

# Monitoring and evaluation services for Woman-centred care: Strategic directions for Australian maternity services

Part 1 – Baseline Report

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## **Nicole Reilly**

## **Kate Williams**

## **Malcolm Masso**

## **Conrad Kobel**

## **Suzanne Artiss**

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In this document, the term 'woman' or 'women' is used for consistency with the language used in the Strategy. It is acknowledged that a diverse range of individuals access maternity services. Individual parents and families may use different words and we respect their preferred terminology. When we use these words, it is not meant to exclude those who are pregnant or give birth and do not identify as women.



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## **Abbreviations and definitions**

Term	Definition		
ABS	Australian Bureau of Statistics		
ACSQHC	Australian Commission on Safety and Quality in Health Care		
AIHW	Australian Institute of Health and Welfare		
ATSICHS	Aboriginal and Torres Strait Islander Community Health Service		
CALD	Culturally and linguistically diverse		
CATSINaM	Congress of Aboriginal and Torres Strait Islander Nurses and Midwives		
CFIR	Consolidated Framework for Implementation Research		
COAG	Council of Australian Governments		
Continuity of care	A philosophy that involves shared understanding of care pathways by all health professionals involved in a woman's or pregnant person's care, with the aim of reducing fragmentation of care and conflicting advice.		
Continuity of carer	Care is provided, or led, over the full length of a maternity period by the same named carer. Other caregivers may be involved in the provision of care, either as a backup to the named carer or to collaborate in the provision of care, however the named carer continues to coordinate and provide ongoing care throughout. The extent of continuity of carer across the continuum of maternity care can range from no continuity of carer across any stage of the maternity period to continuity of carer across the whole duration of maternity period—antenatal, intrapartum and postpartum.		
СОРЕ	Centre of Perinatal Excellence		
ІСНОМ	International Consortium for Health Outcomes Measurement		
Indigenous	This word is used in the analyses conducted by the AIHW to refer to Aboriginal and Torres Strait Islander peoples and we have replicated this language in some sections of this document for consistency in data presentation.		
LGBTQIA	Lesbian, gay, bisexual, transgender, queer, intersex and asexual		
MaCCS	Maternity Care Classification System		
MADM	Mother's Autonomy in Decision Making scale		
MBS	Medicare Benefits Schedule		
MEF	Monitoring and Evaluation Framework		
MORi	Mothers on Respect Index		
NHMRC	National Health and Medical Research Council		
NPDC	National Perinatal Data Collection		
PANDA	Perinatal Anxiety & Depression Australia		
PREMs	patient-reported experience measures		
PROMs	patient-reported outcome measures		
Selected women	Selected women are defined by the AIHW as 'aged between 20 and 34 years, where gestational age at birth was between 37 and 41 completed weeks, with a singleton baby in the vertex presentation'. They are reported on separately as it is expected that they will have fewer labour complications and more optimal birth outcomes due to their lower risk. This cohort represents about one quarter of all women who give birth in Australia.		



the Commission Australian Commission on Safety and Quality in Health Care		
the Department	Department of Health and Aged Care	
the Strategy	Woman-centred care: Strategic directions for Australian maternity services	



## **Executive summary**

*Woman-centred care: Strategic directions for Australian maternity services* (the Strategy) was released in 2019. The Department of Health and Aged Care engaged the Centre for Health Service Development to deliver a Baseline Report for the Strategy which has been developed in two parts. Part 1 (this document) outlines existing activities and outcomes under the Strategy against which later findings will be considered and assessed. Part 2 consists of an implementation plan for ongoing monitoring and evaluation of the Strategy.

Time constraints precluded deep engagement with some stakeholders, especially those representing the interests of Aboriginal and Torres Strait Islander and culturally and linguistically diverse health professionals, service providers, mothers and families. Further consultation by the Department, facilitated by those with appropriate community connections, is strongly recommended to ensure the perspectives of these groups are incorporated into later versions of the Baseline Report and Implementation Plan.

Data collection consisted of a survey of jurisdictions, stakeholder interviews, an environment scan, and data compiled and analysed by the Australian Institute of Health and Welfare (AIHW) and Services Australia on morbidity and mortality outcomes, clinical outcomes and access to maternity services. The qualitative data presented here is a snapshot of the baseline status at the time of the stakeholder consultations in mid-2022. The quantitative data describes trends in the key indicators of maternal and neonatal morbidity and mortality, along with maternity service use, in the years leading up to the Strategy's release (inclusive of 2019 where data were available).

#### Implementation and evaluation progress

There was general consensus among stakeholders regarding the appropriateness of the values and principles outlined in the Strategy. It was broadly accepted that the Strategy reflects the priorities and activities that need to be progressed to improve the delivery and experience of maternity care in Australia.

Major developments driven by the Commonwealth since 2019 have included the *Australian National Breastfeeding Strategy*, updates to the national NHMRC-endorsed *Clinical Practice Guidelines for Pregnancy Care*, and the *National Stillbirth Action and Implementation Plan*. States and Territories have updated policies, produced frameworks for rural and remote maternity and newborn services planning, and released guidelines on postnatal care and access. Independent reviews of the safety, quality and management of some maternity services have also been released. In addition, current work includes the development of strong collaborations such as the National Preterm Birth Prevention Collaborative and implementation of the Safer Baby Bundle.

Nevertheless, most stakeholders expressed the view that overall, implementation and evaluation of the Strategy had not progressed well, due in part to its aspirational nature; lack of clearly defined expectations, roles, responsibilities and timeframes; and lack of coordination between state and commonwealth governments. Workforce capacity is considered a critical issue of relevance to all components of the Strategy.

Initiatives that may have already been underway and/or enhanced by the Strategy have not progressed as anticipated because of the impacts of COVID-19. Across State and Territory health departments, resources have been reprioritised to inpatient settings and, in some cases, efforts to improve data assets for monitoring and evaluation have been deprioritised.

The stakeholder survey revealed a high level of variability in the extent of progress, both between jurisdictions and within strategic directions and enabling activities. The most promising progress appeared to have occurred for the values of safety, choice and respect, with less progress related to access.

Stakeholder interviews identified considerable variation across jurisdictions in the extent to which the Strategy has provided a foundation for local initiatives. Some jurisdictions are progressing specific activities, but without a formalised response or implementation plan. Other jurisdictions have released plans or strategies since 2019, although some of these documents were under development prior to this time.



#### Baseline status for key evaluation questions (KEQ)

#### KEQ1 - Change in maternity outcomes over time

Stakeholder consultations and the environment scan identified strategies around preventing stillbirth, preterm and early term birth as examples of nationally coordinated efforts to improve clinical outcomes.

Stakeholders noted a concerning trend towards increasing intervention in birth with no corresponding increase in safety or quality. An increase in intervention including induction of labour and caesarean section was also observed in data from the AIHW<sup>1</sup>.

Stakeholders also noted the tension between preventing stillbirth and reducing the negative sequelae of preterm birth, as interventions to reduce risk of stillbirth may result in pre-term births. They believed that strong collaboration between the Centre of Excellence in Stillbirth and the Preterm Birth Prevention Alliance would be crucial in striking the necessary balance.

#### KEQ2 - Access to postnatal care

Stakeholders largely commended the Strategy for shifting the definition of the postnatal period from the first six weeks to 12 months following birth. However, they noted that current programs typically support women only up to six weeks following birth, and some programs that provide home visits have had to reduce the number of visits in recent years. The lack of reporting on health outcomes for women across the first postnatal year was emphasised, with postnatal outcomes considered to be largely 'invisible' in Australia.

No improvements in access to postnatal care since 2019 were identified in either the environment scan or the stakeholder interviews, and some stakeholders believed that access had actually decreased, due to the impacts of COVID-19, workforce and resource constraints, fragmentation of care, and the emphasis placed on pregnancy, labour and birth, and care of the baby during the early weeks and months. Exceptions included private midwifery care, which has increased since the Strategy's release, and some well-established programs (pre-dating the Strategy) which support selected families from early pregnancy until the child is two years old.

The *National Breastfeeding Strategy*, released in 2019, provides a framework for integrated, coordinated action to shape and inform policies and programs that aim to support mothers, fathers/partners and their babies throughout their breastfeeding journeys.

Stakeholders pointed to the absence of national evidence-based guidelines for postnatal care<sup>2</sup> and believed that such guidelines, combined with national standards and benchmarking for postnatal care, would be instrumental in reducing variation in care and improving outcomes for women and families.

#### KEQ3 - Perinatal mental health morbidity and mortality

Recent studies have highlighted the impacts of the COVID-19 pandemic on perinatal mental health in Australia and internationally, and the increase in depression, anxiety and distress among perinatal women in the past few years was also noted by stakeholders. It is doubtful whether the Strategy could reasonably be expected to contribute to any improvement in perinatal mental health morbidity under these circumstances.

Nevertheless, the mental health impacts of COVID-19 may have helped raise the profile of the social and emotional needs of pregnant and postnatal women, which in turn contributed to an increase in funding for related initiatives, including allocations to various non-government organisations (NGOs) that support perinatal mental health and an increase in sessions of care provided under the Medicare Benefits Scheme

<sup>&</sup>lt;sup>1</sup> As noted by the AIHW (2022), the World Health Organisation acknowledges that interventions such as caesarean section save lives when medically indicated, although a rate of over 10% of babies born by caesarean section is not associated with reduced maternal and newborn mortality and morbidity at a population level. A variety of clinical, maternal and medico-legal factors influence the rate of caesarean sections, 'however, the reasons for the steep rise [in Australian statistics] remain unexplained' (AIHW, 2022, p.23).

<sup>&</sup>lt;sup>2</sup> Funding to develop and implement national postnatal care guidelines was announced in the 2022-23 federal budget; stakeholder consultations for this report concluded in August 2022.



(MBS) Better Access to Mental Health Care program. These are promising steps towards prioritising mental health alongside physical health needs during pregnancy and in the year following birth.

It is anticipated that the updated *Mental Health Care in the Perinatal Period: Australian Clinical Practice Guideline* will be approved in 2023. In addition to this national guideline, several states are in the process of reviewing or updating policies and strategies that include a focus on perinatal mental health. South Australia released a relevant guideline in 2019 and NSW is currently reviewing and updating the state-wide SAFE START policy and guideline.

The iCOPE digital screening platform (developed prior to 2019) is being implemented in participating public maternity hospitals and maternal and child family health clinics, together with several other data development activities. These programs were recognised by stakeholders as important, and their value could be enhanced by expanding them to include data on service utilisation and outcomes.

The essential role of training for midwives and other health professionals to support perinatal mental health has been recognised in recent scoping reviews. In Australia, a number of formal training programs are available. Findings from a national workforce survey by Emerging Minds, as part of the National Workforce Centre for Child Mental Health, are expected to be released at the end of 2022 with new surveys every two years. This will include information on the self-reported competencies of health providers who support women with perinatal mental health needs.

Recently developed resources for women who want to identify local support options include the e-COPE Directory and the For When national helpline, as part of the Commonwealth-funded Perinatal Mental Health and Wellbeing Program.

#### KEQ4 – Service provision based on evidence

There are many guidelines available internationally and several jurisdictions produce their own clinical guidelines which are regularly updated. However, there is a relative paucity of national guidelines for maternity care, with notable exceptions being the *Clinical Practice Guidelines for Pregnancy Care* and the *Mental Health Care in the Perinatal Period: Australian Clinical Practice Guideline<sup>3</sup>*.

Stakeholders were strongly in favour of evidence-based, national guidelines to help bring service delivery up to date with best practice and reduce variations in care. This suggests the need for a national, coordinated, approach to the development of a comprehensive set of guidelines to support evidence-based practice in the provision of woman-centred maternity care.

#### KEQ5 – Systems and processes to enable woman-centred care

Routinely-collected data about maternity services in Australia are primarily focused on measures related to safety, rather than the values of respect, choice and access. Adoption of patient-reported measures could provide a more holistic, woman-centred view. The environment scan and stakeholder interviews found no evidence of routinely collected patient-reported pregnancy, childbirth or postnatal care outcome data at national or jurisdictional levels in Australia. However, there appears to be strong support for the use of such measures in clinical practice, along with dedicated research to build the evidence base.

There are several current initiatives to collect patient-reported experience data through surveys, including the Maternity Patient Experience Surveys in Queensland and the NSW Bureau of Health Information's biannual Maternity Care Survey, a Birth Dignity Survey conducted in 2020 by Maternal Health Matters. In 2021, the National Birth Experiences Study collected quantitative and qualitative data from more than 8,800 women.

Access to woman-centred care is particularly limited for women in rural and remote regions which has led to several developments to address their needs. There has been considerable development of culturally safe models of care for Aboriginal and Torres Strait Islander women in recent years, although the funding for such services has tended to be short term or project based. The environment scan and stakeholder interviews identified very few examples of models of care specifically devoted to the needs of women from culturally

<sup>&</sup>lt;sup>3</sup> A national clinical care standard for stillbirth prevention was due for release in November 2022.



and linguistically diverse backgrounds. There are several good examples of consumer engagement and codesign in developing models of care, policy and service planning.

#### Trends in maternal and child outcomes

Compared with 2011, women who gave birth in 2019 were:

- less likely to smoke in the first 20 weeks of pregnancy (9%, down from 13%);
- less likely to have spontaneous labour (43%, down from 56%);
- more likely to have labour induced (35%, up from 25%);
- more likely to have a caesarean section (public sector 34%, private sector 48%, compared with 29% and 42% respectively);
- less likely to have non-instrumental, vaginal births (public sector 54%, private sector 37%, compared with 60% and 43% respectively);
- more likely to have a baby born between 37 and 39 completed weeks' gestation (62% of babies born in 2019 versus 52% in 2010);
- less likely to have a baby born at 40 or 41 weeks' gestation (29% of babies, down from 39%);
- slightly more likely to have a baby with an Apgar score less than 7 at five minutes (1.3%, a fractional increase of 0.1% from 2011).

Over time there has been increased access to first trimester antenatal care, especially for those living in the most disadvantaged areas, Aboriginal and Torres Strait Islander women, and those using the public sector.

Excluding annual fluctuations, there was no overall trend (either up or down) in the rate of stillbirths between 2010 and 2019. There were slightly reduced perinatal and neonatal death rates overall. The burden of perinatal mortality remains disproportionately higher among women aged under 20 and over 40 years, Aboriginal and Torres Strait Islander women, those living in very remote areas, and those living in the most disadvantaged areas.

Maternal deaths (during pregnancy and up to 42 days following the end of pregnancy) remain very rare in Australia, but risks are elevated among Aboriginal and Torres Strait Islander women, women who smoke during the first 20 weeks of pregnancy, and women living in remote or very remote areas.

#### Trends in service use

The Maternity Care Classification System (MaCCS) is a service-level data collection on the active maternity models of care available in Australia. In 2022, public hospital maternity care was the most common active model of care available, followed by general practitioner shared care, midwifery group practice caseload care and private obstetrician care. Overall, 37% of the active models of care reported in 2022 had no continuity of care during the antenatal, intrapartum or postpartum periods. However, a national baseline for all maternity models of care is not yet available because reporting is not mandatory.

The Medicare Benefits Schedule (MBS) includes antenatal and postnatal items that can be claimed by participating midwives (i.e., midwives endorsed by the Nursing and Midwifery Board of Australia who work in a collaborative arrangement as defined in legislation). These items were introduced in 2010 and since then the volume of services provided has steadily increased each year, most rapidly during 2020. In contrast, MBS items relating to midwife management of labour and video consultations are claimed relatively infrequently.

In response to the COVID-19 pandemic, new MBS items for short (up to 40 minutes) or long (at least 40 minutes) telehealth or phone attendances by participating midwifes were introduced. The volume of services provided under these items has increased over time. However, total numbers remain relatively low compared to the number of women giving birth annually.



#### Issues raised by stakeholders for consideration in ongoing monitoring and evaluation

Stakeholders identified a number of strategic and practical issues for consideration in the ongoing monitoring and evaluation of the Strategy, such as:

- A perceived need for better definition of the Strategy's targets, responsibilities and timelines for implementation;
- Challenges in obtaining timely, complete data across the range of the Strategy's enabling activities and
  potential outcomes, from pregnancy and antenatal care to 12 months' postnatal care, and the need to
  reach consensus on the transfer and use of data collected routinely by states and territories;
- The importance of collecting patient-reported measures in routine care, to inform quality improvement;
- Transparent, timely reporting of outcomes as a driver for improvements in service delivery, ideally including private obstetrics and midwifery practice;
- Strategic investment in data linkage research;
- Increased support for rigorous evaluation of initiatives and models of care focusing on discrete elements of the Strategy.

#### Discussion

It was evident from the stakeholder consultations, conducted in preparation for this report, that all stakeholder groups are committed to designing and implementing maternity service systems that hold the woman at the centre and which deliver on the Strategy's core values of safety, respect, choice and access. Nevertheless, stakeholders acknowledged the challenges of implementing the Strategy in a post-COVID, resource-constrained healthcare environment. In particular, there were deep concerns about the impact of workforce shortages and an expressed desire to open up discussion of several other issues which have been excluded from the scope of the Strategy, including private obstetric and midwifery care.

Stakeholders drew attention to several barriers to monitoring and evaluation of the Strategy, particularly lack of clarity and agreement around targets and how progress will be measured, and the feasibility of collecting comprehensive data on outcomes of interest.

The operating environment for the Strategy is extraordinarily complex and a huge range of factors at various levels will contribute to the outcomes to be measured in the future. For these reasons, ongoing monitoring and evaluation should not take a simple accountability approach – pass or fail – but consider how measurement can be used to contribute to learning and development. It will not be possible to measure everything at once, and there is an important role for a governance body, representing all stakeholders, in setting priorities and helping to focus monitoring and evaluation efforts to maximise benefits and utilisation.

Ensuring that findings are relevant for, and accessible to, multiple audiences will be integral to sustainability. Stakeholders agreed that the collection of patient-reported experiences and outcomes should be central to future monitoring and evaluation of woman-centred care in Australian maternity services.



