville	TAC	6	6	6	6	6	6	6	6
Tully	CAH	2	2	2	1	1	1	1	1
Ugar (Stephen) Island PHC	TAC	1	1	1	1	1	1	NL	NL
Umagico PHC	TAC	1	1	1	1	1	1	NL	NL
Wallumbilla	STW	1	1	1	1	1	1	1	1
Warraber (Sue) Island PHC	TAC	1	1	1	1	1	1	NL	NL
Warwick	DDS	3	3	3	3	3	3	3	3
Weipa Integrated Health Service	TAC	1	1	1	1	1	1	1	1
Windorah	CTW	1	1	1	1	1	1	1	1
Winton MPHS	CTW	1	1	1	1	1	1	1	1
Woorabinda MPHS	CTQ	1	1	1	1	1	1	1	1
Wujal Wujal PHC	TAC	1	1	1	1	1	1	NL	NL

Abbreviations:

CAH	Cairns and Hinterland
CTQ	Central Queensland
CTW	Central West
DDS	Darling Downs
GOL	Gold Coast
MAC	Mackay
MHS	Mater Health Service
MNT	Metro North
MST	Metro South
NTW	North West
STW	South West
SCT	Sunshine Coast
TVL	Townsville
TAC	Torres and Cape
WTM	West Moreton
WBY	Wide Bay
CSCF	Clinical Service Capability Framework
HHS	Hospital and Health Service
MPHC	Multi-Purpose Health Centre
NL	No level
PHC	Primary Health Centre

Appendix C: Births by year and CSCF level 2–6 facilities

Northern Queensland births by year and facility

HHS	Facility	CSCF Level	CSCF Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018*
CAH	Atherton	3	2017	206	224	208	223	196	204	195	180	140	76
CAH	Cairns	5	2017	2,604	2,556	2,511	2,496	2,503	2,502	2,324	2,340	2,278	1,151
CAH	Innisfail	3	2017	294	318	238	215	236	176	223	230	218	109
CAH	Mareeba[26]	3	2017	124	121	158	172	186	245	179	206	188	115
NTW	Mount Isa	4	2018	536	564	519	555	525	516	504	463	437	237
TAC	Cooktown MPHC	3	2018	3	6	2	2	2		33	22	24	16
TAC	Thursday Island	3	2018	162	166	135	121	119	129	130	131	126	59
TVL	Ayr	3	2017	139	136	144	119	129	129	114	101	93	34
TVL	Ingham[27]	3	2017	10	12	7	6	1	5	5	21	43	25
TVL	Townsville	6	2017	2,239	2,297	2,424	2,500	2,559	2,687	2,602	2,588	2,549	1,301

*2018 = January 1 to June 30

Central Queensland births by year and facility

HHS	Facility	CSCF Level	CSCF Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018*
CTQ	Biloela	3	2017	111	82	104	96	81	85	66	57	56	33
CTQ	Emerald	3	2017	310	262	300	323	343	338	310	317	265	164
CTQ	Gladstone	3	2017	485	493	516	521	530	541	554	563	558	263
CTQ	Rockhampton	4	2017	1,317	1,340	1,348	1,400	1,435	1,377	1,318	1,285	1,208	640
CTW	Longreach	3	2017	95	108	101	122	88	95	92	75	57	32
MAC	Mackay	4	2017	1,285	1,219	1,285	1,422	1,356	1,344	1,350	1,461	1,336	720
MAC	Proserpine	3	2017	303	262	253	305	273	261	234	230	213	116
WBY	Bundaberg	4	2016	1,142	1,110	1,053	1,121	1,129	1,090	1,079	1,029	976	517
WBY	Hervey Bay	4	2016	991	1,044	1,014	1,050	997	974	941	835	845	408

*2018 = January 1 to June 30

[26] Mareeba was CSCF level 2 from 2005 – 2013. The service re-opened as a pilot primary midwifery service (consult and referral to Cairns obstetric team) in June 2005 and functioned at CSCF level 2 until the service expanded to CSCF level 3 in 2013. It is an example of a viable option for provision of maternity services for vulnerable populations, especially where the medical roster to provide 24/7 caesarean capability is not as viable/sustainable and remains intermittent. The primary midwifery model is the backbone of the service and supports and sustains the continued provision of maternity services.

[27] Ingham Hospital opened a Midwifery Group Practice in late 2016.

Southern Queensland births by year and facility

HHS	Facility	CSCF Level	CSCF Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018*
DDS	Chinchilla	2	2016	71	42	51	38	9	49	58	67	54	4
DDS	Dalby	3	2016	245	231	263	278	260	252	182	188	186	134
DDS	Goondiwindi	3	2016	87	125	94	107	86	105	96	102	87	61
DDS	Kingaroy	3	2016	394	429	400	407	413	395	365	330	352	127
DDS	Stanthorpe	3	2016	147	136	134	129	124	127	125	109	104	49
DDS	Toowoomba	4	2016	1,880	1,928	1,830	1,898	2,003	1,960	1,979	2,052	1,969	1,031
DDS	Warwick	3	2016	225	202	211	215	172	207	184	178	154	86
GOL	Gold Coast	6	2018	3,396	3,539	3,511	3,640	3,794	4,757	4,707	5,052	5,079	2,559
MHS	Mater Hospital[28]	6	N/A	4,844	4,869	4,886	5,513	5,513	5,610	6,233	6,130	6,104	3,111
MNT	Caboolture	4	2017	1,949	1,963	1,994	2,190	1,987	2,004	1,965	1,975	1,847	942
MNT	Redcliffe	4	2017	1,552	1,582	1,673	1,748	1,674	1,720	1,611	1,741	1,591	833
MNT	RBWH	6	2017	4,589	4,601	4,632	4,183	4,136	4,273	4,210	4,798	4,618	2,279
MST	Beaudesert	3	2016	1	3	-	-	-	154	162	203	224	132
MST	Logan	5	2016	3,458	3,404	3,583	3,516	3,561	3,443	3,179	3,374	3,307	1,761
MST	Redland	4	2016	2,029	1,983	2,150	2,228	1,930	1,879	1,796	1,806	1,759	944
STW	Charleville	3	2017	74	48	50	43	53	52	48	48	51	18
STW	Roma	3	2017	133	110	160	160	165	166	146	127	133	62
STW	St George	3	2018	62	56	66	52	54	46	57	49	48	21
SCT	Gympie	3	2018	344	341	345	375	346	353	333	350	318	138
SCT	Nambour[29]	4	2018	2,209	2,179	2,243	2,314	2,381	2,463	2,526	2,655	622	-
SCT	SCUH[30]	4	2018	-	-	-	-	-	-	-	-	2,225	1,555
WTM	Ipswich	4	2017	2,572	2,557	2,657	2,922	2,832	2,848	2,622	2,626	2,463	1,395

*2018 = January 1 to June 30

Abbreviations:

CAH	Cairns and Hinterland
CTQ	Central Queensland
CTW	Central West
DDS	Darling Downs
GOL	Gold Coast
MAC	Mackay
MHS	Mater Health Service
MNT	Metro North
MST	Metro South
NTW	North West
STW	South West
SCT	Sunshine Coast
TVL	Townsville
TAC	Torres and Cape
WTM	West Moreton
WBY	Wide Bay
CSCF	Clinical Service Capability Framework
HHS	Hospital and Health Service
MPHC	Multi-Purpose Health Centre
PHC	Primary Health Centre

[28] Although not a public hospital, the Mater Hospital, South Brisbane is funded by Queensland Health to provide public hospital services. It does not have a published CSCF level but is a super-specialised service operating at a CSCF level 6.

[29] Nambour Hospital closed in 2017.

[30] Sunshine Coast University Hospital opened in 2017.

Appendix D: Births by year and CSCF level 1 and 'No level'