## **1** Introduction

*Woman-centred care: Strategic directions for Australian maternity services* (the Strategy)<sup>1</sup> was released in 2019, superseding the earlier National Maternity Services Plan<sup>2</sup>. The Strategy provides overarching national strategic direction to support Australia's maternity care system and recommends enabling activities to improve service delivery and outcomes in line with contemporary practice, evidence and international developments. The Strategy is underpinned by four equally weighted values: safety, access, choice and respect (Figure 1).





Reproduced from the *Woman-Centred Care: Strategic Directions for Australian Maternity Services*, 2019. The diagram gives a visual representation of the purpose, values and principles outlined in the Strategy. The inner ring represents the purpose of the document and is surrounded by the values. The rays present the principles and the outer ring the *Respectful Maternity Charter: the Universal Rights of Childbearing Women*.



## 1.1 Background

About 300,000 women give birth in Australia each year. In 2019, approximately 75% of these women gave birth in public hospitals with a mixture of midwife/obstetric care, and 25% gave birth in private hospitals under obstetric-led care. Maternity care is funded through a mix of federal, state and territory government and non-government contributions (including individual contributions), with planning and delivery undertaken by the states and territories within centralised, decentralised or mixed governance models<sup>3,4</sup>.

The Strategy acknowledges the complexity of Australia's maternity funding mechanisms and service systems, and recognises that woman-centred services are central to delivery of safe, high quality maternity care. The values, principles and directions of the Strategy align with national and international policies and frameworks (Figure 2).

#### Figure 2 Examples of national and international policies and frameworks that align with the Strategy



### **1.2** The purpose and structure of this report

The Department of Health and Aged Care engaged the Centre for Health Service Development, Australian Health Services Research Institute, University of Wollongong, to deliver a Baseline Report for the Strategy. The Baseline Report has been delivered in two parts.

This report, **Part 1**, outlines existing activities and outcomes under the Strategy against which future findings will be considered. Specifically, it:

- provides an update on progress against implementing and evaluating the strategic directions and enabling activities of the Strategy since its endorsement in 2019;
- identifies barriers and enablers to implementation and evaluation;
- uses existing data sets to report on trends, including adverse outcome indicators.



This report is designed to be used as reference point for comparison in future monitoring and evaluation of the Strategy. Baseline information was compiled from qualitative and quantitative sources, drawing on a stakeholder consultation process and public reporting on the National Core Maternity Indicators.

**Part 2** consists of the implementation plan for ongoing monitoring and evaluation of the Strategy. It was developed to provide a transparent mechanism to track and assess progress of enabling activities and to clarify the extent to which the Strategy is delivering on its objectives and continues to reflect contemporaneous evidence-based practice. It is hoped that the implementation plan will also highlight opportunities for refinement and improvement.

Together, the two volumes of the Baseline Report are designed to underpin future monitoring and evaluation of the Strategy's impact on maternity service provision in Australia and guide quality improvement efforts for the benefit of women and their families.

Methods are outlined briefly in the following sections of the introduction, with more details in Appendix 1. The introduction is followed by two chapters of findings. The first, which is primarily qualitative, is based on stakeholder consultations and an environment scan conducted between May and September 2022, and addresses the five key evaluation questions. The second, which is primarily quantitative, is based on publicly available datasets which contain items relevant to maternity service provision in Australia. The report concludes with a discussion of implications for future monitoring and evaluation.

### **1.3 Evaluation questions**

The Strategy's Monitoring and Evaluation Framework (MEF) includes 12 primary and approximately 50 secondary questions to guide the monitoring and evaluation process. As agreed with the Department, the essential elements of the MEF could be captured in five key evaluation questions, which were addressed as a priority in the project and are therefore central to this Baseline Report (Table 1).

	Key evaluation questions
KEQ 1	Have key maternity outcome measures, including morbidity and mortality measures, clinical outcomes and access to maternity services, changed over time?
KEQ 2	To what extent has access to care in the postnatal period improved?
KEQ 3	Has the morbidity and mortality associated with poor perinatal mental health improved over time?
KEQ 4	Are maternity care services based on current evidence-based practice, research and international developments?
KEQ 5	Are there maternity systems and processes in place (or planned) to support and enable woman centred care, in particular to respect the preferences of women?

#### Table 1 MEF Evaluation questions addressed by this Baseline Report

#### 1.4 Sources of baseline data

A combination of qualitative and quantitative data has been used to construct the baseline for the ongoing monitoring and evaluation of the Strategy.

**Stakeholder consultations** were conducted with Commonwealth, state and territory health department representatives, professional colleges, peak organisations, NGOs, consumer advocacy groups and a select number of experts. These consultations were conducted to gather information about major changes to the context within which maternity services are provided in Australia since the release of the Strategy in 2019, and to identify evidence to address the key evaluation questions. Also of interest were: services, activities and programs identified as enablers within the Strategy; established evaluation activities and data collections; and identification of stakeholders' priority areas for ongoing monitoring, including existing and aspirational state and territory data source/s. This phase of the project was designed to guide and inform the implementation plan for ongoing monitoring and evaluation, as well as providing a snapshot of the 'baseline' state at this time.



First, a survey was completed by representatives of six state and territory departments of health and one representative from the Australian Government Department of Health and Aged Care (in consultation with others from the Department). Two jurisdictions did not complete the survey. The questionnaire was designed to gather information about progress with implementation of the Strategy's enabling activities.

Second, semi-structured interviews were conducted with 37 individuals from 33 organisations (listed in Appendix 2). Discussions were held with the National Aboriginal Community Controlled Health Organisation, the Australian Institute of Health and Welfare, the Australian Bureau of Statistics, Australasian Health Infrastructure Alliance and Emerging Minds.

The stakeholder consultations were supplemented by an **environment scan** of the academic and practice literature. The scan focused on the Australian literature, supplemented with information from selected countries with comparable healthcare systems. Important sources of information included expert advice relating to the development of related monitoring and evaluation frameworks; data development activities; and seminal academic and practice documents associated with the Strategy and maternity services more generally, including woman-reported experiences and outcomes of maternity care.

**Publicly available national data sources** held and analysed by the Australian Institute of Health and Welfare (AIHW) and Services Australia were also drawn upon to examine trends over time, as a component of KEQ 1. To facilitate later comparisons and avoid duplication of data collection, baseline items were drawn from the National Core Maternity Indicators, other labour and birth outcomes, and models of maternity care. All these datasets are produced by the AIHW to a high quality standard. The baseline period chosen for this quantitative analysis was 2019, the year the Strategy was released.



## 2 Progress with implementation of the Strategy

This chapter is based on the findings of the stakeholder survey, interviews and environment scan. It reflects stakeholders' views on the progress made towards implementing the enabling activities of the Strategy, as well as publicly available information including policy and guidance documents and research reports.

## 2.1 Significant developments in the delivery of maternity services

Major developments in the provision of maternity services since the Strategy was released have included the Australian National Breastfeeding Strategy, the national NHMRC-endorsed Clinical Practice Guidelines for Pregnancy Care, the National Stillbirth Action and Implementation Plan. Development of a Monitoring and Evaluation Framework for the stillbirth plan is under way.

Significant jurisdictional strategic developments have included state-wide policy updates, frameworks for rural and remote maternity and newborn services planning, and guidelines with a focus on postnatal care and access. Independent reviews of the safety, quality and management of select maternity services have also been released. Examples of these developments are provided in Table 2; this is not an exhaustive list. Jurisdictions are also making progress to digitise health records which may assist with future collating and reporting of data to delivery and outcomes of maternity care.

Organisation	Document	Brief description	Monitoring or evaluation (in progress or planned)
Australian Capital Territory Health Directorate	Maternity in Focus: The ACT Public Maternity System Plan 2022-2032	The Plan incorporates a variety of national maternity related strategies and the ACT Government's Response to the <u>ACT Legislative Assembly's</u> <u>Inquiry into Maternity Services</u> . The Plan is based on a co-design collaborative approach. It outlines priority actions to create sustainable and meaningful change across ACT maternity services, across four key themes: consumers, best practice maternity care, clinical governance and data, and workforce. The Plan recognises the current significant improvement work that is being undertaken locally to expand services and implement the priorities of national strategies including the Woman-Centred Care Strategy, Australian National Breastfeeding Strategy and the National Stillbirth Action and Implementation Plan. The 10-year plan includes a commitment to over 50% of women and pregnant people having access continuity of care by 2028 and will be supported by three Action Plans. The First Action Plan 2022-2025 considers and incorporates points, where necessary, from the national Strategy and are reflected in many of the themes. recommendations and	A performance and evaluation framework expected to be developed and finalised in 2023; progress reports on implementation activities expected to be released annually from 2024.

#### Table 2 Examples of national or jurisdictional policies, strategies or guidance



Organisation	Document	Brief description	Monitoring or evaluation (in progress or planned)
Australian Government Department of Health	<u>The National</u> <u>Stillbirth Action</u> <u>and</u> <u>Implementation</u> <u>Plan</u>	This is the first national plan to strategically address the issue of stillbirth in Australia. It was developed to support a reduction in the number of stillbirths in Australia, a reduction in disparities in stillbirth rates between population groups, to increase community awareness and understanding of stillbirth, and to ensure high quality bereavement care and support is available to families who experience stillbirth. The plan was developed in response to the 2018 <u>Senate Select Committee</u> <u>on Stillbirth Research and Education</u> Report.	A Monitoring and Evaluation Framework has been developed; includes annual monitoring from 2022 and scheduled evaluation reports in 2023 (preliminary), 2026 (mid- term) and 2029-30 (final).
Australian Government Department of Health	<u>Pregnancy Care</u> <u>Guidelines</u>	Endorsed by the NHMRC, the Guidelines provide national evidence-based recommendations to support high quality, safe antenatal care in all settings. Editions of the guidelines have been released in 2018-2019 and 2020. The guidelines outline specific approaches to pregnancy care for a range of groups, including for Aboriginal and Torres Strait Islander women, migrant and refugee women and women with severe mental illness. <u>Summary</u> <u>sheets</u> for health professionals are available	Details not available
Australian Government: Department of Health	National Aboriginal and Torres Strait Islander Health Workforce Strategic Framework and Implementation Plan 2021–2031	The framework and implementation plan is a co-designed plan that addresses six key strategic directions, which together will address the Plan's aim for Aboriginal and Torres Strait Islander people to represent 3.43% of the national health workforce by 2031; designed to align with the 2020 National Agreement on Closing the Gap and the National Aboriginal and Torres Strait Islander Health Plan.	The Plan is scheduled for a mid- term review in 2026 and a final review in 2031. Both reviews will be independent and undertaken in partnership with Aboriginal and Torres Strait Islander stakeholders to evaluate progress towards achieving the outcomes of the National Workforce Plan. In support of this a detailed Monitoring and Evaluation Framework will be developed to track the implementation and impact of the National Workforce Plan in meeting its objectives.
Centre for Perinatal Excellence (COPE)	<u>Mental Health Care</u> <u>in the Perinatal</u> <u>Period: Australian</u> <u>Clinical Practice</u> <u>Guideline.</u>	The NHMRC-endorsed Guideline aims to support health professionals in providing evidence-based care for all women in the perinatal period. The Guideline provides guidance on mental health screening and psychosocial assessment, and care	Details not available



Organisation	Document	Brief description	Monitoring or evaluation (in
	bocument	bher description	progress or planned)
		for women with depressive and anxiety disorders, severe mental illnesses (schizophrenia, bipolar disorder and postpartum psychosis) and borderline personality disorder. <u>Companion documents and fact</u> <u>sheets</u> developed for health professionals, consumers and family members are also available.	
Coalition of Aboriginal and Torres Strait Islander Peak Organisations and all Australian Governments	<u>National</u> <u>Agreement on</u> <u>Closing the Gap,</u> <u>2020</u>	The Agreement developed measures to improve outcomes for Aboriginal and Torres Strait Islander people, families, and communities. It has four overarching priority reforms and 17 socioeconomic outcome areas, with specific targets and indicators to enable monitoring of progress made against each of the outcome areas. Implementation Plans have been developed by each party to the National Agreement.	Annual reports on progress against Implementation Plans; three-yearly independent reports on progress against the National Agreement undertaken by the Productivity Commission followed by an Aboriginal and Torres Strait Islander-led review of progress every three years.
Council of Australian Governments	Australian National Breastfeeding Strategy: 2019 and Beyond	The strategy provides a framework for integrated, coordinated action to shape and inform policies and programs that aim to support mothers, fathers/partners and their babies throughout their breastfeeding journeys; details three priority areas and ten action areas to provide a supportive and enabling environment for breastfeeding.	Baseline evaluation scheduled 2020 (baseline report was not available at the time of writing); annual report cards from 2020; mid-term evaluation scheduled 2024-25, final evaluation scheduled 2029-30.
Department of Health, National Framework for Health Services for Aboriginal and Torres Strait Islander Children and Families, Australian Government	National Framework for Health Services for Aboriginal and Torres Strait Islander Children and Families (the Framework)	The Framework was developed to complement the National Framework for Universal Child and Family Health Services (the Universal Services Framework), the National Framework for Child and Family Health Services – secondary and tertiary services and the National Aboriginal and Torres Strait Islander Health Plan 2013 – 2023 (the Health Plan). The core elements of health services for Aboriginal and Torres Strait Islander children and families are: health and developmental surveillance; health promotion; early identification of family need and risk; and responding to identified need.	Details not available
Government of Western Australia	Statewide Maternity Shared Care Guidelines	These guidelines are underpinned by the national Clinical Practice Guidelines for Pregnancy Care, the WA aim is to support maternity care providers develop and implement shared care models and processes, effective communication and clear	Recommends setting up a governance committee with representation from the birthing hospital and shared care providers to maintain the coordination, standards and



Organisation	Document	Brief description	Monitoring or evaluation (in progress or planned)
		understanding of the roles and responsibilities of maternity care providers in maternity shared care.	evaluation of the shared care program
Government of Western Australia	WA Country Health Service Maternal and Newborn Care Strategy 2019–24	This is a five year plan to strengthen the delivery of, and access, to high quality maternal and newborn care services closer to home and on country. The Strategy focuses on four key directions: sustainable, quality maternal and newborn care services; partnerships, collaboration and support; skilled and stable workforce; and innovative use of technology. The Strategy will be supported by the development of regional service and implementation plans that consider local context, workforce planning, available resources and community needs.	Guidance for monitoring progress is provided in the Strategy, including an overview of key performance indicators, targets and timeframes.
Government of Western Australia	COVID-19 Guidelines for Maternity Services	Developed to provide high-level guidance for maternity care facilities in developing their own procedures and policies around maternity care during the COVID-19 pandemic.	Details not available
Government of Western Australia	<u>Maternal and</u> <u>Newborn Care</u> <u>Capability</u> <u>Framework Policy</u> (2020)	This WACHS policy framework provides information about where maternity and newborn care services can be delivered and the standards that apply to provision of these services. The delineation of service levels is based on the <u>WA Health</u> <u>Clinical Services Framework, 2014–</u> <u>2024</u> and the 2009 WA Framework for the Care of Neonates in Western Australia.	Details not available
Northern Territory Government	Strategic Plan for Nursing and Midwifery in the Northern Territory 2019 - 2022	The Strategy promotes the collaboration of nursing and midwifery staff to deliver better health for all Territorians. The focus is on collaboration, excellence and innovation.	A NT Nursing and Midwifery Performance Framework is to be developed in support of the Strategy.
NSW Health	<u>Connecting,</u> <u>listening and</u> <u>responding:</u> <u>Maternity care in</u> <u>NSW (Consultation</u> <u>Draft), 2020</u>	The draft policy aligns with the national Strategy, and was informed by evidence and broad consultation, including a consumer survey conducted in 2018; a series of engagement workshops in 2019 involving health professionals and consumers; and the establishment of a reference group to support the development of the revised policy; describes ten key goals, with specific objectives, actions and lead agencies identified to support each goal: will	A monitoring and evaluation plan will be developed for the policy; this plan is expected to use progress reports from Districts and existing data sources, including but not limited to the Bureau of Health Information Maternity Care Survey and the NSW Perinatal Data Collection.



Organisation	Document	Brief description	Monitoring or evaluation (in progress or planned)
		be supported by an Implementation Plan (to be developed).	
NSW Health	First 2000 Days Framework and First 2000 Days Implementation Strategy 2020- 2025	The First 2000 Days Framework is a strategic policy document that is underpinned by three strategic objectives – understanding the importance of first 2000 days of a child's life (conception to 5 years), care and support for all, and specialised care for those who need it; these objectives are central to the three goals and ten strategies outlined in the Framework's Implementation Strategy; a summary of current and emerging projects is provided.	The Implementation Strategy outlines 1 year, 3-year and 5- year milestones, and lists existing data and potential metrics for reporting on progress against these milestones.
NSW Health	Resilience Assessment in Maternity Services - a Facilitation Guide, 2022	The Guide was developed by the NSW Clinical Excellence Commission and supports a top-down, strengths- based approach to the assessment of people, culture, structures, and processes of maternity systems, which can be used to inform strategic, infrastructure, capital and workforce planning.	The accompanying Resilience Framework can be synthesised to formulate a report and recommendations for further action. The Framework includes four domains of interest: Physical, Information, Cognitive and Social.
NSW Health	Guidance for maternity services	The Guide provides guidance for the care of pregnant women by maternity care providers, this includes midwives, obstetricians and general practitioners. The guide has been written with specific reference to COVID-19.	Details not available
Qld Health	Growing Deadly Families Aboriginal and Torres Strait Islander Maternity Services Strategy 2019 - 2025	The Strategy details three priority areas to ensure access to high quality, clinical and culturally capable maternity services: co-design and co- delivery of services; access to woman-centred, comprehensive and culturally capable maternity care; and a culturally capable workforce, across all disciplines of maternity care.	Details not available
Qld Health	Queensland Rural and Remote Maternity Services Planning Framework: a toolkit for collaboration, consultation and co-design, 2021	The Framework aims to support Hospital and Health Services to the review, assess and co-design maternity services; available resources include guidance for prioritising sites for review; complement existing policies, guidelines and planning tools including <u>Maternity Services Decision</u> <u>Making Framework</u> (DMF) and the <u>Growing Deadly Families</u> <u>Strategy.</u>	After service implementation evaluation, monitoring and review are recommended. Ongoing co-design with women and communities is encouraged in all planning and evaluation activities.