Northern Queensland births by year and CSCF level

HHS	Facility	CSCF Level	CSCF Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
CAH	Babinda MPHS	NL	2017	-	-	-	-	-	-	-	-	-	-
CAH	Chillagoe PHC	NL	2017	-	-	-	-	-	-	-	-	-	-
CAH	Cow Bay PHC	NL	2017	-	-	-	-	-	-	-	-	-	-
CAH	Croydon PHC	NL	2017	-	-	-	-	-	-	-	-	1	-
CAH	Dimbulah PHC	NL	2017	-	-	-	-	-	-	-	-	-	-
CAH	Forsayth PHC	NL	2017	-	-	-	-	-	-	-	-	-	-
CAH	Georgetown PHC	NL	2017	-	-	-	-	-	-	-	-	-	-
CAH	Gordonvale	NL	2017	-	-	-	-	-	-	-	-	-	-
CAH	Gurriny Yealamucka PHC (Yarrabah)	1	2017	6	4	4	7	2	7	5	2	2	-
CAH	Herberton	NL	2017	-	-	-	-	-	-	-	-	-	-
CAH	Malanda PHC	NL	2017	-	-	-	-	-	-	-	-	-	-
CAH	Milla Milla PHC	NL	2017	-	-	-	-	-	-	-	-	-	-
CAH	Mossman	1	2017	10	5	2	11	6	2	2	3	1	4
CAH	Mt Garnet PHC	NL	2017	-	-	-	-	-	-	-	-	-	-
CAH	Ravenshoe PHC	NL	2017	-	-	-	-	-	-	-	-	-	-
CAH	Tully	1	2017	17	9	15	10	5	1	5	1	4	-
NTW	Burketown PHC	1	2015	-	-	-	-	-	-	-	-	-	-
NTW	Camooweal PHC	1	2015	-	-	-	-	-	-	-	-	-	1
NTW	Cloncurry	1	2015	-	-	1	2	-	4	1	2	-	1
NTW	Dajarra PHC	1	2015	-	-	-	-	-	-	-	-	-	-
NTW	Doomadgee	1	2015	1	-	2	-	-	-	-	-	2	-
NTW	Julia Creek	1	2015	-	-	-	-	-	-	-	-	-	-
NTW	Karumba PHC	1	2015	-	-	-	-	-	-	-	-	-	-
NTW	Mornington Island	1	2015	-	2	-	-	-	-	-	-	-	1
NTW	Normanton	1	2015	3	1	2	-	1	-	-	2	-	-
TAC	Aurukun PHC	NL	2018	1	-	1	-	1	-	-	-	-	-
TAC	Badu Island PHC	NL	2018	1	-	-	-	-	-	-	-	-	-
TAC	Bamaga	1	2018	1	-	-	2	2	-	1	1	-	-
TAC	Boigu Island PHC	NL	2018	-	-	1	-	-	-	1	-	-	-
TAC	Coen PHC	NL	2018	-	-	-	-	-	-	-	-	-	-
TAC	Dauan PHC	NL	2018	-	-	-	-	-	-	-	-	-	-
TAC	Erub Island PHC	NL	2018	-	-	-	-	-	-	-	-	-	-
TAC	Hope Vale PHC	NL	2018	-	-	-	-	-	1	-	-	-	-
TAC	Iama Island PHC	NL	2018	-	-	-	-	-	-	-	-	-	-
TAC	Kowanyama PHC	NL	2018	-	1	-	-	-	1	-	-	-	-
TAC	Kubin Island	NL	2018	-	-	-	-	-	-	-	-	-	-
TAC	Laura PHC	NL	2018	-	-	-	-	-	-	-	-	-	-
TAC	Lockhart River PHC	NL	2018	-	-	-	-	-	2	-	-	-	-
TAC	Mabuiag Island PHC	NL	2018	-	-	-	-	-	-	-	-	1	-
TAC	Mapoon PHC	NL	2018	-	-	-	-	-	-	-	-	-	-
TAC	Masig Island PHC	NL	2018	-	-	-	-	-	-	-	-	-	-

HHS	Facility	CSCF Level	CSCF Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
TAC	Murray Island Medical Aid Post (PHC)	NL	2018	2	-	-	-	-	-	-	-	-	1
TAC	Napranum PHC	NL	2018	-	-	-	-	-	-	-	-	-	-
TAC	New Mapoon PHC	NL	2018	-	-	-	-	-	-	-	-	-	-
TAC	Ngurupai (HORN) Island PHC	NL	2018	-	-	-	-	-	-	-	-	-	-
TAC	Pormpuraaw PHC	NL	2018	-	-	-	-	-	-	-	-	-	-
TAC	Poruma (Coconut) Island PHC	NL	2018	-	-	-	-	-	-	-	1	-	-
TAC	Saibai Island PHC	NL	2018	7	2	5	1	2	1	-	-	9	3
TAC	Seisia PHC	NL	2018	-	-	-	-	-	-	-	-	-	-
TAC	St Paul's PHC	NL	2017	-	-	-	-	-	-	-	-	-	-
TAC	Thursday Island PHC	NL	2018	-	-	-	-	-	-	-	-	-	-
TAC	Ugar Island PHC	NL	2018	-	-	-	-	-	-	-	-	-	-
TAC	Umagico PHC	NL	2018	-	-	-	-	-	-	-	-	-	-
TAC	Warraber Island PHC	NL	2018	-	-	-	-	-	-	-	-	-	-
TAC	Weipa Integrated Health Service	1	2018	-	1	-	-	-	4	1	1	-	1
TAC	Wujal Wujal PHC	NL	2018	-	-	-	-	-	-	-	-	-	-
TVL	Charters Towers	1	2017	42	24	16	7	5	3	5	5	1	2
TVL	Home Hill	1	2017	-	-	-	-	-	-	-	-	-	-
TVL	Hughenden	1	2017	-	1	2	-	-	-	-	1	-	-
TVL	Joyce Palmer HS (Palm Island)	1	2017	5	6	3	6	3	4	3	6	6	4
TVL	Magnetic Island	1	2017	-	-	-	-	-	-	-	-	-	-
TVL	Richmond	1	2017	-	-	-	-	-	-	-	-	-	-

*2018 = January 1 to June 30

Central Queensland births by year and CSCF level

HHS	Facility	CSCF Level	CSCF Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
CTQ	Baralaba MPHS	1	2017	-	-	-	-	-	-	-	-	-	-
CTQ	Blackwater	1	2017	2	1	1	2	-	2	-	-	3	-
CTQ	Capricorn Coast (Yeppoon)	1	2017	4	2	4	1	1	2	-	1	2	2
CTQ	Mount Morgan	1	2017	2	2	-	3	3	2	1	-	1	1
CTQ	Moura	1	2017	2	-	-	2	3	1	1	-	1	-
CTQ	Springsure MPHS	1	2017	2	-	-	-	1	-	-	-	-	-
CTQ	Theodore MPHS	1	2017	21	25	14	15	12	9	10	5	3	-
CTQ	Woorabinda MPHS	1	2017	2	3	3	1	3	2	2	3	-	1
CTW	Alpha MPHS	1	2017	-	-	-	-	-	-	1	-	-	-
CTW	Aramac PHC	1	2017	-	-	-	-	1	-	-	-	-	-
CTW	Barcaldine MPHS	1	2017	-	-	-	-	-	1	-	-	-	-
CTW	Bedourie PHC	1	2017	-	-	-	-	-	-	-	-	-	-
CTW	Birdsville	1	2017	-	-	-	-	-	-	-	-	-	-
CTW	Blackall	1	2017	-	-	-	-	-	-	-	-	1	-
CTW	Boulia	1	2017	-	-	-	-	-	-	-	-	-	-
CTW	Isisford	1	2017	-	-	-	-	-	-	-	-	-	-
CTW	Jericho	1	2017	-	-	-	-	-	-	-	-	-	-
CTW	Jundah	1	2017	-	-	-	-	-	-	-	-	-	-
CTW	Muttaburra	1	2017	-	-	-	-	-	-	-	-	-	-
CTW	Tambo	1	2017	-	-	-	-	-	-	-	-	-	-
CTW	Windorah	1	2017	-	-	-	-	-	-	-	-	-	-
CTW	Winton MPHS	1	2017	-	-	-	-	-	-	-	-	-	-
MAC	Bowen	1	2017	9	5	3	10	10	7	6	11	8	6
MAC	Clermont	1	2017	-	2	-	2	1	1	1	-	1	-
MAC	Collinsville	1	2017	-	3	2	2	1	-	-	-	-	-
MAC	Dysart	1	2017	2	4	2	1		2	2	-	-	-
MAC	Moranbah	1	2017	3	1	-	2	3	1	1	1	2	-
MAC	Sarina	1	2017	1	-	-	-	-	-	-	-	-	-
WBY	Biggenden MPHS	1	2016	2	-	-	-	1	-	-	-	-	-
WBY	Childers	1	2016	1	-	1	1	-	-	-	-	-	-
WBY	Eidsvold MPHS	1	2016	-	-	-	-	-	-	-	2	-	-
WBY	Gayndah	1	2016	1	3	-	3	5	1	4	-	-	-
WBY	Gin Gin	1	2016	1	-	-	2	1	1	-	-	-	-
WBY	Maryborough	1	2016	1	-	4	1	2	2	-	2	-	-
WBY	Monto	1	2016	-	1	-	2	-	-	1	-	-	-
WBY	Mundubbera MPHS	1	2016	-	3	1	1	1	1	-	1	-	1