Organisation	Document	Brief description	Monitoring or evaluation (in progress or planned)
SA Health	South Australian Perinatal Practice Guideline. Postnatal Care Routine care of the well woman and neonate, 2021	The guidelines provide direction relating to routine care for well women following birth and neonates born from 37 weeks gestation.	Details not available
SA Health	South Australian Perinatal Practice Guideline Anxiety and Depression in the Perinatal Period, 2019	This guideline is underpinned by the national <i>Mental Health Care in the</i> <i>Perinatal Period: Australian Clinical</i> <i>Practice Guideline</i> (2018). It provides information for clinicians relating to depressive and anxiety disorders in the perinatal period, screening tools, referral pathways and resources, including information that is specific information to the SA context.	Details not available
SA Health	Standards for Maternal and Neonatal Services in South Australia 2020 Clinical Directive	This Directive outlines quality and safety standards for the provision of maternity and neonatal services in South Australia, which are aligned with the National Maternity Capability Framework, and the South Australia Health Maternal and Neonatal Clinical Services Capability Framework.	Peer review (evaluation / audit) is recommended to ensure services provide safe, quality care which complies with the organisation's accreditation and SA Health's Health Service Agreement requirements.
Victoria State Government	<u>Maternity and</u> <u>newborn services</u> <u>user guide</u>	Developed to help Victorian maternity and newborn services understand their unique role and requirements in providing safe, high-quality healthcare. It can be used by anyone who provides care or services for Victorian women and babies – including health service board members, executives, clinicians, and administration and support service staff.	Health services are encouraged to use the Victorian clinical governance framework as best practice guidance to continuously monitor and evaluate compliance across five domains: leadership and culture, consumer partnerships, clinical practice, workforce and risk management.
Victoria State Government	Capability frameworks for Victorian maternity and newborn services	Describe the requirements for providing safe and high-quality maternity and newborn care for Victorian public and private hospitals, including the required workforce, infrastructure, equipment and clinical support services.	Refers to the <u>Victorian health</u> <u>services performance</u> <u>monitoring framework</u> to provide managers with regular reports on selected health service performance indicators.



## 2.2 Progress on enabling activities

Results from the survey demonstrated that some progress had been achieved in implementing aspects of the Strategy since its release in 2019. However, there was a high level of variability in the extent of progress, both between different jurisdictions and within strategic directions and enabling activities. Overall, the most promising progress appeared to have occurred for work structured around the values of safety, choice and respect. The area for which least progress had been made related to the value of access.

During interviews, stakeholders expressed the view that overall, implementation and evaluation of the Strategy had not progressed well since its release, due in part to its aspirational nature and lack of clearly defined expectations, roles, responsibilities and timeframes. Although it is outside the scope of the Strategy itself, workforce capacity is considered a critical issue of relevance to all components of the Strategy.

The well-documented impact that the COVID-19 pandemic had, and continues to have, on resource allocation and health service delivery was reinforced throughout the stakeholder consultations. The Strategy's values of access, choice and respect were thought to have been particularly affected by COVID-related disruptions; the value of safety, less so.

There was general consensus among stakeholders regarding the appropriateness of the values and principles outlined in the Strategy across stakeholder groups. It was broadly accepted that the Strategy reflects the priorities and activities that need to be progressed to continue to improve the delivery and experience of maternity care in Australia. However, stakeholders noted additional issues that have emerged or gained prominence since 2019 that are not reflected in Strategy, including women with disabilities and LGBTQIA communities as additional priority population groups.

The extent to which the Strategy has provided a foundation from which local initiatives have been built varied across jurisdictions. Some jurisdictions are progressing specific activities, but have not developed a formalised response or plan for implementation of the Strategy more broadly. Other jurisdictions have released plans or strategies since 2019, although some of these documents were under development prior to this time.

Some specific enabling activities were well developed or progressed prior to the release of the Strategy, with implementation of the Safer Baby Bundle and increased focus on Birthing on Country programs for Aboriginal and Torres Strait Islander women and families frequently cited as examples. Some stakeholders felt that the priority given to these initiatives within the Strategy was an important lever for elevating the profile and importance of the work. Others were of the view that progress would have occurred irrespective of the release of the Strategy.

Just as the initiatives captured within the Strategy predominantly reflect the pre-existing priorities, activities and directions already underway within the sector, so too do the evaluation activities. And while there is consensus among stakeholders regarding the need for evaluation of strategic initiatives, the capacity to do so has been affected by workforce, funding and cultural issues, and the compounding impacts of COVID-19 following the Strategy's release in 2019.

### 2.3 Challenges and complexities of implementation

#### 2.3.1 Evidence from implementation science

Research from the field of implementation science can shed light on some of the reasons why implementation of the Strategy may not have progressed as hoped or may not progress in the future as intended. A recent review, published in 2021, examined methods that have been used to promote the uptake of evidence-based interventions in maternity care and found various contextual, organisational and personal factors that influenced implementation:

- Contextual factors such as adaptation of the intervention and/or its implementation; and organisational capacity to accommodate change.
- Organisational factors such as a healthy organisational culture; effective communication; stakeholder engagement; and planning for implementation.



 Personal factors such as motivation to change; the perceived value of the intervention; and the knowledge, training, education, and/or feedback to or from service providers or service users.<sup>5</sup>

Another review examining the facilitators and barriers to the implementation of a physiological approach during labour and birth came up with a similar range of factors.<sup>6</sup> However, there has been little use of theories, models and frameworks to help explain how those factors work and interact with each other.<sup>5</sup>

These findings are consistent with a framework which was developed over a decade ago and has since been very influential in the field of implementation science. The Consolidated Framework for Implementation Research (CFIR) was developed by reviewing theories related to dissemination, innovation, organisational change, implementation, knowledge translation and research uptake. The CFIR indicates that implementation is influenced by the setting within which implementation takes place, the intervention characteristics, the individuals involved and the process by which implementation takes place, all of which 'interact in rich and complex ways to influence implementation effectiveness'.<sup>7, p 5</sup> Research in Queensland investigating the recent implementation and upscaling of a midwifery model of care found that implementation was facilitated by supportive midwifery and obstetric leadership, good communication, inter-disciplinary collaboration, and flexibility with rostering of staff.<sup>8</sup>

The following sections detail the influence of two important contextual factors on implementation to date.

#### 2.3.2 Workforce and resource constraints

Although the Strategy states that broader workforce issues are outside the scope of the document itself, many stakeholders were firm in their view that workforce capacity is a critical issue of relevance to all components of the Strategy.

Stakeholders spoke of a workforce under strain and 'stretched to the limit' across professions, including nursing, midwifery, obstetrics and mental health, and expressed particular concern for those living and working in rural and remote areas.

There was a view that a national workforce strategy for maternity services is required to enable the implementation of the goals of the Strategy and should be prioritised. The need to invest in the maternity care workforce has also been identified as a key recommendation of the Final Report of the Ockenden Review<sup>9,10</sup> which examined the care of nearly 1500 families who experienced adverse outcomes in one hospital Trust in England over a twenty-year period.<sup>11</sup>

Stakeholders were concerned that there was very little incentive or financial support for implementation. Exceptions to this included the implementation of activities that aim to reduce stillbirth and preterm birth, which were cited as examples where national leadership, partnership and dedicated funding had come together to foster progress towards agreed goals.

Comparisons were made between the current Strategy and the previous National Maternity Services Plan. In particular, those consulted reflected that the previous Plan had funding tied to action areas and structures for reporting, and that these features were lacking in the current Strategy.

Stakeholders expressed frustration that some enabling activities were reliant on research funding or timeconstrained program funding, despite the priority given to these activities in the Strategy, and expressed uncertainty about program longevity and sustainability. Stakeholders felt this was of particular concern given the Strategy is considered an enduring document, with nominated priority activities to remain on the maternity agenda for the foreseeable future.

Consultations revealed a lack of coordination between state and commonwealth governments in relation to the Strategy, with stakeholders suggesting that a clear mechanism to bring maternity services across the country together was required. Recommended strategies included appointing a National Chief Midwifery Officer and Chief Midwives in all jurisdictions, and the convening of a broad and representative advisory group to oversee, guide and report on implementation activities. Some stakeholders expressed disappointment that structural support and leadership that supported activities under the previous National Maternity Services Plan had been disbanded.



There was concern that input into the development of the Strategy was limited for some groups, or that input provided was not reflected in the final document. For instance, we heard that the Strategy did not adequately reflect the evidence supporting midwifery-led continuity of care, that the consumer voice was underrepresented, and that there was a lack of focus on specialist obstetrics within the document.

In addition, stakeholders commented that there had been little promotion of the Strategy since its release and felt there was a low level of awareness of its scope and purpose. Some of those consulted, including a small number of stakeholders who sat on the Advisory Committee during the Strategy's development, reported that this was the first time they had revisited the Strategy since 2019 and noted an overall lack of publicly available information relating to it.

#### 2.3.3 Impact of the COVID-19 pandemic

The Strategy's values of access, choice and respect were thought to have been particularly affected by COVIDrelated disruptions. Examples given included a reduction in face-face antenatal visits, closure of services due to staffing issues, and a reduction or cessation of postnatal care visits in some jurisdictions. Some believed that the maternity and postnatal care services were still in a 'holding pattern' due to COVID-19.

The impact of COVID-19 resulted in a redirection of resources away from community-based models of care to in-patient settings, effectively putting a halt to or slowing down the implementation of models of care which are known to improve outcomes for women and babies. Associated with this has been a relative decline in efforts to improve data collection, analysis and feedback loops that had been in train and/or planned when the Strategy was first released.

The well-documented impact that the COVID-19 pandemic had, and continues to have, on resource allocation and health service delivery was reinforced throughout stakeholder consultations. The COVID-19 pandemic had highlighted how precarious the healthcare system was in terms of its medical, nursing and midwifery workforce. Given this backdrop, some felt there was a need to review the Strategy in terms of its relevance and priorities to reflect the changed circumstances in which maternal health services are being delivered.



## 3 Qualitative findings: key evaluation questions

This chapter summarises evidence gathered through the stakeholder interviews and environment scan in relation to the five key evaluation questions (KEQ).

### 3.1 KEQ 1: Change in maternity outcomes over time

#### 3.1.1 Baseline status

Among stakeholders, the most frequently cited examples of nationally coordinated strategies to improve clinical outcomes were those related to reducing stillbirth, preterm birth and early term birth. The environment scan highlighted some significant Australian strategic documents released since 2019 which aim to improve key maternity outcomes, particularly stillbirth.

The *National Stillbirth Action and Implementation Plan* was released in 2020, the first national plan to strategically address the issue of stillbirth. It was developed to reduce stillbirths, reduce disparities in stillbirth rates between population groups, increase community awareness and understanding of stillbirth, and ensure high quality bereavement care and support is available to families who experience stillbirth.<sup>12</sup> The plan is supported by major initiatives of the Centre of Research Excellence in Stillbirth including:

- Updated Clinical practice guideline for care around stillbirth and neonatal death.<sup>13</sup>
- Implementation of the national Safer Baby Bundle, developed in collaboration with three state health departments, consisting of five interventions brought together into one 'bundle'. The aim is that implementing all five together will lead to better outcomes than if implemented separately. Implementation is the responsibility of each state health department.

Stakeholders referred to the broad implementation of the Safer Baby Bundle across jurisdictions, the importance of Commonwealth funding to support quality improvement workshops and stillbirth autopsy and investigations, and the value of the educational and consumer resources developed by the Centre of Research Excellence in Stillbirth.

Numerous interventions to reduce maternal and neonatal morbidity and mortality were identified, including:

- The Women's Healthcare Australasia Benchmarking Program involving over 150 maternity services, including all tertiary maternity hospitals, most regional services and some rural services covering 75% of births in Australia.
- The work of the Australian Preterm Birth Prevention Alliance to support the Every Week Counts: National Preterm Birth Prevention Collaborative in 32 hospitals, in partnership with Women's Healthcare Australasia and the Institute for Healthcare Improvement.<sup>14</sup> Safer Care Victoria have independently funded implementation of the program in a further 20 Victorian hospitals. The National Collaborative aims to safely reduce preterm and early term birth within participating maternity units by 20%. A summary of participating hospitals is shown in Figure 3.
- The Baby Friendly Health Initiative, previously known as the Baby Friendly Hospital Initiative, launched in 1991 with Australia being one of the early adopters. The Baby Friendly Health Initiative has been given fresh impetus as one of the action areas in the National Breastfeeding Strategy.<sup>15</sup>
- Implementation of caseload midwifery models, including across five birthing sites in a rural district of South Australia.<sup>16</sup>
- Culturally safe models of maternity care for Aboriginal and/or Torres Strait Islander women.
- Trials of interventions to reduce alcohol consumption during pregnancy,<sup>17</sup> help pregnant women quit smoking,<sup>18</sup> and provide postpartum support via a phone app.<sup>19</sup>



#### **Figure 3** Sites participating in the National Preterm Birth Prevention Collaborative, as at September 2022



Reproduced with permission from the National Preterm Birth Prevention Collaborative, September 2022

The Safer Baby Bundle initiative and the Australian Preterm Birth Prevention Alliance were cited as good examples of the type of interdisciplinary and cross-jurisdictional collaboration required to improve maternity outcomes. Stakeholders were cautious about attributing any change in outcomes over time to the Strategy and questioned whether current national data collection, analysis and reporting mechanisms would be able to detect meaningful and nuanced changes in the outcomes of interest in a timely way.

#### 3.1.2 Next steps

According to stakeholders, there is a concerning trend towards increasing intervention in birth, with no corresponding increase in safety or quality. A steep rise in reported physical and psychological birth trauma in recent years was also noted during the interviews. Intervention rates are influenced by many variables<sup>20</sup> and stakeholders felt that developing a greater understanding of factors leading to these outcomes should be a focus of ongoing monitoring and evaluation.

Stakeholders spoke of the challenges of balancing prevention of stillbirth (for example, by inducing labour early) with reducing the negative sequelae associated with preterm and early term birth, and the anxiety this can cause among both women and health professionals, particularly junior doctors. The importance of a strong collaboration between the Centre of Research Excellence in Stillbirth and the Preterm Birth Prevention Alliance was considered to be pivotal in striking the necessary balance with respect to these issues.

The Monitoring and Evaluation Framework for the *National Stillbirth Action and Implementation Plan* includes annual monitoring from 2022 and scheduled evaluation reports in 2023 (preliminary), 2026 (mid-term) and 2029-30 (final). In-depth review of initiatives to reduce the rate of stillbirth in Australia will be undertaken as part of the monitoring and evaluation.

Implementation of the Safer Baby Bundle will be monitored by a suite of process measures covering all five interventions and selected outcome measures. The program will be subject to an economic evaluation, for which data will be collected up until December 2023.<sup>21</sup>



## 3.2 KEQ 2: Access to postnatal care

#### 3.2.1 Baseline status

The environment scan did not identify any improvements in access to postnatal care since 2019, a finding consistent with views expressed by stakeholders. Some stakeholders believed that access to postnatal care had deteriorated. Reasons given for lack of progress in improving access to postnatal care included the impact of COVID-19, workforce and resource constraints, fragmentation of care, and the emphasis placed on pregnancy, labour, birth and a focus on the baby in the early weeks and months following birth.

Postnatal care is acknowledged to be complex and multifaceted, with care delivery requiring attention to a huge variety of clinical issues, particularly given the extension of the postnatal period to encompass care of women in the 12 months after giving birth: breastfeeding and other infant feeding; nipple and breast issues postpartum; maternal illnesses; substance use; mental health; pain and weight management; maternal nutrition; sexuality, contraception and birth spacing; pelvic floor muscle training and abdominal rehabilitation; infants and newborn care.<sup>22</sup> Postnatal care also requires attention to the individual needs, perceptions and experiences of women and families.

Two important overseas developments are the updated guideline on postnatal care published by the National Institute for Health and Care Excellence in the UK,<sup>23</sup> and the recommendations on maternal and newborn care for a positive postnatal experience published by the World Health Organization.<sup>24</sup>

In Australia, the **National Breastfeeding Strategy**, released in 2019, provides a framework for integrated, coordinated action to shape and inform policies and programs that aim to support mothers, fathers/partners and their babies throughout their breastfeeding journeys. The objectives include:

- Increasing the proportion of babies who are breastfed.
- Enabling mothers, fathers/partners and other caregivers to access evidence-based, culturally safe breastfeeding education, support and clinical services.
- Increasing the number of breastfeeding-friendly settings.
- Strengthening regulations covering marketing of infant formula and breastmilk substitutes.
- Increasing the proportion of health professional who received breastfeeding education and training.
- Raising awareness in the broader community of the significance of breastfeeding.<sup>15</sup>

The objective to strengthen regulations covering the marketing of infant formula will support implementation of the Baby Friendly Health Initiative.<sup>25</sup>

Stakeholders largely commended the shift in defining the postnatal period from the first six weeks following pregnancy in the previous National Maternity Services Plan, to 12 months following birth in the current Strategy. However, stakeholders noted that current programs typically support women only up to six weeks post-birth and that in some cases resource constraints have resulted in a decrease in the number of home visits even within models that include home visits up to six weeks.

An exception to this was continuity of carer across pregnancy and the early postnatal period provided by private midwives, which several stakeholders noted had increased since the Strategy was released. Private midwifery care was viewed by some as particularly well-aligned to the Strategy's values and principles of choice, access and respectful communication with women, and because interdisciplinary connections underpin the collaborative arrangements required at an operational level.

Programs that support women from early in their pregnancy up until their child is two years of age were also identified. These included the **Sustaining NSW Families program** in NSW,<sup>26</sup> and the **Australian Nurse-Family Partnership Program**, a nurse-led home visiting program that supports women pregnant with an Aboriginal and/or Torres Strait Islander child.<sup>27</sup> Both these programs were well-established before the Strategy was released.