Southern Queensland births by year and CSCF level

HHS	Facility	CSCF Level	CSCF Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
DDS	Cherbourg	1	2016	1	5	2	2	3	1	1	3	1	-
DDS	Inglewood MPHS	1	2016	-	-	-	1	-	-	-	-	-	1
DDS	Jandowae	NL	2016	1	-	-	-	1	-	1	-	-	-
DDS	Miles	1	2016	1	1	-	1	1	-	1	-	-	-
DDS	Millmerran MPHS	1	2016	2	1	-	3	1	1	1	2	1	-
DDS	Murgon	NL	2016	1	-	-	-	-	-	-	-	1	-
DDS	Nanango	NL	2016	-	-	-	-	-	-	-	-	-	-
DDS	Oakey	1	2016	-	-	-	-	-	-	-	1	-	-
DDS	Tara	1	2016	-	2	1	5	1	1	1	2	1	-
DDS	Taroom	1	2016	-	-	-	-	-	-	-	-	1	-
DDS	Texas MPHS	1	2016	-	-	-	-	1	2	-	1	-	-
DDS	Wandoan PHC	NL	2016	-	-	-	-	-	-	-	-	-	-
DDS	Wondai	NL	2016	-	-	-	-	-	-	-	-	-	-
GOL	Robina	NL	2018	-	-	-	-	1	-	1	1	1	-
MNT	Kilcoy	NL	2017	-	-	-	-	-	-	-	-	-	-
MNT	Prince Charles	NL	2017	-	-	-	1	-	-	1	1	-	-
MST	Marie Rose Centre	NL	2016	4	3	-	2	1	-	1	-	1	-
MST	Princess Alexandra	NL	2016	1	1	-	-	1	-	-	-	-	-
MST	Queen Elizabeth II	NL	2016	-	-	-	1	-	-	-	-	1	-
MST	Wynnum HS	NL	2016	-	-	-	-	-	-	-	-	-	-
STW	Augathella	1	2017	-	-	-	-	-	-	-	-	-	-
STW	Bollon	1	2017	-	-	-	-	-	-	-	-	-	-
STW	Cunnamulla	1	2017	6	9	3	3	3	1	1	2	-	-
STW	Dirranbandi	1	2017	1	1	-	-	-	-	-	-	-	-
STW	Injune	1	2017	-	-	1	-	-	-	-	1	-	-
STW	Mitchell	1	2017	-	1	-	-	2	1	-	-	-	-
STW	Morvan	1	2017	-	-	-	-	-	-	-	-	-	-
STW	Mungindi	1	2017	2	-	3	-	-	-	-	1	-	-
STW	Quilpie	1	2017	1	-	-	-	-	-	-	-	-	-
STW	Surat	1	2017	1	-	-	-	1	-	-	-	-	-
STW	Thargominda	1	2017	-	-	-	-	-	-	-	-	-	-
STW	Wallumbilla	1	2017	-	-	-	-	-	-	-	-	-	-
SCT	Caloundra	NL	2018	-	-	-	-	-	-	-	1	-	-
SCT	Maleny	NL	2018	1	-	1	3	-	1	-	-	-	1
WTM	Boonah	NL	2017	1	-	-	-	1	1	-	-	-	-
WTM	Esk	NL	2017	-	-	-	4	-	-	-	-	-	-
WTM	Gatton	NL	2017	1	3	3	5	-	1	1	-	4	0
WTM	Laidley	NL	2017	1	-	2	2	2	-	1	-	0	0

Abbreviations:

CAH	Cairns and Hinterland
CTQ	Central Queensland
CTW	Central West
DDS	Darling Downs
GOL	Gold Coast
MAC	Mackay
MHS	Mater Health Service
MNT	Metro North
MST	Metro South
NTW	North West
STW	South West
SCT	Sunshine Coast
TVL	Townsville
TAC	Torres and Cape
WTM	West Moreton
WBY	Wide Bay
CSCF	Clinical Service Capability Framework
HHS	Hospital and Health Service
MPHC	Multi-Purpose Health Centre
NL	No level
PHC	Primary Health Centre

Appendix E: Models of maternity care

Models of care	Definitions (Donnolley et al., 2016)
Combined care	Antenatal care provided by a private maternity service provider (doctor and/or midwife) in the community. Intrapartum and early postnatal care provided in the public hospital by hospital midwives and doctors. Postnatal care may continue in the home or community by hospital midwives.
GP obstetrician care	Antenatal care provided by a GP obstetrician. Intrapartum care is provided in either a private or public hospital by the GP obstetrician and hospital midwives in collaboration. Postnatal care is usually provided in the hospital by the GP obstetrician and hospital midwives and may continue in the home or community.
Midwifery Group Practice caseload care	Antenatal, intrapartum and postnatal care is provided within a publicly-funded caseload model by a known primary midwife with secondary backup midwife/midwives providing cover and assistance with collaboration with doctors in the event of identified risk factors. Antenatal care and postnatal care is usually provided in the hospital, community or home with intrapartum care in a hospital, birth centre or home.
Private midwifery care	Antenatal, intrapartum and postnatal care is provided by a private midwife or group of midwives in collaboration with doctors in the event of identified risk factors. Antenatal, intrapartum and postnatal care could be provided in a range of locations including the home.
Private obstetrician (specialist) care	Antenatal care provided by a private specialist obstetrician. Intrapartum care is provided in either a private or public hospital by the private specialist obstetrician and hospital midwives in collaboration. Postnatal care is usually provided in the hospital by the private specialist obstetrician and hospital midwives and may continue in the home, hotel or hostel.
Private obstetrician and privately practising midwife joint care	Antenatal, intrapartum and postnatal care is provided by a privately practicing obstetrician and midwife from the same collaborative private practice. Intrapartum care is usually provided in either a private or public hospital by the privately practicing midwife and/or private specialist obstetrician in collaboration with hospital midwifery staff. Postnatal care is usually provided in the hospital and may continue in the home, hotel or hostel by the privately practicing midwife.
Public hospital high risk maternity care	Antenatal care is provided in hospital outpatient clinics (either onsite or outreach) by midwives and/or doctors. Care could also be provided by a multidisciplinary team. Intrapartum and postnatal care is provided in the hospital by midwives and doctors in collaboration. Postnatal care may continue in the home or community by hospital midwives.
Public hospital maternity care	Antenatal care is provided in hospital outpatient clinics (either onsite or outreach) by midwives and/or doctors. Care could also be provided by a multidisciplinary team. Intrapartum and postnatal care is provided in the hospital by midwives and doctors in collaboration. Postnatal care may continue in the home or community by hospital midwives.
Remote area maternity care	Antenatal and postnatal care is provided in remote communities by a remote area midwife (or a remote area nurse) or group of midwives sometimes in collaboration with a remote area nurse and/or doctor. Antenatal and postnatal care, including high- and low-risk pregnancies, as well as consultations for the management of gestational diabetes is currently provided via telehealth in a number of areas. Alternatively, fly-in-fly-out models can support clinicians in an outreach setting. Intrapartum and early postnatal care is provided in a regional or metropolitan hospital (involving temporary relocation prior to labour) by hospital midwives and doctors.
Shared care	Antenatal care is provided by a community maternity service provider (doctor and/or midwife) in collaboration with hospital medical and/or midwifery staff under an established agreement, and can occur both in the community and in hospital outpatient clinics. Intrapartum and early postnatal care usually takes place in the hospital by hospital midwives and doctors, often in conjunction with the community doctor or midwife (particularly in rural settings).
Team midwifery care	Antenatal, intrapartum and postnatal care is provided by a small team of rostered midwives (no more than eight) in collaboration with doctors in the event of identified risk factors. Intrapartum care is usually provided in a hospital or birth centre. Postnatal care may continue in the home or community by the team midwives.