#### 3.2.2 Next steps

Stakeholders identified various issues that require attention if access to postnatal care is to be improved:

- Workforce constraints, exacerbated by the COVID-19 pandemic, were seen as the major limiting factor for improving access to postnatal care.
- Inadequate resourcing of postnatal care.
- The current definition of 'unqualified neonates' and the implications of this for funding arrangements and staffing on maternity wards. It was noted that the Independent Hospital Pricing Authority is intending to investigate the appropriateness of the current funding model in accounting for unqualified newborns.
- The paucity of reporting on health outcomes for women across the first postnatal year. Postnatal care is fragmented, in terms of funding models, information systems, stakeholders and data collection activities. This fragmentation was seen to present particular challenges for clinical information to be made available for data collating and reporting purposes.
- The absence of national evidence-based guidelines for postnatal care. Some stakeholders were aware that the government had committed to developing such guidelines but were not aware of any progress towards achieving this goal.
- The need for greater focus on ensuring the National Breastfeeding Strategy is fully implemented. A baseline evaluation of the National Breastfeeding Strategy was scheduled for 2020 but was not available at the time of writing. Ongoing evaluation will include annual report cards, a mid-term evaluation scheduled for 2024-25 and a final evaluation scheduled for 2029-30.<sup>15</sup>
- There needs to be national agreement on the qualifications required for practitioners in the maternal, child and family health space as these currently vary across jurisdictions. Stakeholders felt that changes to training and qualification requirements were needed to prepare the workforce for the complexities of delivering postpartum care.
- Stakeholders felt that changing the definition of the postnatal period from 6 weeks to 12 months will
  require changes to the training of midwives and maternal and child health nurses and an extension of
  midwifery practice to 12 months. In some jurisdictions, postnatal care over this extended period is already
  provided by midwives through a combination of hospital and Maternal and Child Health services. The
  need for improved continuity of care and better integration of systems in this context was also noted.
- The capacity of current services to meet the needs of women in a streamlined way across a postnatal period extended to 12 months.

For access to postnatal care to be monitored and evaluated there needs to be a good understanding of what is meant by 'access'. Arguably the most influential conceptualisation or model of access, including access to maternity services,<sup>28-30</sup> defines access as the degree of fit between patient need and the ability of health services to respond to and meet those needs, along five dimensions:

- Availability adequacy of supply of health professionals, facilities and specialised programs or services.
- Accessibility relationship between the location of health services and the location of service users.
- Accommodation extent to which the way services are organised meets users' needs.
- Affordability relationship between the cost of services and users' ability and willingness to pay.
- Acceptability relationship between users' attitudes about characteristics of providers and actual characteristics of providers, plus providers' attitudes about acceptable characteristics of service users.<sup>31</sup>

Each dimension accounts for the needs of the patient; hence the model is consistent with the Strategy's emphasis on 'woman-centredness'. The model shows that access can be conceptualised in multiple, equally valid ways, which complicates the task of measuring changes in access to postnatal care. This model may be useful to ensure that all aspects of access are captured in ongoing monitoring and evaluation of the Strategy.



## 3.3 KEQ 3: Perinatal mental health morbidity and mortality

#### 3.3.1 Baseline status

The environment scan identified many studies that examined COVID-related impacts on perinatal mental health outcomes. The findings highlight the emotional challenges experienced by pregnant and postnatal women during the COVID-19 pandemic, both in Australia<sup>32</sup> and internationally.<sup>33</sup>

Many stakeholders referenced the increase in depression, anxiety and distress among perinatal women throughout the COVID-19 pandemic, and questioned whether it was reasonable to expect perinatal mental health morbidity to have improved in the time since the Strategy was released.

Others were of the view that the mental health impacts of COVID helped raise the profile of the social and emotional needs of pregnant and postnatal women, which in turn contributed to an increase in funding for perinatal mental health initiatives, both at a Commonwealth and jurisdictional level. Examples include:

- funding allocated to COPE, PANDA, Gidget Foundation, SANDS Australia, Red Nose, Tresillian and Karitane, for activities encompassing screening, service provision, training and education and community awareness.
- the increase in sessions of care provided under the general population MBS Better Access to Mental Health Care scheme, including telehealth for mental health care.

These and other significant investments were seen as necessary to ensuring that perinatal mental health needs are prioritised alongside physical health needs during pregnancy and in the year after birth.

The NHMRC-endorsed **Mental Health Care in the Perinatal Period: Australian Clinical Practice Guideline** published in 2017 is currently under review.<sup>34</sup> The updated Guideline will include guidance related to birth trauma as a new topic, as well as new guidance relating to mental health screening and psychosocial assessment for fathers and other non-birthing partners. It is anticipated that the updated Guideline will be released for public consultation in November 2022, with submission for NHMRC approval in 2023.

In South Australia, the guideline *Anxiety and depression in the perinatal period* was released in 2019.<sup>35</sup> Other jurisdictions are in the process of reviewing or updating policies and strategies that include a focus on perinatal mental health, including:

- a review and update of the SAFE START policy and training package in NSW
- a review of perinatal mental health screening in Victoria and expanded community-based perinatal mental health services in response to the mental health commission reform recommendations
- an internal review of mental health reform in Tasmania to ensure it adequately addresses perinatal mental health needs.

The iCOPE digital screening platform (developed prior to 2019) is in the process of being implemented in participating public maternity hospitals and maternal and child family health clinics in Australia as part of the Commonwealth-funded **Perinatal Mental Health Check Initiative**. iCOPE is underpinned by the validated Edinburgh Postnatal Depression Scale (EPDS) and Antenatal Risk Questionnaire, and is available in 12 languages, with plans to be available in 32 languages by late-2022. NSW Health has also undertaken 23 validated translations of the EPDS which are available from the Multicultural Communications Health Service. Some stakeholders felt that delays in finalising bilateral mental health agreements which have deferred jurisdictional decision-making have been a contributing factor to the limited jurisdictional uptake of iCOPE; however several services are self-funding implementation.

Four jurisdictions had supplied 2020 data to AIHW for at least one of **three antenatal mental health data items** and **one family violence screening item** included in the Perinatal National Best Endeavours Dataset for reporting in the National Perinatal Data Collection. A **Perinatal Mental Health pilot program (PMHp)** is also currently being undertaken by the AIHW, in consultation with jurisdictions and the Commonwealth, to source



de-identified perinatal mental health screening data from jurisdictions, as well as from the iCOPE digital screening platform.

These programs of data development were recognised by stakeholders as a significant step forward, while noting that they are largely limited to information about screening and need to be expanded to include data on service utilisation and outcomes. Stakeholders also cautioned that service use data often only mirrors what services are funded to deliver and may not reflect service user needs accurately.

Two scoping reviews published in 2019 found that midwives lack confidence, skills and knowledge in providing mental health support,<sup>36,37</sup> and that this is not due to a lack of willingness but rather limited access to training and information.<sup>36</sup> In addition to training packages developed and delivered by jurisdictions, opportunities for midwives and other health professionals working in maternity services to enhance their knowledge and skills in perinatal mental health generally appear to involve formal training programs, often targeting health professionals whose primary clinical focus is perinatal mental health. Examples include:

- Courses run by the Centre of Perinatal Excellence (COPE), Perinatal Anxiety & Depression Australia (PANDA), the Gidget Foundation Australia and the Centre for Perinatal Psychology.
- Courses such as the Graduate Certificate in Perinatal Mental Health offered by the University of South Australia which is open to nurses and midwives.
- New perinatal mental health scholarships and training opportunities for the maternity workforce in Western Australia
- The Perinatal Interprofessional Psychosocial Education Program for Maternity Clinicians (PIPE-MC), which
  has seven consortium partners including the Royal Australian and New Zealand College of Obstetricians
  and Gynaecologists and the Australian College of Midwives.

Stakeholders commented on the important role of non-government organisations in providing training, guidance, health promotion and advocacy in this area, as well as delivering clinical services. They expressed concern about instability and inconsistency in government funding which affects the sustainability of service delivery. Several jurisdictions are reviewing policies relating to perinatal mental health.

#### 3.3.2 Next steps

The environment scan and stakeholder interviews identified various issues that require attention to ensure that perinatal mental health screening is conducted appropriately:

- Not all settings have processes in place to ensure that screening is conducted using evidence-based tools. For example, psychosocial risk factors are assessed using a variety of tools including the Antenatal Risk Questionnaire / Postnatal Risk Questionnaire, Antenatal Risk Questionnaire-Revised, SAFE START psychosocial questions, Part 2 of the Kimberley Mum's Mood Scale, Canberra Health Service's Perinatal Psychosocial Screening Assessment and Tasmania's psychosocial questions. There are differences in wording, questions, and timing of psychosocial screening, and differences in the extent to which these individual tools have been validated.
- There are barriers to the implementation of iCOPE, including variations within and between jurisdictions in priorities, policies and models of service delivery, and difficulties integrating iCOPE with existing and/or in-development information systems.
- There is a need for greater clarity about the claiming of MBS items for mental health screening by GPs and obstetricians.
- There is a lack of evidence to support use of the Edinburgh Postnatal Depression Scale (generally considered to be the gold standard) to screen the perinatal mental health of Aboriginal and Torres Strait Islander women, indicating the need to develop a more suitable tool.<sup>38</sup> Validation of the Kimberley Mum's Mood Scale and evaluation of the 'Baby Coming, You Ready' program are two examples of current work.



Resources for identifying appropriate local support options include the **e-COPE Directory** and care navigator positions funded as part of the national **For When** program. The For When national helpline is funded under the Commonwealth Perinatal Mental Health and Wellbeing Program and seeks to connect expectant and new parents experiencing mental health issues with a place-based navigator with knowledge of local services and support options. However, stakeholders raised concerns about there being insufficient resources to respond to the needs identified by perinatal mental health screening. In particular, they believed that the development of specialist perinatal mental health care, including mother-baby units, had not kept pace with demand, especially in regional and rural areas.

A national workforce survey conducted by Emerging Minds as part of the National Workforce Centre for Child Mental Health sought to understand awareness, knowledge, skill and practice in supporting family, parent and child mental health in the everyday work of professionals from health, social and community services. Although its primary focus was child mental health, the survey will provide information relating to the selfreported competencies of health providers who provide care to women with perinatal mental health needs. Findings are expected to be released at the end of 2022 and the national survey repeated every two years.

## 3.4 KEQ 4: Service provision based on evidence

#### 3.4.1 Baseline status

'Evidence' is central to the Strategy; in practice, it is often operationalised as evidence-based guidelines. Numerous studies have been published since 2019 evaluating and comparing clinical guidelines from Australia and comparable countries.<sup>39-48</sup> Findings highlight three important issues: there are many guidelines, often on very specialised topics, all relevant to good maternity care; guidelines are not always consistent; guidelines from elsewhere often need local adaptation.

In Australia, many guidelines have been developed since the Strategy was published and are referred to throughout this report. The Australian *Clinical Practice Guidelines for Pregnancy Care* were updated in 2020, providing national evidence-based recommendations to support high-quality, safe, antenatal care in all settings.<sup>49</sup> The guidelines outline approaches to pregnancy care for various groups, including Aboriginal and Torres Strait Islander women, migrant and refugee women, and women with severe mental illness. Summary sheets for health professionals are available. Stakeholders anticipated that the Pregnancy Care Guidelines would be updated and transformed into a 'living guidelines model', but there was a view that progress to achieve this had been slow.

Some jurisdictions produce comprehensive guidelines which are regularly reviewed and updated:

- Queensland has developed Maternity and Neonatal Clinical Guidelines, with recent updates including newborn baby assessment (2021), gestational diabetes mellitus (2022), and safer infant sleep (2022).
- South Australia produces Perinatal Practice Guidelines, with recent updates on postnatal care (2021), induction and augmentation of labour (2021), and antenatal care for normal pregnancy (2022).
- Victoria has a Maternity ehandbook available on the Safer Care Victoria website, with recent updates including preterm labour (2021), homebirth (2021), and care during labour and birth (2022).

The **Australian Atlas of Healthcare Variation Series** produced by the Australian Commission on Safety and Quality in Health Care was considered integral to raising awareness of potential issues, increasing visibility of data, and for bringing together key stakeholders to identify actions, roles and responsibilities for progressing implementation and practice change. The inclusion of early planned births without medical or obstetric indication as a priority topic in the Fourth Atlas (2021) was largely commended across stakeholder groups.

The Commission's **Clinical Care Standards**, which are often developed in response to issues that emerge through the Atlas of Healthcare Variation, were also considered to be a strong lever for change. A Clinical Care Standard for Third and Fourth Degree Perineal Tears was published in 2021 and a Stillbirth Clinical Care Standard was launched in November 2022.



#### 3.4.2 Next steps

There are many guidelines available internationally, including from well-respected organisations such as the National Institute for Health and Care Excellence in the UK and the World Health Organization. As noted in the previous section, several jurisdictions produce their own clinical guidelines which are regularly updated. However, there is a relative paucity of national guidelines for maternity care, with notable exceptions being the *Clinical Practice Guidelines for Pregnancy Care* and the *Mental Health Care in the Perinatal Period: Australian Clinical Practice Guideline.* The development of national evidence-based guidelines for postnatal care has not progressed.

Stakeholders were strongly in favour of evidence-based, national guidelines to help bring service delivery up to date with best practice and reduce variations in care. Such documents – if rigorous and based on a critical review of evidence – were seen as critical to encourage and direct reform. Taken together, these stakeholder views suggest the need for a national, coordinated approach to the development of a comprehensive set of guidelines to support evidence-based practice in the provision of woman-centred maternity care.

#### 3.5 KEQ 5: Systems and processes to enable woman-centred care

#### 3.5.1 Baseline status

Women in rural and remote regions are at particular risk of not receiving appropriate woman-centred care, exacerbated by the closure of small rural maternity units in favour of those in larger regional centres. They face significant issues because of the need to travel long distances to access services, and the financial implications of that travel. Those relocated at the end of their pregnancy to await birth are highly vulnerable. Women have concerns about their own safety and the safety of their baby.<sup>50</sup> There was a strong sense from stakeholders that access to care in rural and remote areas had declined since the Strategy was released.

Examples of developments focusing on the needs of women in rural areas included a midwifery caseload model implemented across five birthing sites in South Australia as a two-year pilot, commencing in mid-2019. The evaluation found that the model was 'effective, acceptable and sustainable' with strong support from consumers and providers.<sup>16</sup> Queensland is investigating obstetrics and gynaecology workforce models and strategies to address the current workforce challenges.

There has been considerable development of culturally safe models of care for Aboriginal and Torres Strait Islander women in recent years, although funding has tended to be short-term or project-based. The work and leadership of the Molly Wardaguga Centre and Birthing on Country Centre of Research Excellence was highly regarded. An overview of the location of services supported by the Centre is shown in Figure 4.



#### Figure 4 Location of sites and services supported by the Molly Wardaguga Research Centre



Reproduced with permission from Roe, Y., Kildea, S., <u>Molly Wardaguga Research Centre's road to supporting women's cultural and</u> <u>birthing aspirations, 2019 to now'</u>, Birthing on Country Centre for Research Excellence Seminar Series, 2022, Molly Wardaguga Research Centre, Charles Darwin University.

Stakeholders referred to the Early Assessment Referral Links model in rural Victoria,<sup>51</sup> the Group Antenatal Care model in Far North Queensland,<sup>52</sup> the Community Maternity Hubs model in Brisbane (which is open to non-Aboriginal and Torres Strait Islander women),<sup>53</sup> and caseload midwifery models in Melbourne<sup>54</sup> and Sydney.<sup>55</sup> Work is underway to establish a Birthing on Country service in the island town of Galiwin'ku in North East Arnhem Land in the Northern Territory.<sup>56</sup> Most recently, significant federal funding has been committed to advance Waminda's Minga Gudjaga program on the NSW south coast. **CATSINaM's Murra Mullangari** e-learning program was launched in 2022 and is the first Aboriginal and Torres Strait Islander-developed cultural safety program for nurses and midwives to also include a **cultural humility** model.

In Queensland, *the Growing Deadly Families Aboriginal and Torres Strait Islander Maternity Services Strategy 2019-2025* detailed three priority areas to ensure access to high quality, clinical and culturally capable maternity services (all of which are present in the models outlined in the previous paragraph):

- 1. Co-design and co-delivery of services.
- 2. Access to woman-centred, comprehensive and culturally capable maternity care.
- 3. A culturally capable workforce, across all disciplines of maternity care.<sup>57</sup>

A systematic review published in 2020 examined Aboriginal and Torres Strait Islander family access to continuity of health care services in the first 1000 days of life, primarily during the antenatal, birthing and immediate postnatal period. The review found that there was a lack of continuity of care and this impacted experiences of and satisfaction with care. Aboriginal women highly valued continuity of care and continuity of carer. Most of the included studies focused on health services in rural or remote communities and there was a lack of documented evidence for women living and birthing in regional and metropolitan areas.<sup>58</sup>



An economic evaluation conducted in Queensland has found that public midwifery group practice is significantly less costly than other models of maternity care.<sup>59</sup> Models of care specifically designed to improve continuity of care almost exclusively involve midwives, both in Australia and globally.<sup>60</sup> In Queensland, a **decision-making framework** has been developed to increase maternity continuity of carer and has been used in three rural sites to improve services:

- as a quality assurance tool for an existing continuity of carer model;
- to facilitate a new midwifery continuity of carer model for Aboriginal and Torres Strait Islander women;
- to plan for a non-birthing remote facility to establish a birthing service.<sup>61</sup>

The environment scan and stakeholder interviews identified limited examples of models of care specifically devoted to the needs of women from culturally and linguistically diverse backgrounds. The **Community Maternity Hubs** model in Brisbane is available for women who are Maori or Pacific Islander, or have a background as a migrant or refugee.<sup>53</sup>

In Australia, various initiatives have been undertaken or are under way to develop and implement maternity patient-reported experience measures at a local, state, territory, and national level. These include the Queensland **Maternity Patient Experience Surveys** and the NSW Bureau of Health Information's biannual **Maternity Care Survey**. Recommendations from the Inquiry into Maternity Services in the ACT relating to PREMs have been agreed to, or agreed to in principle, by part of ACT *Maternity in Focus Plan*. Australian studies have examined women's experiences of receiving maternity care during the COVID-19 pandemic.<sup>62-67</sup>

Community organisation Maternal Health Matters conducted a second **Birth Dignity Survey** involving nearly 900 women in 2020<sup>68</sup>. Between March and December 2021, the **National Birth Experiences Study** collected in depth quantitative and qualitative data from over 8,800 women – the largest study of its kind conducted in Australia to date. Insights from the National Birth Experiences Study are presented in Figure 5.