Appendix F: Workforce requirements of CSCF level 1–3 maternity services

Clinical Services Capability Framework	
Level	**Workforce requirements**
1	• As per specific workforce requirements, plus: – staff trained in basic life support for mothers and infants, and emergency measures to transfer them to higher level service • Medical – registered medical practitioners with shared-care arrangement with birthing facility for antenatal care – registered medical practitioners meet mandatory requirements for general continued professional development through either Australian College of Rural and Remote Medicine and/or Royal Australian College of General Practitioners • Midwifery • Allied health – access to allied health professionals, as required, including physiotherapists, social workers, dietician and psychologists from local area or via referral from midwifery staff or general practitioners (may be from visiting or outreach service) – access to clinical pharmacist • Other – access to child health services – access to lactation service – access or links to an Aboriginal and Torres Strait Islander liaison officer, as required – Aboriginal and Torres Strait Islander health workers may assist with maternity care under midwife's supervision
2	As per level 1, plus: • Medical – may have visiting registered medical specialist with credentials in obstetrics – may have registered medical practitioner with credentials in obstetrics, or shared care arrangements between registered medical practitioners (general practitioners) /facility-based registered medical practitioners and birthing facility – registered medical practitioners performing caesarean sections competent in providing neonatal resuscitation • Midwifery – midwives enrolled in or have completed Midwifery Practice Review program from Australian College of Midwives (where service provides primary midwifery model of care). – 24-hour access to registered midwives – ratio of one midwife to each woman in established labour where birthing occurs – midwifery staff to provide comprehensive labour and birth care (where birthing occurs) as well as antenatal and postnatal services, including community care, where relevant • Other – access to biomedical technician for equipment maintenance

Clinical Services Capability Framework	
Level	**Workforce requirements (continued)**
3	As per level 2, plus: – all maternity clinicians trained in adult and neonatal resuscitation – 24 hours to at least one clinician trained in neonatal resuscitation exclusively for neonatal resuscitation • Medical – 24 hours access to at least two of following registered medical practitioners: o with credentials in obstetrics able to attend within minutes in normal circumstances o with credentials in anaesthetics able to attend within minutes in normal circumstances o able to attend within 30 minutes in normal circumstances • Midwifery – suitably qualified and experienced midwifery manager (however titled) in charge of maternity services – access to registered midwives • Nursing – access to child health nurse • Allied health – access to outreach, community or hospital based professionals, including physiotherapists, social workers and dieticians, as required – access to individual physiotherapy postnatal management – may have access to psychologist • Other – 24 hours access to anaesthetic assistant – access to lactation consultant – access to Aboriginal and Torres Strait Islander health worker as required
4-6	• For level 4-6 workforce requirements, refer to the CSCF for Maternity Services available on the Queensland Health internet site www.health.qld.gov.au/clinical-practice/guidelines-procedures/service-delivery/cscf

Appendix G: Queensland public birthing service closures and openings 1996 to 2017

Facilities that stopped birthing – 1996 to 2005

HHS	Location	Closed
CAH	Babinda	2000
CAH	Mossman	2003
CTQ	Capricorn Coast (Yeppoon)	2001
CTQ	Mount Morgan	2004
CTQ	Moura	2004
CTQ	Springsure	2005
CTW	Barcaldine	2001
CTW	Blackall	2004
CTW	Winton	2003
DDS	Inglewood	1997
DDS	Jandowae	2002
DDS	Miles	2001
DDS	Millmerran	1997
DDS	Tara	1997
DDS	Taroom	2002
DDS	Texas	1999
DDS	Wondai	2002
MAC	Bowen	2000
MAC	Clermont	2002
MAC	Collinsville	1999
MAC	Dysart	2005
MAC	Moranbah	2005
MNT	Kilcoy	2002
SCT	Maleny	2001
STW	Mitchell	2001
STW	Quilpie	1999
TAC	Weipa	1999
TVL	Hughenden	1997
TVL	Richmond	1997
WBY	Childers	1996
WBY	Gayndah	2003
WBY	Maryborough	2003
WBY	Monto	2005
WBY	Mundubbera	2000
WTM	Boonah	1996
WTM	Gatton	1999

Facilities that stopped birthing – 2006 to Current

HHS	Location	Closed
CAH	Tully	2011
CTQ	Theodore	2011
SCT	Nambour	2017
STW	Cunnamulla	2011
TVL	Charters Towers	2011

Facilities that re-opened / opened

HHS	Location	Closed	Opened
DDS	Chinchilla	2012	2013
MST	Redland	New	1999
MST	Beaudesert	2004	2014
SCT	Sunshine Coast University	New	2017
TAC	Cooktown	2001	2015
TVL	Ingham	2005	2016

Note:

Excludes facilities with short periods of closure e.g. Mareeba closed for a period of 6 weeks from May 2005.

Excludes closures where a replacement facility was built in close proximity. These are:

- Gold Coast Hospital and Gold Coast University Hospital (approximately 5 km apart)
- Royal Women's Hospital and Royal Brisbane and Women's Hospital (same site)
- Kirwin Hospital and The Townsville Hospital (approximately 7 km apart)

Includes the closure of Nambour Hospital and opening of Sunshine Coast University Hospital as they are 30 km apart.

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