The environment scan found no evidence of routinely-collected patient-reported pregnancy, childbirth or postnatal care outcome data at national or jurisdictional levels in Australia. The International Consortium for Health Outcomes Measurement has developed a set of 24 outcome measures to evaluate care during pregnancy and up to six months postpartum.<sup>69</sup> These outcomes have been mapped to the four values in the Strategy, with noticeable gaps in relation to the values of choice and access in particular.<sup>70</sup> While comprehensive, some stakeholders felt the number and length of questions and recommended time points of data collection may make it challenging to incorporate these measures into routine care.

Examples of **consumer engagement and co-design** 'done well' included high levels of consumer involvement in the development of Birthing on Country and Birthing in Community programs and the *Maternity in Focus: The ACT Public Maternity System Plan (2022-2032)*. In NSW, nearly 18,000 consumers shared their views about what is important to them in maternity care as part of the consultation process for the development of the draft *Connecting, listening and responding: Maternity Care in NSW* policy. Co-design and co-development of community awareness activities and resources, health professional training and guidance, and service delivery is also integral to the work of mental health organisations including COPE and PANDA.




Mothers and Decision Making (MADM; Vedam 2017); Mothers on Respect (MORi; Vedam 2017); Mistreatment Index (MIST; Vedam 2019)
 Nijmegen Continuity Questionnaire (NCQ; Uijen 2011)



#### 3.5.2 Next steps

Routinely-collected data about maternity services in Australia are primarily focused on process and outcome measures related to safety, rather than the values of respect, choice and access. The corollary is that adoption of patient-reported measures 'would substantially strengthen Australia's national maternity data collections and provide a more holistic view of pregnancy and childbirth in Australia beyond traditional measure of maternal and neonate morbidity and mortality'.<sup>70, p 9</sup> Many stakeholders spoke of the importance of capturing the consumer voice through standardised patient-reported experience measures (PREMs) and patient-reported outcomes measures (PROMs). The environment scan and stakeholder interviews found strong support for the use of patient-reported measures in routine practice, along with dedicated research to build the evidence base. In 2022, a protocol for conducting a systematic review of maternity PROMs and PREMs was published by Australian researchers, which will be used to establish a freely-accessible online database of such measures. The research team conducting the review includes members of Maternity Choices Australia.<sup>71</sup>

Feedback has been sought from the AIHW National Maternity Data Development Project Advisory Group on whether further investigation and development of maternity-specific PROMs and PREMs should be prioritised or whether it is more appropriate to refer this indicator to another agency for development. This issue will be further discussed by the Advisory Group in late 2022.

An integrative review of the empirical literature on the concept of woman-centred care, published in 2019, confirmed that woman-centred care is central to good midwifery practice but that there is a lack of clarity around the understanding of woman-centred care.<sup>72</sup> The findings indicate the need for more work to develop a shared understanding of what is meant by the concept of woman-centred care.

Similarly, an evidence synthesis investigating respectful care during childbirth identified 12 domains of respectful maternity care, including being free from harm and mistreatment, providing equitable maternity care, respecting women's choices, and continuity of care.<sup>73</sup> The domains, and examples of what is meant by each domain, provide a useful summary of what is meant by respectful maternity care and could readily be incorporated into maternity service protocols.

Two reviews published in 2020 investigated the international evidence, including from Australia, regarding access to maternity services for women from culturally and linguistically diverse backgrounds, particularly migrants. The first found that barriers to accessing services included language difficulties, loneliness/lack of social support, lack of cultural sensitivity/understanding of cultural practices and difficulty accessing interpreters.<sup>74</sup> The second found that this results in women being provided with insufficient information; having suboptimal communication with care staff; less opportunity to express their preferences; and being less involved in decision making about their care.<sup>75</sup>

Research in Sydney into perinatal distress and depression among women from culturally and linguistically diverse backgrounds found that both were present to a higher degree in women reporting psychological and physical intimate partner violence, antenatal depressive symptoms and those known to Family and Community Services.<sup>76</sup> Refugees face particularly daunting barriers and struggle to engage with health services, with trust and privacy being issues influencing engagement and access to services.<sup>77</sup>

Additional barriers to sustainable implementation of culturally safe maternity care referred to by stakeholders included a lack of insurance product for birth out of hospitals, lack of clarity around the availability of an insurance product for births in Level 2 Primary Maternity Units owned by an Aboriginal and Torres Strait Islander community health service or organisation, inconsistent application of the National Capability Framework for Level 2 maternity services across jurisdictions, and a lack of guidelines that enable midwives employed by such services to provide continuity of care midwives for Aboriginal and Torres Strait Islander women in hospitals. More broadly, a number of stakeholders were of the view that implementation of recommendations from the Medicare review for midwives could improve access to continuous maternity care, including in rural and remote areas.

A **national maternity services mapping project** currently being undertaken by the Department will use data sourced from the Commonwealth and jurisdictions, AIHW, ABS, Royal Australian and New Zealand College of



Obstetricians and Gynaecologists and the Nursing and Midwifery Board of Australia to build a comprehensive description of maternity models of care across Australia. It will include information relating to six core elements: workforce, resources, infrastructure, birthing trends, patient choice and patient demand. The intended outcome of maternity services mapping project is the development of an interactive map of maternity models of care that can be matched with predictive trend data and used to make informed investment and programming decisions for future planning and service delivery. There is the potential to build on this project to facilitate woman-centred care, particularly for groups of women with particular needs – women in rural and remote areas, Aboriginal and Torres Strait Islander women and women from culturally and linguistically diverse backgrounds.



# 4 Quantitative findings: trends in maternity outcomes

An important focus for the Strategy's monitoring and evaluation was to establish a baseline and provide trend data for morbidity and mortality outcomes, clinical outcomes and access to maternity services so that these outcomes can be monitored over time, and any changes identified (KEQ 1). To this end, figures and tables based on publicly available data have been reproduced for inclusion in this Baseline Report, with priority given to core maternity indicators and models of care in line with the pre-defined scope of the current evaluation. These do not necessarily cover all indicators and outcomes potentially of interest to the Strategy; gaps and opportunities for quantitative data development are discussed in this report *Part 2 – Ongoing Monitoring and Evaluation Implementation Plan*.

The baseline period chosen for this quantitative analysis was 2019, the year the Strategy was released. Most indicators were based on data compiled and analysed by the Australian Institute of Health and Welfare (AIHW), namely:

- National Core Maternity Indicators (Table 3) and a small number of additional labour and birth outcomes;
- Stillbirths, perinatal and neonatal deaths, and maternal deaths;
- Models of maternity care.

#### Table 3 National Core Maternity Indicators

Indicator	Measure Description
Antenatal	indicators
PI01a	Smoking in the first 20 weeks of pregnancy for all women giving birth
PI01b	Smoking after the first 20 weeks of pregnancy for all women who gave birth and reported smoking during pregnancy
PI02a	Antenatal care visits in the first trimester for all women giving birth
PI02b	Antenatal care visits in the first 10 weeks of pregnancy for all women giving birth
Labour and	l birth indicators
Selected w	omen*
PI05	Induction of labour for selected women giving birth for the first time
PI06	Caesarean section for selected women giving birth for the first time
PI07	Non-instrumental vaginal birth for selected women giving birth for the first time
PI08	Instrumental vaginal birth for selected women giving birth for the first time
All women	
PI03a	Episiotomy for women having their first baby and giving birth vaginally (non-instrumental)
PI03b	Episiotomy for women having their first baby and giving birth vaginally (instrumental)
PI09	General anaesthetic for women giving birth by caesarean section
PI15	Women having their second birth vaginally whose first birth was by caesarean section
Birth Outco	ome Indicators
PI04	Apgar score of less than 7 at 5 minutes for births at or after term
PI10	Small babies among births at or after 40 weeks gestation
PI13a	Third and fourth degree tears for all vaginal first births
PI13b	Third and fourth degree tears for all vaginal births

Source: Australian Institute of Health and Welfare 2021. National Core Maternity Indicators. Cat no. PER 95. Canberra: AIHW. *Note.* Selected women are defined as 'aged between 20 and 34 years, where gestational age at birth was between 37 and 41 completed weeks, with a singleton baby in the vertex presentation)'. They are reported on separately as it is expected that they will have fewer labour complications and more optimal birth outcomes due to their lower risk. This cohort represents about one quarter of all women who give birth in Australia



In most cases, the available data allowed examination of trends over a ten-year period (2010-2019). Where possible, data were further interrogated by the project team to identify differences in outcomes for target populations, including Aboriginal and Torres Strait Islander women and women living in rural and remote areas. Note that the terms 'Indigenous' and 'non-Indigenous' are used by the AIHW and are reproduced below for consistency in terminology and data presentation. For Medicare Benefits Scheme (MBS) data obtained from Services Australia, data up until the second quarter of 2022 were compiled.

A summary of trends over time against the National Core Maternity indicators and the other indicators listed above are presented here, with additional detail and important data notes in Appendix 3 (Table 10-Table 33).

## 4.1 Smoking in pregnancy

## Smoking in the first 20 weeks of pregnancy for all women giving birth (PI01a)

There has been a steady decrease in the proportion of women who reported smoking in the first 20 weeks of pregnancy, from 13% in 2011 to 9% in 2019 (see also Table 10).

- Women aged 20 years or younger had the highest proportion of smokers of any age group: 36% in 2011 and 32% in 2019 (Figure 6).
- Smoking during the first 20 weeks of pregnancy was more prevalent among Indigenous women (47% in 2011 and 43% in 2019) compared to non-Indigenous women (15% in 2011 and 11% in 2019). For both groups, the proportion of smokers decreased by four percentage points in line with the national trend.
- Women residing in the most disadvantaged areas also had a higher proportion of smokers in the first 20 weeks, although reductions were observed over time from 21% in 2012 to 17% in 2019.
- The proportion of women who gave birth in the public sector who reported smoking in the first 20 weeks of pregnancy was higher than for women who gave birth in the private sector over time, by more than 10% year on year.



#### Figure 6 Smoking in first 20 weeks, all women giving birth (PI01a), by mother's age, 2011-2019

Source: AIHW analysis of National Perinatal Data Collection. Australian Institute of Health and Welfare 2021. National Core Maternity Indicators. Cat no. PER 95. Canberra: AIHW.

# Smoking after the first 20 weeks of pregnancy for all women who gave birth and reported smoking during pregnancy (PI01b)

At a national level, there has been an increase in reported smoking after the first 20 weeks of pregnancy among women who gave birth and who smoked earlier in pregnancy, from 71% in 2011 to 75% in 2019 (see also Table 11).

 Women younger than 20 years had the smallest proportional increase in continued smoking during pregnancy compared to other age groups, increasing 0.5% to just over 76% in 2019. Conversely, the



proportion of women aged 40 years and over who continued to smoke after 20 weeks of pregnancy increased from 68% to 77% between 2011 and 2019.

- There was a higher overall rate of continued smoking during the second half of pregnancy among Indigenous women (86% in 2011 and 2019) than non-Indigenous women (68% in 2011 and 73% in 2019). The proportion of non-Indigenous women who reported continued smoking increased by nearly five percentage points, in line with the national trend, while continued smoking among Indigenous women remained steady (Figure 7).
- Higher levels of continued smoking during pregnancy were also seen over time among women who lived outside major cities and/or in more disadvantaged areas, or who gave birth in the public sector.
- The proportion of women who gave birth in the private sector and who continued to smoke during pregnancy increased by over five percentage points, higher than the national trend.



2014

Indigenous

# Figure 7Smoking after first 20 weeks of pregnancy, all women giving birth who reported smoking during<br/>pregnancy (PI01b), by mother's Indigenous status, 2011–2019

Source: AIHW analysis of National Perinatal Data Collection. Australian Institute of Health and Welfare 2021. National Core Maternity Indicators. Cat no. PER 95. Canberra: AIHW

2015

2016

Non-Indigenous

2017

2018

2019

## 4.2 Antenatal care visits

2011

2012

0%

#### Antenatal care visits in the first trimester for all women giving birth (PIO2a)

2013

The proportion of women who had the first antenatal care visit before 14 weeks' gestation has increased year on year, from a four-year low of 62% in 2014 to 77% in 2019 (see also Table 12).

- The proportion of women aged 20 years or younger who had the first antenatal care visit in the first trimester increased from 47% in 2013 to 65% in 2019.
- While there continued to be a lower rate of antenatal visits before 14 weeks for Indigenous women (51% in 2011 and 67% in 2019) compared to non-Indigenous women (64% in 2011 and 75% in 2019), the proportion of Indigenous women who received antenatal care in the first trimester increased year on year between 2011 and 2014. This helped narrow the difference in the proportion of Indigenous and non-Indigenous women receiving first trimester antenatal care from 14% in 2011 to 8% in 2019.
- The proportion of women living in the most disadvantaged areas who had an antenatal care visit in the first trimester increased at a greater rate than for any other quintile, from 55% in 2012 to 73% in 2019.
- For women giving birth in the public sector, first trimester antenatal care increased from 57% in 2011 to 74% in 2019, with the difference between sectors decreasing from 30% to 11% by 2019 (Figure 8).



# Figure 8 Antenatal care visits in the first trimester of pregnancy, all women giving birth (PI02a), by hospital sector, 2011–2019



Source: AIHW analysis of National Perinatal Data Collection. Australian Institute of Health and Welfare 2021. National Core Maternity Indicators. Cat no. PER 95. Canberra: AIHW

## Antenatal care visits in the first 10 weeks of pregnancy for all women giving birth (PIO2b)

Almost 56% of women who gave birth in 2019 had an antenatal visit recorded in the first 10 weeks of pregnancy, an increase from a three-year low of 34% in 2013. Women of all age and socioeconomic groups followed this national trend (see also Table 13).

- The proportion of Indigenous women whose first antenatal care visit occurred in the first 10 weeks of pregnancy increased at a slightly higher rate than non-Indigenous mothers, although it remained below 50% across the period (28% vs 37% in 2011, and 47% vs 54% in 2019, respectively).
- Among women who gave birth in the public sector, the proportion receiving antenatal care in the first 10 weeks of pregnancy more than doubled from 28% in 2013 to 57% in 2019 (Figure 9).



# Figure 9 Antenatal care visits in the first 10 weeks of pregnancy, all women giving birth (PI02b), by hospital sector, 2011–2019

Source: AIHW analysis of National Perinatal Data Collection. Australian Institute of Health and Welfare 2021. National Core Maternity Indicators. Cat no. PER 95. Canberra: AIHW

#### Five or more antenatal care visits for women giving birth

At a national level, the proportion of women who had five or more antenatal care visits was consistently around 95-96% between 2012 and 2019 (see also Table 14).

The proportion of younger women who had five or more antenatal care visits was lower; 90-92% for women younger than 20 years and 93-94% for mothers aged 20 – 24 years (Figure 10).



- No difference in the proportion of women who had five or more antenatal care visits was observed based on the mother's country of birth.
- While the proportion of Indigenous women was lower compared to non-Indigenous women, it increased slightly from 86% in 2013 to 89% in 2019.
- Very remote areas had the lowest proportion of women who had five or more antenatal care visits; slightly increasing from 89% in 2012 to 93% in 2019. The proportion of women from outer regional and remote areas who attended five or more antenatal care visits was also slightly lower (by two to three percentage points) compared to women whose usual residence was in major cities or inner regional areas.
- In the most disadvantaged areas, the proportions of women with five or more antenatal care visits was slightly lower over time (93-94%).



#### Figure 10 Women who had five or more antenatal care visits, by age at birth, 2012–2019

Source: AIHW analysis of National Perinatal Data Collection. National Perinatal Data Collection annual update 2020-data tables

## 4.3 Onset of labour

## Onset of labour for all women giving birth

Nationally, there have been substantial shifts in the onset of labour for all women giving birth in the past decade. In 2010, 56% of mothers had spontaneous labour, 25% had induced labour and 19% had no labour. Over time, the proportion of mothers with spontaneous labour has reduced by 13 percentage points to 43%, induced labour increased by 10 percentage points to 35% and no labour increased by 5 percentage points to 23% (Figure 11).

- In 2010, 24% to 26% of labour was induced across all age groups. By 2019, induction of labour had
  increased to approximately 38% for younger women (aged 24 years or less) and to between 32% and 37%
  for women aged 25 years or older.
- In 2010, Indigenous mothers (59%, age standardised) and mothers born overseas (59%) had a higher proportion of spontaneous labour than non-Indigenous women (56%, age standardised) and women born in Australia (55%). In 2019, the split between spontaneous, induced and no labour was similar for Indigenous and non-Indigenous women, and women born both in Australia and overseas.
- When considering the remoteness areas of the mothers' usual residence, the largest shifts away from spontaneous labour towards induced and no labour can be observed in very remote areas, major cities and inner regional areas.
- In 2010, spontaneous labour was more common in both public (60%) and private sector (43%) than it was in 2019, having decreased to 45% and 30%, respectively.
- Further findings are available in Table 15 to Table 17.







Source: AIHW analysis of National Perinatal Data Collection. National Perinatal Data Collection annual update 2020-data tables

## Induction of labour for selected women giving birth for the first time (PI05)

At a national level, induction of labour has increased year on year since 2011 for **selected women<sup>4</sup>** giving birth for the first time, from 34% in 2011 to 47% in 2019 (Figure 12; see also Table 18).

This increasing national trend was observed among Indigenous and non-Indigenous women, and across different areas of residence and hospital sectors. An exception was seen among women who gave birth in hospitals with 100 births or less per year (23% in 2011 and 24% in 2019), however absolute numbers of women in this group remained small over time.



#### Figure 12 Induction of labour, selected women, first birth (PI05), 2011–2019

Source: AIHW analysis of National Perinatal Data Collection. Australian Institute of Health and Welfare 2021. National Core Maternity Indicators. Cat no. PER 95. Canberra: AIHW

## 4.4 Method of birth, birth interventions and birth complications

#### Method of birth for all women

Between 2010 and 2019, the proportion of non-instrumental vaginal birth decreased from 56% to 51%. Over the same time, the proportion of births by caesarean section increased from 32% to 36% (Figure 13).

<sup>&</sup>lt;sup>4</sup> Selected women are defined as 'aged between 20 and 34 years, where gestational age at birth was between 37 and 41 completed weeks, with a singleton baby in the vertex presentation'. They are reported on separately by the AIHW as it is expected that they will have fewer labour complications and more optimal birth outcomes due to their lower risk. This cohort represents about one quarter of all women who give birth in Australia.



- There was a trend away from non-instrumental vaginal birth towards caesarean section from 2010 to 2019. This trend was stronger in women aged 40 and over, resulting in 55% caesarean sections and 38% non-instrumental vaginal birth in 2019 (compared to 48% and 43% in 2010, respectively).
- In the private sector, caesarean sections have increased to 48% and non-instrumental vaginal births have decreased to 37%. In the public sector, caesarean sections accounted for 34% and non-instrumental vaginal birth for 54% of births in 2019.
- In 2019, the proportion of non-instrumental vaginal births remained higher for Indigenous women (60%, age standardised) and women who were born in Australia (53%) than for women born overseas (48%), although the trend towards birth by caesarean section occurs at similar rates across groups.
- Between 2010 and 2019, the shift from non-instrumental vaginal birth to caesarean section was similar (around two to five percentage points) in all geographical locations and across all socioeconomic areas.
- Instrumental vaginal birth remained constant at 12% to 13% over time. However, some differences between groups can be observed. For example, the observed proportion of instrumental vaginal birth decreased with increasing rurality; 13-14% in major cities and 8-9% in very remote areas. Additionally, instrumental vaginal birth increased with socioeconomic status, from 10% in most disadvantaged areas to 14-15% in the least disadvantaged areas.
- Further findings are available in Table 19 to Table 21.

#### Figure 13 Method of birth, all women, 2010–2019



Source: AIHW analysis of National Perinatal Data Collection. National Perinatal Data Collection annual update 2020-data tables

#### Caesarean section for selected women giving birth for the first time (PI06)

At a national level, the proportion of **selected women** giving birth for the first time who had a caesarean section increased from 27% in 2011 to 31% in 2019 (see also Table 22).

- Selected women giving birth for the first time in the private sector have had a higher rate of caesarean sections since 2011, with 41% of women giving birth by caesarean section in 2019 compared to 28% of women in the public sector (Figure 14).
- Indigenous women in this selected group had a higher rate of caesarean sections across years than non-Indigenous women, however the rate showed a marginal decrease over time, from 33% in 2011 to 32% in 2019, contrary to the overall national trend.
- Across remoteness area groups, women from inner regional areas showed the greatest increase in caesarean sections, from the lowest proportion in 2012 (25%) to the second highest in 2019 (30%).





Figure 14 Caesarean section, selected women, first birth (PI06), by hospital sector, 2011–2019

Source: AIHW analysis of National Perinatal Data Collection. Australian Institute of Health and Welfare 2021. National Core Maternity Indicators. Cat no. PER 95. Canberra: AIHW

#### Non-instrumental vaginal birth for selected women giving birth for the first time (PI07)

Non-instrumental vaginal births for **selected women** giving birth for the first time has decreased five percentage points from 48% in 2012 to 43% in 2019 (Figure 15; see also Table 23).

- Among this group of women, the highest proportion of non-instrumental first births occurred for women residing in either remote or very remote regions (52% in 2012 and 2019), remaining relatively stable over time. Women residing in the most disadvantaged areas also had higher rates of non-instrumental births over time.
- Women who gave birth in the public sector had a significantly higher proportion of non-instrumental births for all years (51% in 2011 and 46% in 2019) compared to women who gave birth in the private sector (35% in 2011 and 31% in 2019).



#### Figure 15 Non-instrumental vaginal birth, selected women, first birth (PI07), 2011–2019

Source: AIHW analysis of National Perinatal Data Collection. Australian Institute of Health and Welfare 2021. National Core Maternity Indicators. Cat no. PER 95. Canberra: AIHW

#### Instrumental vaginal birth for selected women giving birth for the first time (PI08)

At a national level, instrumental vaginal birth for **selected women** giving birth for the first time has shown a gradual, slight increase year on year, from 25% in 2011 to 26% in 2019 (see Table 24).

Over time, Indigenous women had a lower rate of instrumental vaginal first births (15% in 2011 and 21% in 2019), compared to non-Indigenous women (24% in 2011 and 26% in 2019).



- The lowest proportion of instrumental first births occurred for women residing in either remote (20% in both 2012 and 2019) or very remote regions (20% in 2012 and 22% in 2019). However, these regions had some variability year on year in contrast to the national trend.
- Over a quarter of women residing in the least disadvantaged areas had an instrumental birth, higher than the national figure and more variable year on year (27% in 2012 and 28% in 2019).
- Women who gave birth in the private sector had the highest proportion of instrumental first births, which decreased marginally year on year from 2015, against the national trend (29% in 2011 and 28% in 2019). Conversely, for women who gave birth in the public sector, the proportion of instrumental births increased at a slightly faster rate than the national trend (24% in 2011 and 26% in 2019).

## Women having their second birth vaginally whose first birth was by caesarean section (PI15)

Nationally, the proportion of women giving birth vaginally whose first birth was by caesarean section decreased over time with some variability year on year until 2017 where it remained steady at 12% (Table 25).

- The proportion of women giving birth vaginally to their second child after a caesarean decreased as age increased, for mothers aged 20 years and over. The rate of decrease was similar for Indigenous and non-Indigenous women, and by remoteness area, with most regions in line with the national decreasing trend.
- A greater proportion of women giving birth to their second child in the public sector had a vaginal birth after a caesarean section, by more than 9 percentage points compared to private sector births year on year (17% vs. 8% in 2011 and 15% vs. 6% in 2019, Figure 16).

# Figure 16 Women having their second birth vaginally whose first birth was by caesarean section (PI15), by hospital sector, 2011–2019



Source: AIHW analysis of National Perinatal Data Collection. Australian Institute of Health and Welfare 2021. National Core Maternity Indicators. Cat no. PER 95. Canberra: AIHW

#### Episiotomy for women having their first baby and giving birth vaginally (non-instrumental) (PI03a)

The proportion of women giving birth for the first time (non-instrumental) who had an episiotomy has increased from 17% in 2011 to 23% in 2019 (Figure 17; see also Table 26).

- While all age groups had an incremental increase in episiotomies for non-instrumental first births, in line with the national trend, the proportions of episiotomies for non-instrumental first births among women aged 25 years and older were consistently higher than the national rate.
- Women who had a non-instrumental birth in the private sector had a consistently higher proportion of episiotomies over time (from 25% to 29%). However, episiotomies for non-instrumental first births women in the public sector increased at a faster rate than the national trend (from 15% to 23%).



The proportion of women who gave birth in a hospital with less than 500 annual births who received an episiotomy was less than 15% for any year, with a more variable year on year trend than the national figures. Women who had a non-instrumental first birth in the largest hospitals (by number of births) had a higher proportion of episiotomies than women who gave birth in smaller hospitals.



#### Figure 17 Episiotomy, first baby, women giving birth vaginally (non-instrumental) (PI03a), 2011–2019

Source: AIHW analysis of National Perinatal Data Collection. Australian Institute of Health and Welfare 2021. National Core Maternity Indicators. Cat no. PER 95. Canberra: AIHW

#### Episiotomy for women having their first baby and giving birth vaginally (instrumental) (PI03b)

Episiotomies for instrumental first births increased by more than twice the rate of non-instrumental first births (PI03a), from to 62% in 2011 to 80% in 2019 (Figure 18; see also Table 27).

The increase for women who gave birth in the public sector was 20 percentage points, from 64% to 84%. The corresponding change for women in the private sector was seven percentage points (from 59% to 66%).



#### Figure 18 Episiotomy, first baby, women giving birth vaginally (instrumental) (PI03b), 2011–2019

Source: AIHW analysis of National Perinatal Data Collection. Australian Institute of Health and Welfare 2021. National Core Maternity Indicators. Cat no. PER 95. Canberra: AIHW

#### General anaesthetic for women giving birth by caesarean section (PI09)

Overall, the proportion of women giving birth by caesarean section who had a general anaesthetic has decreased over time, from 7% in 2011 to 6% in 2019 (see Table 28).

There was some decrease for all age groups, although younger women giving birth by caesarean section had the highest rates of general anaesthetic administration, at 15% or greater for the period (17% in 2011, 15% in 2019; Figure 19).







Source: AIHW analysis of National Perinatal Data Collection. Australian Institute of Health and Welfare 2021. National Core Maternity Indicators. Cat no. PER 95. Canberra: AIHW

## 4.5 Birth outcomes

#### Gestational age

Data on the percentage of babies born by gestational age in completed weeks is limited to a national snapshot for 2010 and 2019.

- In both years, 8-9% of babies were born pre-term (36 weeks or less) and less than 1% were born post-term (42 weeks or more).
- However, there was a substantial shift in gestational age for babies born at term when examining the number of completed weeks. In 2010, 52% of babies were born between 37 to 39 completed weeks, while in 2019 this proportion had increased by 10 percentage points to 62%.
- Over the same period, the percentage of babies born at 40 or 41 weeks reduced by 10 percentage points from 39% to 29% (Table 4).

	Gestational age at birth	2010	2019
		In per co	ent (%)
Pre-term	20-36 weeks	8.2	8.6
	37 weeks	6.8	9.3
	38 weeks	19.0	23.1
Term	39 weeks	26.1	29.8
	40 weeks	25.9	20.5
	41 weeks	13.1	8.4
Post-term	42 weeks and over	0.8	0.4

#### Table 4Percentage of babies, by gestational age grouped by term and completed weeks, 2010–2019

Source: AIHW analysis of National Perinatal Data Collection.

Data notes: Pre-term births may include a small number of births of less than 20 weeks gestation.

#### Apgar score of less than 7 at 5 minutes for births at or after term (PIO4)

Babies born with an Apgar score of less than 7 at five minutes accounted for 1.3% of all babies born in 2019, a fractional increase of 0.1% from 2011 (see Table 29).

 Over time, Indigenous women had a consistently higher proportion of babies with an Apgar score below 7; 0.5% or more above the national figures (1.7% in 2011 to 1.9% in 2019, Figure 20).



- Women younger than 20 years had the highest proportion of babies with an Apgar score below 7 at five
  minutes compared to any other age group for all years.
- In 2019, 1.5% of babies born in public hospitals had an Apgar score less than 7 at five minutes, compared to 0.9% in private hospitals.





Source: AIHW analysis of National Perinatal Data Collection. Australian Institute of Health and Welfare 2021. National Core Maternity Indicators. Cat no. PER 95. Canberra: AIHW

#### Small babies among births at or after 40 weeks' gestation (PI10)

At a national level, the proportion of small babies among births at or after 40 weeks has decreased fractionally most years, from 1.7% in 2011 to 1.2% in 2019 (see Figure 21; see also Table 30). Over time, Indigenous women had the highest proportion of small babies born at or after 40 weeks, in some years more than twice that of non-Indigenous women. This difference decreased sharply between 2018 and 2019.



#### Figure 21 Small babies among births at or after 40 weeks' gestation (PI10), 2011–2019

Source: AIHW analysis of National Perinatal Data Collection. Australian Institute of Health and Welfare 2021. National Core Maternity Indicators. Cat no. PER 95. Canberra: AIHW

#### Third- and fourth-degree tears for vaginal births (PI13a &PI13b)

The proportion of women who gave birth for the first time vaginally and who had a third- or fourth-degree vaginal tear decreased fractionally from 5.6% in 2015 to 5.0% in 2017 and has remained stable since (see Table 31). However, there have been some variations in this trend, including for Indigenous women (Figure 22) and women living in regional or remote areas.







Source: AIHW analysis of National Perinatal Data Collection. Australian Institute of Health and Welfare 2021. National Core Maternity Indicators. Cat no. PER 95. Canberra: AIHW

The proportion of all women who gave birth vaginally and who had a third- or fourth-degree vaginal tear decreased fractionally from 3.2% in 2015 to 2.9% in 2017 remaining stable for the remainder of the period. Additional findings against this indicator are presented in Table 32.

## 4.6 Length of postnatal hospital stay

Data on the length of postnatal hospital stay is limited to the national trend from 2010 to 2019. There has been a decrease in the length of stay over time. In 2010, 16% of women had a postnatal stay of less than two days, two-thirds had a stay of two to four days and 17% had a stay of five or more days. In 2019, 22% of women had a postnatal stay of less than two days, two-thirds had a stay of two to four days and 13% had a stay of five days or more (Figure 23).



#### Figure 23 Length of postnatal stays, 2010–2019

Source: AIHW analysis of National Perinatal Data Collection. National Perinatal Data Collection annual update 2020-data tables

## 4.7 Perinatal, stillbirth and neonatal deaths

National trend data on perinatal, stillbirth and neonatal death rates are presented for 2000 to 2019. Additional data was available for 2019 and are shown in Table 33.

Between 2000 and 2019, the number of perinatal deaths per 1,000 total births has slightly decreased, from just over ten to just under ten. Stillbirths per 1,000 total births have fluctuated at around seven and neonatal deaths per 1,000 live births have decreased from around three to just over two (Figure 24).



- Perinatal death rates were higher among young mothers (under 20 years of age, 18.4 per 1,000 total births; aged 20-24 years, 11.1 per 1,000 total births), and older mothers (aged 40+ years, 15.1 per 1,000 total births).
- Stillbirth and neonatal death rates were also higher among young and older mothers. For women under 20 years of age, 20-24 years of age, and 40+ years of age, stillbirth rates were 13.5, 8.4 and 11.4 deaths per 1,000 births, and neonatal death rates were 5.0, 2.7 and 3.7 deaths per 1,000 live births, respectively.
- All three mortality rates were similar when comparing the mother's country of birth.
- There was a much higher mortality rate for babies of Indigenous women than non-Indigenous women: 14.8 vs 9.3 perinatal deaths per 1,000 total births; 10.4 vs 7.1 stillbirths per 1,000 total births; and 4.4 vs 2.3 neonatal deaths per 1,000 live births.
- Babies born to mothers with a usual residence in very remote areas had around twice the rate of perinatal deaths per 1,000 births (19.6), stillbirth (14.6) and neonatal deaths per 1,000 live births (5.1) compared to all other areas.
- Perinatal, stillbirth and neonatal death rates were lower for mothers in the least disadvantaged areas but were elevated in the most disadvantaged areas.



Figure 24 Perinatal, stillbirth and neonatal death rates, 2000–2019

Source: AIHW analysis of the National Perinatal Mortality Data Collection and the National Perinatal Data Collection. Data note: The rate is the number of deaths per 1,000 births. Stillbirth and perinatal death rates were calculated using total births (live births and stillbirths). Neonatal death rates were calculated using live births. Data from the Northern Territory for 2000 to 2002 and from Victoria in 2009 are not available so have been excluded from the rate.

## 4.8 Maternal deaths

Although rare, maternal deaths are critical indicators of severe maternal morbidity in Australia. National reporting of maternal mortality is limited to deaths occurring during pregnancy up to 42 days following pregnancy. Data relating to late maternal deaths – deaths occurring between 43 days and one year following the end of pregnancy – are not currently available at a national level in Australia.

- National maternal mortality ratio (MMR) data for 2010 to 2019 are shown in Table 5. The MMR has varied over time, ranging from a low of 5.2 deaths per 100,000 women who gave birth in 2013 to over 7.5 in 2011, 2012 and 2016. It is noted that fluctuations may reflect the normal variability that might be expected with rate events such as maternal deaths.
- In 2019, there were 17 direct or indirect maternal deaths in Australia 6.7 deaths per 100,000 women who gave birth.
- Between 2012 and 2019, the MMR was higher for Indigenous women than non-Indigenous women (17.5 vs. 5.5). The MMR was also elevated for women who smoked during the first 20 weeks of pregnancy (16.9) and for women living in remote and very remote areas (10.8).



 Table 6 provides a summary of MMR for select causes of deaths for triennia 2000-2002 to 2015-2017. Over time, there has been a decrease in the MMR for deaths due to obstetric complications, and an emerging trend towards increasing psychosocial causes of maternal mortality.

	Mat	ernal mortality rat	tio <sup>(b)</sup>	Number of	Coincidental	Deaths
Year	Direct	Indirect	Total <sup>(c)(d)</sup>	women who gave birth <sup>(e)</sup>	deaths <sup>(f)</sup>	awaiting classification <sup>(g)</sup>
2010	3.7	3.4	7.4	295,456	4	0
2011	3.0	5.0	8.4	297,343	5	0
2012	5.2	2.9	8.1	307,570	5	0
2013	2.3	3.0	5.2	304,777	5	0
2014	3.6	3.2	7.1	307,844	5	0
2015	2.0	3.6	5.6	304,268	2	0
2016	4.2	3.5	7.7	310,247	3	1
2017	1.3	4.3	5.6	301,095	7	0
2018	3.3	1.7	5.0	298,630	2	2
2019 <sup>(a)</sup>	3.8	2.6	6.4	265,699	3	1
Total	3.2	3.3	6.7	2,992,929	41	4

#### Table 5Maternal mortality ratio by year, 2010–2019

Source: AIHW National Maternal Mortality Data Collection annual update 2019-data tables

AIHW data notes: (a) Data not available from Western Australia for 2019. (b) Per 100,000 women who gave birth. (c) Deaths 'not classified' are those considered to be related to the pregnancy or its management, but could not be further classified as either 'direct' or 'indirect'. These deaths are included in the maternal deaths total. These do not include deaths that are awaiting classification. (d) Includes direct deaths, indirect deaths and not classified deaths. (e) Number of women who gave birth to at least 1 baby (either a live birth or a stillbirth) of 20 or more weeks' completed gestation or with a birthweight of 400 grams or more. Excludes Western Australia for 2019. (f) Coincidental deaths are not included in the maternal mortality ratio calculated. (g) For 2016-2019 there are 4 deaths awaiting classification. Deaths awaiting classification may be classified in the future as a direct or indirect maternal death, or as a coincidental death, so are excluded from MMR calculations until they are classified.

Cause of Death	2000 - 2002	2003 - 2005	2006 - 2008	2009 - 2011	2012 - 2014	2015 - 2017
Suicide	1.1	0.5	0.5	0.6	0.7	1.2
Cardiovascular disease	1.6	1.7	0.9	1.0	1.0	0.9
Amniotic fluid embolism	1.3	1.0	0.8	0.5	0.2	0.5
Thromboembolism	0.4	0.6	0.6	0.8	0.8	0.5
Sepsis	2.0	0.6	0.3	1.1	0.5	0.7
Non-obstetric haemorrhage	1.2	0.6	1.0	1.1	1.1	0.3
Hypertensive disorders	0.7	0.8	0.3	0.5	0.4	0.2
Obstetric haemorrhage	1.2	0.5	0.5	0.8	0.7	0.2
Early pregnancy <sup>(b)</sup>	0.1	1.0	0.2	0.1	0.2	0.1
Total MMR <sup>(a)</sup>	11.1	8.4	6.9	7.4	6.8	6.4

#### Table 6 Triennial maternal mortality ratio (MMR) by selected causes of death, 2000-2002 to 2015-2017

Source: AIHW Supplementary data tables for the Maternal deaths in Australia 2015–2017 report

AIHW data notes: (a) MMR per 100,000 women who gave birth. (b) Includes deaths related to miscarriage, termination of pregnancy, ectopic pregnancy and gestational trophoblastic disease. For periods prior to 2006, data are sourced from historical reports as published in *Maternal deaths in Australia 2012–2014*. For 2006 onwards, data elements may not align with that previously published as a result of updated or revised information or classifications being provided to the National Maternal Mortality Data Collection.



## 4.9 Maternity models of care

The Maternity Care Classification System (MaCCS) is a **service-level** data collection on the active maternity models of care available to women in Australia. It is a national system for classifying models of care based on characteristics around three domains: the women for whom a model is designed; the carers working within the model; and aspects of how care is provided. The scope of the MaCCS includes antenatal, intrapartum, and postnatal care. Each model of care classified has a unique model of care number and can also be categorised into one of eleven major model categories.

Information entered about each model forms the basis of the Model of Care National Best Practice Data Set (Moc NBPDS). Collection of data relating to models of care is supported by the MaCCS Data Collection Tool (DCT). A report on maternity models of care using the Moc NBPDS was published for the first time in 2021 and updated in 2022.

Findings from this update have been prioritised for inclusion in this Baseline Report because there was strong interest in models of care among stakeholders consulted as part of this project, and because the importance of continuity of care is emphasised in the Strategy. However, it is important to note that a **national baseline for all available maternity models of care is not yet available** because reporting into the MaCCS is not mandatory, it is not known whether all available models of care have been entered by services with at least one active model, and there is poorer coverage of private midwifery care than other major categories.<sup>78,79</sup>

As shown in Table 7, at a national level public hospital maternity care was the most common active model of care reported in the MoC NBPDS, followed by Shared Care, midwifery group practice caseload care and private obstetrician care. Overall, 37% of the active models of care reported in 2022 had **no** continuity of carer during the antenatal, intrapartum, or postpartum periods (Table 8).

Major model category	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Public hospital maternity care	52.6	40.0	31.2	32.5	30.0	52.2	42.9	20.8	40.4
Shared care	12.7	18.7	13.9	21.4	16.0	0.0	9.5	25.0	15.3
Midwifery group practice caseload care	13.1	8.0	25.7	6.3	22.0	17.4	19.0	8.3	14.8
Private obstetrician (specialist) care	8.6	18.0	10.9	7.9	14.0	13.0	19.0	4.2	11.2
Public hospital high risk maternity care	5.8	2.7	5.0	4.0	6.0	4.3	4.8	4.2	4.7
General Practitioner obstetrician care	3.4	2.7	1.5	10.3	8.0	0.0	0.0	0.0	3.8
Remote area maternity care	1.4	0.0	3.5	4.8	0.0	13.0	0.0	25.0	2.9
Combined care	1.4	3.3	2.0	6.3	2.0	0.0	4.8	0.0	2.6
Private midwifery care	0.0	2.0	5.0	4.8	0.0	0.0	0.0	0.0	2.1
Team midwifery care	0.7	4.0	1.0	1.6	2.0	0.0	0.0	12.5	1.8
Private obstetrician and privately practising midwife joint care	0.3	0.7	0.5	0.0	0.0	0.0	0.0	0.0	0.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

#### Table 7 Proportion of models of care, by major model category and jurisdiction, 2022

Data source: AIHW—MoC NBPDS. Data tables for Maternity models of care in Australia, 2022

AIHW Data notes: Analyses are based on the number of active models of care in the MoC NBPDS, at 30 April 2022. Active models are those in use at a maternity service; Some major model categories are not represented in some jurisdictions. This may be because these models of care have not yet been classified by maternity services in these jurisdictions, or because health system structures and care frameworks differ between jurisdictions.

Extent of continuity of carer	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
No continuity of carer	34.4	40.7	32.2	45.2	36.0	39.1	19.0	70.8	37.3
Antenatal period only	18.2	22.7	13.9	13.5	12.0	17.4	33.3	12.5	17.1
Antenatal and postpartum periods	19.6	5.3	9.4	14.3	12.0	13.0	4.8	4.2	12.7
Whole duration of maternity period— antenatal, intrapartum and postpartum	25.8	30.0	40.6	26.2	40.0	30.4	38.1	12.5	30.8
Other	2.1	1.3	4.0	0.8	0.0	0.0	4.8	0.0	2.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

#### Table 8Proportion of models of care, by continuity of carer and jurisdiction, 2022

Data source: AIHW—MoC NBPDS. Data tables for Maternity models of care in Australia, 2022

AIHW Data notes: *Continuity of carer* is a measure of the one-to-one care provided by the same named caregiver across the antenatal, intrapartum and postnatal periods; Other includes where there is continuity of carer in the antenatal and intrapartum periods only, or the intrapartum and postpartum periods only; Analyses are based on the number of *active* models of care in the MoC NBPDS, as at 30 April 2022. *Active* models are those in use at a maternity service.

The Medicare Benefits Schedule (MBS) includes a range of items by participating midwives, that is, midwives endorsed by the Nursing and Midwifery Board of Australia who work in a collaborative arrangement as defined in legislation. These items were introduced in 2010 and a summary included in this report at the request of the Department.

Since 2010, the volume of services provided under the antenatal and postnatal MBS items for participating midwives has steadily increased, most rapidly during 2020 (Figure 25). In the financial year 2021/22 there were 114,705 antenatal services and 64,245 postnatal services recorded. Other MBS items billed by participating midwives included management of labour and video consultations. These remain less frequent, amounting to 921 and 810 services respectively in 2021/22.



#### Figure 25 Attendances by participating midwives, 2010-2022

Data source: Services Australia, Medicare item reports

Data notes: Antenatal attendances include items 82100, 82105, 82110, 82115; Postnatal attendances include items 82130, 82135, 82140; management of labour attendances include items 82118, 82120, 82123, 82127; Video consultation attendances include items 82150, 82151, 82151.

In response to the COVID-19 pandemic, new MBS items for short (up to 40 minutes) or long (at least 40 minutes) telehealth or phone attendances by participating midwifes were introduced. The volume of services provided under these items has increased over time. However, total numbers remain relatively low compared to the number of women giving birth annually. In 2021/22, the most services were in short antenatal telehealth / phone attendances by participating midwifes (17,549) and the least in long postnatal care (4,828).





#### Figure 26 Telehealth and phone attendances by participating midwives, 2020-2022





# 5 Monitoring and evaluation of the Strategy

This section reports stakeholders' views regarding the ongoing monitoring and evaluation of the Strategy. Interviewees were asked about the strengths of the current Monitoring and Evaluation Framework (MEF) and opportunities for improvement. The interviews explored the strategic and practical considerations that will need to be considered when implementing the MEF and priorities for action and measurement.

## 5.1 Views of the current monitoring and evaluation framework

The MEF was seen as having excellent potential for initiating discussions around monitoring and measurement of progress. The evaluation questions were regarded as relevant, important and comprehensive, and monitoring regarded as essential. Because of its breadth of focus, the Strategy and accompanying MEF may help align efforts and establish priorities for action and measurement, although stakeholders emphasised the need for more comprehensive baseline data and support to implement both the Strategy and the MEF.

Numerous stakeholders felt that **targets and metrics could be better defined** in the Strategy and MEF, along with accountabilities and timelines for responses by jurisdictions and organisations. It was difficult to know whether processes were on track, for instance, whether clinical guidelines had been adopted, whether actions had been completed, or whether sufficient training had been provided to health professionals. Having a clear, specific set of indicators (for outcomes) and thresholds to define success (for processes) would help to assess the national picture more consistently and accurately.

According to some stakeholders, reaching agreement on appropriate targets would not be straightforward. Although jurisdictions might endorse the Strategy's general direction and overarching statements of intent, it may be more difficult to pin stakeholders down to specific targets and areas of responsibility for action and monitoring. The presence of **strong, divergent perspectives on what constitutes best practice** in maternity care, and what constitutes acceptable evidence, may complicate the process further.

In addition to agreement on targets and metrics, it will be necessary to reach consensus on the **transfer and use of jurisdictional data** in national monitoring. States and territories have differing views on the necessity of maintaining control over health service data versus sharing it freely and contributing to a national data set.

Another concern raised by stakeholders was whether measurement of performance against the Strategy would be useful (valid) and trustworthy (reliable). This encompassed two issues. First, stakeholders want to see **meaningful targets** that provide information to guide service development, using a combination of quantitative and qualitative measurement approaches. Second, stakeholders want assurance that **comparisons of performance** against the targets will consider relevant differences among services, jurisdictions, and population characteristics.

Stakeholders acknowledged the challenges associated with **obtaining complete, timely data** for the full range of activities in the Strategy. Often, there is no single source of information on the services provided or the outcomes achieved so understanding whether services are meeting women's needs requires piecing together data from a variety of disparate datasets. However, some of these datasets do not contain items that would indicate the consumer is pregnant or receiving care in the year after birth. This is especially the case for data related to mental health and psychosocial risk and protective factors, and for outcomes that extend beyond 42 days following the end of pregnancy, including maternal deaths. In order to implement the MEF, the practical challenges relating to data capture and capacity to capitalise on existing data will need to be addressed as a national priority.

## 5.2 Strategic and practical considerations

## 5.2.1 National leadership

Stakeholders expressed a desire for national leadership in shaping and guiding the implementation of the Strategy's MEF. There was a perceived need for discussion and agreement around refining targets and metrics



for monitoring and negotiating access to datasets, both to address barriers to implementation, and to bring the Strategy into sharper focus as a priority for action.

The implementation plan will need to consider the varying spheres of influence for different stakeholder groups. Another task will be to establish lines of accountability for the implementation of the MEF. Guidance and oversight (for example, from a group such as the Senior Officials Group or similar) will be required to coordinate and harmonise efforts by all jurisdictions towards shared goals.

Although jurisdictions and peak groups have agreed to the general principles of the Strategy, it does not appear to have stimulated responses by the states and territories to the extent hoped for. Stakeholders attributed this to competing priorities, particularly around the COVID-19 pandemic and resulting resource and workforce constraints. One action that could help build momentum for the Strategy is to agree on specific, measurable targets for implementation. Stakeholders expressed the view that establishing agreement around such targets – and timelines for achieving them – was a crucial step towards implementing the MEF.

Specific targets may be easier to translate into concrete, operational directives and targeted investments, particularly in workforce planning, which many stakeholders agree is essential to implementation of enabling activities. Process measures for monitoring and evaluation could include examining how the Strategy has been embedded in policy, service planning and service delivery across jurisdictions, with clear responsibilities for implementation.

## 5.2.2 Data collection

One of the major practical considerations is gaining access to data across jurisdictions to enable national tracking of progress towards improving service delivery and outcomes. A common view was that this will not be an easy or straightforward task. Considerable work on the development of data systems is required before ongoing monitoring and evaluation of the Strategy can be implemented successfully. In addition, jurisdictional sensitivities around the sharing of data will need to be addressed carefully and the benefits demonstrated. In addition to data collections commonly used for routine reporting, such as the National Perinatal Data Collection, potential data sources for the MEF identified by stakeholders included:

- The Maternity Care Classification System and the future inclusion of two of its data elements primary model of care and model of care at birth in the National Perinatal Data Collection.
- Perinatal and maternal mortality collections, the National Coroners Information System, admitted and non-admitted patient collections, Medicare benefits Schedule and Pharmaceutical Benefits Scheme data.
- National surveys.
- The proposed digital pregnancy health record and digital child and family health books, which could be used to track some child outcomes in the first few years.

Examining screening rates for typical antenatal tests could help encourage and monitor action, although there are acknowledged issues with the quality and completeness of MBS data which would need to be addressed. Several stakeholders advised that without linkage with primary health care (MBS) data it will be difficult to assess the extent and preventive impacts of GP shared antenatal care and pre-conception care which is likely to help address social determinants of mother and child outcomes.

Wherever possible, measures chosen to implement the MEF should align with those already in use, for example:

- indicators of the ACSQHC clinical care standards
- indicators chosen for other relevant strategies and action plans for Australian maternity services (notably the National Stillbirth Action and Implementation Plan Monitoring and Evaluation Strategy).

To maximise the utility of existing datasets, including in data linkage, consideration should be given to the inclusion of data items which will enable researchers to examine outcomes for at-risk population groups (with appropriate provisions for the protection of privacy and confidentiality, cultural engagement, and ethical



approval). For example, the national core maternity indicators do not currently allow examination of issues around equity of access for all priority populations, an important aspect of the Strategy. Consideration could be given to inclusion of additional indicators, such as mental health comorbidity and outcomes.

If new data collections are proposed for monitoring and evaluation, stakeholders would like to see the burden of data collection taken into consideration, so that data capture mechanisms are easy to use, accessible, and not onerous. A variety of data collection methods are seen as desirable, with attention to ensuring that data capture is representative of diverse populations, including Aboriginal and Torres Strait Islander women, those from culturally and linguistically diverse backgrounds, transgender and gender-diverse people and women living with disability or chronic illness.

#### 5.2.3 Patient-reported measures

Stakeholders emphasised the need for measures and metrics that are meaningful to women. Including qualitative data collection in evaluations was seen by some stakeholders as essential, not just to capture women's experiences, but also to understand nuanced issues which may not be evident in statistics.

There is an important place for ongoing collection of standardised PREMs and PROMs. Incorporating these into routine care could provide information to assist with shared decision making, as well as building datasets that may be reported regularly for monitoring and linked with administrative data for evaluation. Two validated PREMs referred to during consultations were the Mother's Autonomy in Decision Making scale,<sup>80</sup> and the Mothers on Respect Index,<sup>81</sup> which align with the Strategy's values of respect and choice.

Linking PREMs, PROMs and clinical data could also illuminate relationships between clinical practice and outcomes from the patient's perspective. Findings from such evaluations could be valuable in guiding quality improvement efforts to enhance women-centred care.

## 5.2.4 Benchmarking

Several stakeholders suggested a program of benchmarking, if conducted appropriately and with stakeholder buy-in, could be a prompt to action and a mechanism for both accountability and quality improvement. Ongoing, systematic monitoring should focus on assessing the performance of services against the Strategy and highlighting effective practices and models of care. Annual reporting – in a concise and interpretable format – could enable comparisons and promote discussions about what the data mean, to build an understanding of observed differences.

To be meaningful and credible to stakeholders, reporting of benchmarked data should adjust for relevant population differences. Otherwise, there is a risk that stakeholders will not take findings seriously, or will 'get completely lost in data that doesn't apply' to their situation or context.

There was some wariness around setting pass-or-fail key performance indicators to measure progress towards the Strategy's goals. These kinds of targets are generally seen as a negative means of driving change and can distort reporting, affecting data quality. This approach was contrasted with productive uses of benchmarked data, including existing approaches led by Women's Healthcare Australasia in partnership with member services, to understand unwarranted variation in procedures and outcomes, target and inform quality improvement efforts, and track progress towards the goals of the Strategy.

## 5.2.5 Analysis and reporting of outcomes

Considerations around outcome reporting are both strategic and practical in nature. Stakeholders would like to see succinct, transparent, timely reporting used as a driver for change. Reports should be simple to interpret and accessible to those who can act on the findings. Some suggested a dashboard or report card format, summarising the most relevant information, whereas others would prefer more detailed reporting against enabling activities. In general, it was assumed that the audience for reporting would be jurisdictions, services, and peak organisations. Public reporting was mentioned by only a few stakeholders, and there was some question about how useful this might be.



Ideally, regular reporting against the Strategy would include private obstetrics and private midwifery practice. Stakeholders understood that this was outside the scope of the Strategy, but pointed out that more than one quarter of births in Australia take place under private obstetric care in private hospitals.

Several stakeholders nominated strategic investment in data linkage research as an essential component of evaluating the Strategy. Currently, capacity for data linkage varies across jurisdictions, with researchers in some states experiencing significant delays in gaining access to linked data. Allowing greater access to routinely-collected and linked administrative datasets could allow small, practitioner-led research projects to generate and investigate novel questions of relevance to policy and practice, such as relationships between specific patterns of service use, service user characteristics and health outcomes. One stakeholder described the current cost of data access as 'prohibitive' (S31); another pointed out that the timeframe for small-scale data linkage studies, including the requirement for ethical approval and the time taken to access data, meant that individual studies were not feasible for quality improvement. Nevertheless, ethical issues around privacy and confidentiality would need to be considered, especially for small groups of service users where the risk of re-identification was higher.

Linkage could include state-based records such as perinatal data collections, hospital data collections and registries of births, deaths, and marriages, along with MBS data to capture primary care, mental health care and private midwifery and obstetrics items. Although technically straightforward, establishing a standardised, linked dataset for research and evaluation purposes would be politically sensitive and require considerable work to gain agreement and establish appropriate data governance mechanisms. Even though it aims to maximise the use of existing data, this approach was not regarded by stakeholders as 'low-hanging fruit' but as an aspirational goal.

## 5.2.6 Research translation

Another practical consideration for implementation of the MEF is how to improve access to evidence on best practice to inform quality improvement. Postpartum care was one area in which evidence-based guidance was seen as lacking. A useful outcome indicator for the Strategy in this area might be the development of care guidelines and gaining endorsement by Australian medical and nursing colleges. The first step towards understanding the baseline for improving postpartum care could be a survey of current practice and a comprehensive needs assessment.

Stakeholders would like to see increased support for rigorous evaluation of initiatives and models of care focusing on discrete elements of the Strategy. These studies would need to identify, not just what is working, but how and why the Strategy's enabling activities are effective, and for whom.

One stakeholder suggested a national research translation centre as a repository of evidence from the published literature and local evaluation studies of maternity models of care. This could assist services with understanding the processes involved in redesign, and provide case studies or examples of good practice.

## 5.3 Priorities for action and measurement

Stakeholder interviews explored what actions are required to support the enablers in the Strategy and implementation of the Strategy's Monitoring and Evaluation Plan. The resulting 'priorities for action and measurement' are summarised in the following table, grouped in themes for each of the four values in the Strategy. They are discussed below.



Value & themes	Priorities for action & measurement	Suggested measurement approaches
Safety		
Safety and quality outcomes	Understand variation in practice and outcomes	Continue monitoring variation in practice and outcomes overall and for specific population groups
	Understand safety impacts of interventions designed to achieve the goals of the Strategy	Conduct evaluation studies which include assessment of safety and quality outcomes; make these available to other services considering such interventions
	Examine implementation of evidence-based practice and effects of clinical guidelines on care safety and quality	Develop indicators linked with new evidence- based guidelines when required
	Ensure national policy settings are appropriate in relation to the provision of safe, high-quality care across settings and populations	Evaluate impacts of policy and funding decisions including any perverse or adverse consequences
Workforce capacity	Implement and promote training and continuing professional development for specialist skills such as trauma-informed care, perinatal mental health, and postpartum care	Evaluate update of training and impacts on knowledge, skills and practices
	Establish pathways to practice which equip rural and remote medical, nursing and midwifery staff with the skills required for those contexts	Monitor and report on progress towards gaining agreement for and recognition of dedicated rural and remote practice pathways for health professionals
Cultural safety	Ensure national policy settings are appropriate in relation to the provision of safe, high-quality care across settings and populations	Evaluate impacts of policy and funding decisions including any perverse or adverse consequences
	Refine methods for measuring cultural safety for affected groups	Co-design and test process and outcome measures around agreed operational definitions of cultural safety
	Increase access to culturally safe care for Aboriginal and Torres Strait Islander women and families	Use data from maternity service surveys to assess the extent to which Aboriginal and Torres Strait Islander women feel they are receiving culturally safe care; combine this in future with quantitative data about access to preferred models of care
	Increase access to culturally safe care for women and families from CALD groups	Use data from maternity service surveys to assess the extent to which women from CALD groups feel they are receiving culturally safe care; combine this in future with quantitative data about access to preferred models of care
Respect		
Leadership which strongly promotes and supports	Continue existing multidisciplinary models of postpartum care for 'at risk' women and extend them to be available for all women	Conduct evaluation studies of postpartum care models which incorporate multidisciplinary assessment, discussion and referral to appropriate services
multidisciplinary care	Promote early and appropriate referral to specialist services to support women and families in early pregnancy	Conduct evaluation studies of interventions to enhance communication; implement process measures such as development and use of referral pathways in early pregnancy
	Promote effective handover of care between services (antenatal – intrapartum – postpartum)	Implement process measures such as development and use of referral pathways;

# Table 9 Stakeholder priorities for action and measurement by the Strategy's values



Image: space s
enhance communication         enhance communication           Overcome historical barriers to cooperation and communication between professions in maternity care         Assess the training of medical, nursing and midwifery students to promote capacity for multidisciplinary cooperation and communication           Experiences of care         Incorporate routine use of PROMs and PREMs into maternity care         Monitor and report PROMs and PREMs at national, jurisdictional and service levels           Adapt and validate PROMs and PREMs for cultural groups including Aboriginal and Torres Strait Islander peoples         Conduct evaluations of efforts to develop culturaly appropriate instruments           Build an evidence base for maternity PROMs and PREMs in Australia         Conduct evaluations of efforts to develop cultures of care, or impacts of changes in service delivery and care provision (in line with the Strategy) on subjective outcomes and experiences           Evidence-based information to empower         Create a standard, accessible document (e.g., thecklist) based on the pregnancy care guidelines and provide this to all Australian women in early pregnancy         Document (e.g., in the EMR) the provision of this information in early pregnancy along with items capturing evidence that the pregnancy care guidelines are followed by providers throughout antental care; conduct linkage studies evaluating care outcomes           Ensure information provided by hospitals clearly evidence base         Evaluate materials such as online resources and handouts provided to women by services           Provide education to the public around the role around screening tests and genetic testing         Evaluate materials such as o
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care evaluate processes and outcomes for women
and bables
Promote effective handover of care between Implement process measures such as
services (antenatal – intrapartum – postpartum) development and use of referral pathways
Ensure availability of maternal and child health Improve workforce estimates and data on
nurses or similar across and within jurisdictions; caseloads; study the extent and impact of
gain national agreement on required differences in qualifications and skills required
qualifications In this workforce across Australia
Understand underences in continuity of primary – Lexannine and compare IVIBS data on number of
care provision throughout pregnancy hirth and different providers women are accessing



Value & themes	Priorities for action & measurement	Suggested measurement approaches		
Access to	Reduce variation in mental health care access	Extend mandatory maternal data collection		
perinatal mental health	and provision	beyond six weeks postpartum, including maternal deaths		
care	Develop systems to support perinatal mental	Implement process measures such as systems		
	health care in primary care settings	for automatic prompting routine mental health screening		
	Support referral to specialist services (e.g.,	Track links between referrals and subsequent		
	mental health care) following a positive screening test	use of specialist services; introduce maternity flag in MBS and other data collections		
	Improve workforce capacity and skills in mental	Audit availability of specialist mental health		
	health and pregnancy care	skills in maternity workforce		
	Encourage multidisciplinary working to support	Assess the training of medical, nursing and		
	perinatal mental health	midwifery students to promote capacity for multidisciplinary cooperation		
	Evaluate effectiveness of early intervention to	Review existing evidence, conduct cost-benefit		
	prevent acute or severe perinatal mental illness	analysis of service redesign versus alternatives		
		(e.g., use of MBS mental health items, inpatient		
		mother and baby beds)		
	Address birth trauma and impacts on	Develop data around birth trauma including		
	relationships with bables and on ruture	prevalence and effectiveness of service		
Equity of access	Improve workforce capacity in rural and remote	Improve workforce estimates and data on		
across locations	areas	caseloads; conduct studies to understand		
and population		reasons for difficulty in recruiting and retaining		
groups		staff		
	Understand impacts of existing policies,	Monitor indicators such as distance or time		
	strategies and service provision frameworks on	travelled to give birth, and time spent away		
	outcomes for women and babies in rural and	from community for medical reasons before		
	remote areas	and after giving birth, as well as health		
	the density of an elimination of the information	outcomes for these women		
	Understand and Improve access to Information	Evaluate effectiveness of existing		
	about materinity care and related services such	resources in communities with limited internet		
	sexual assault care	and phone coverage) in linking women with		
		services		
	Evaluate access to culturally safe and	Document availability of care in preferred		
	appropriate care for Aboriginal and Torres Strait	language (via interpreters or community		
	Islander women and those from CALD groups	language maternity care providers)		
	Strengthen primary care where needed to	Monitor use of MBS items for GP shared care,		
	improve equity of access and outcomes	postpartum care, perinatal mental health care,		
		flag in MBS		
Access to	Understand and improve access to postpartum	Assemble information on existing services and		
postpartum care	care for all Australian women and bables	models of care; conduct studies of what women		
	Establish ovidence based models of sare and	want and need from postpartum care		
	establish evidence-based models of care and	development and untake of best-practice		
		guidelines		
	Promote effective handover of care between	Implement process measures such as		
	services (antenatal – acute – postpartum) for all	development and use of referral pathways and		
	women	discharge planning		
	Promote access to breastfeeding support	Monitor and evaluate the implementation of		
	consistent with the national strategy	the national breastfeeding strategy		



Value & themes	Priorities for action & measurement	Suggested measurement approaches
	Understand impacts of COVID-related changes in postpartum care provision and service delivery	Conduct studies of outcomes for families whose care was affected by COVID-related changes in service delivery
	Enhance handover of care and follow-up for women at risk of chronic disease due to pregnancy complications	Implement process measures such as development and uptake of best-practice guidelines, referral pathways and discharge planning

For the value of safety, measurement options could include research examining the impacts of funding mechanisms and policy settings on the use and rates of intervention in pregnancy and birth; continuing to monitor and report quality and safety outcomes for specific population groups as well as all women and babies; and establishing indicators linked with new evidence-based guidelines when they are developed. Stakeholders would like improved access to evaluation findings on the effectiveness of interventions to address the goals of the Strategy, including how programs were developed and adapted to local needs, and examples of how services have used evidence-based guidelines in quality improvement (e.g., as audit standards) in areas of interest.

Measurement of cultural safety can be challenging as it is inherently subjective and multifaceted and cannot be neatly captured by survey questions. The Congress of Australia's Aboriginal and Torres Strait Islander Nursing and Midwifery (CATSINaM) is leading work on how to measure this concept. Monitoring and evaluation should be undertaken with sensitivity to cultural needs and preferences and guided by steering committees or advisory groups with consumer representatives from the affected groups.

For the value of respect, monitoring and evaluation of professional communication and collaboration could be focused around indicators of integration such as the existence and use of referral pathways and multidisciplinary team working. Evaluation studies could be conducted around interventions to improve communication or provide continuing education to health professionals, as well as the content and delivery of tertiary training programs.

The other major focus for stakeholder comments in relation to respect was the need to monitor and evaluate women's experiences of care. Several stakeholders made the point that health professionals tend to think they are providing 'woman-centred care' as long as they are kind and doing the best job they can, but this was not sufficient. In order to understand whether care is 'woman-centred', patients need to be asked about their experiences and outcomes as these subjective elements of care are crucial. Routine, numerical information cannot completely capture and reflect care quality from the patient's perspective; therefore there is a need to supplement these data sources with monitoring and evaluation methods that rely on patient reports.

Several stakeholders suggested that incorporation of PROMs and PREMs should be a requirement of any services that receive public funding in any form, including private providers. These instruments should be codesigned with consumer organisations and adapted and validated for use with different cultural groups, including Aboriginal and Torres Strait Islander peoples.

Measurement options for the value of choice could include tracking the provision of information about the pregnancy care guidelines as well as provision of care according to the guidelines, preferably through a routine data collection mechanism such as the electronic medical record. One-off evaluations of the effectiveness of information materials such as leaflets and online resources could be conducted. To measure shared decision making, mixed-methods evaluation studies could be conducted to understand how this is 'done' in different contexts and with various providers, and to assess the extent to which women have access to evidence-based information and the impacts this has on their care experiences and outcomes. The Mother's Autonomy in Decision Making (MADM) scale was one measure that was suggested as potentially suitable for this purpose.

Regarding the value of access, some stakeholders were optimistic that the MaCCS collection will enable monitoring access to models of care but as a standalone collection could not be used to evaluate



effectiveness. For the MaCCS to reach its potential, the two data elements that are scheduled for routine reporting (primary maternity model of care, and model of maternity care at the onset of labour or non-labour caesarean section) will need to be populated using the model ID number, implemented in all hospital obstetric information systems and collected in each jurisdictional perinatal data collections. Linkage to other datasets will be needed to capture the level of detail required to evaluate the delivery and impacts of different models of care over the full perinatal continuum (pregnancy to 12 months following birth).

Currently, reporting into the MaCCS remains voluntary, and while coverage rates are above 80% in all jurisdictions, these rates still vary across jurisdiction and type of service. The next phase of models of care reporting from the AIHW will include an in-focus report providing scoping and initial analysis of the data quality of the models of care data collection, and initial analysis of outcomes for mothers and babies based on model of care, continuity of care and access to care. This program of work is scheduled for further analysis and release in March 2023.

To avoid duplication of effort across jurisdictions and services, consideration could be given to developing a national database or repository of information and resources that address the values, strategic directions and enabling activities of the Strategy, noting those that have been co-designed and evaluated.



## 6 Discussion

The stakeholder consultations conducted in preparation for this report demonstrated varying levels of engagement with the Strategy since its release in 2019. Yet it was evident that all stakeholder groups are committed to designing and implementing maternity service systems that hold the woman at the centre and which deliver on the Strategy's core values of safety, respect, choice and access. Stakeholders were generous in offering their ideas about the priorities for action and measurement and there were points of agreement which could provide a foundation for developing a shared vision of the way forward for monitoring and evaluation of the Strategy's enabling activities.

Overall, the existing monitoring and evaluation framework was viewed as a good starting point for discussion around targets for the Strategy and how progress might be measured. Nevertheless, stakeholders had some reservations, particularly around establishing realistic expectations in a post-COVID, resource-constrained healthcare environment. The presence of strong, diverging opinions suggests that reaching consensus on the best way to implement ongoing monitoring and evaluation could be challenging.

Analysis of the stakeholder data highlighted several barriers to implementation of monitoring and evaluation, including:

- Lack of clarity and agreement around targets and metrics;
- Cross-disciplinary politics around how targets are defined and measured;
- Jurisdictional politics around control of data;
- Concerns around the feasibility of collecting comprehensive, relevant, meaningful data.

In addition, the stakeholder consultations highlighted deep concern about the impact of workforce constraints on the delivery of woman-centred maternity services. There was broad agreement that workforce capacity is of critical importance to all components of the Strategy. However, because the Strategy itself specifically excludes workforce issues, a comprehensive analysis was outside the scope of this project. Given the implications for implementation of ongoing monitoring and evaluation, and indeed implementation of the Strategy itself, it may be worth reconsidering this exclusion and creating opportunities for discussion in future. Other issues specifically excluded from the Strategy, where stakeholders had a clear desire for input and discussion, included private obstetric and midwifery care. Any decision to revise the scope of the Strategy and its monitoring and evaluation implementation plan would require the agreement of all parties.

The qualitative findings in Section 3 represent a cross-sectional 'snapshot' of the situation at the time of the environment scan, stakeholder survey and interviews, and reflect faithfully the views of stakeholders and the extent to which information about current activity is publicly available. The quantitative findings in Section 4 are aligned with key data collections including the AIHW National Core Maternity Indicators. This was a deliberate decision to maximise the benefits from existing, ongoing work and prevent duplication of effort. However, additional indicators will be required to cover the full range of expected outputs and outcomes from the enabling activities of the Strategy. This is discussed further in Part 2 of this report.

It is acknowledged that it will not be possible to attribute change in the National Core Maternity Indicators and the other data items reported in Section 4 to any impact of the Strategy alone, however, causal attribution is not a critical issue in the type of monitoring and evaluation activities proposed. The Strategy is not a simple intervention that lends itself to a controlled trial, but a guidance document developed by a council of stakeholders and agreed by health ministers across Australia. It does not include binding targets or accountability mechanisms, and these are not necessarily required as it will require a collaborative and cooperative effort to achieve the Strategy's goals. The operating environment for the Strategy is extraordinarily complex, in terms of the variety of arrangements for funding and delivery of services. A huge range of factors at various levels will contribute to the outcomes to be measured in the future, ranging from individual women and health care professionals to service-level policies and governance structures to jurisdictional strategy to national funding for research programs. For these reasons, ongoing monitoring and evaluation should not take a simple accountability approach – pass or fail – but consider how measurement



can be used to contribute to learning and development. It will not be possible to measure everything at once, and there is an important role for a governance body, representing all stakeholders, in setting priorities and helping to focus monitoring and evaluation efforts to maximise benefits and utilisation.

Stakeholder priorities for ongoing monitoring and evaluation are presented in Section 5. Although the focus was on collecting data to inform the MEF implementation, many stakeholders took the opportunity to express their views on implementation of the Strategy itself, and on system improvement in general; it was apparent that coordinated improvement efforts were considered essential and it makes sense for these to precede the implementation of monitoring and evaluation. Arguably, the outcomes that stakeholders would most like to achieve are likely to be the outcomes they would prioritise to monitor and measure; this assumption has guided the way in which findings from the stakeholder consultations were used to shape the implementation plan for ongoing monitoring and evaluation.

The implementation plan (Part 2 of this Baseline Report) provides a timely opportunity to reengage stakeholders with the Strategy and to reinvigorate its enabling activities more broadly. Ensuring that monitoring and evaluation findings are relevant for, and accessible to, multiple audiences will be integral to sustainability. There is potential to think innovatively about how existing and new information could be collected, analysed and reported on to increase transparency and reduce duplication and stakeholder burden. The implementation plan also provides an important opportunity to prioritise the collection of patient-reported information, which stakeholders agreed should be central to future monitoring and evaluation of woman-centred care.

It is important to note that the time constraints precluded deep engagement with stakeholders representing the interests of Aboriginal and Torres Strait Islander health professionals, service providers, mothers and families. For similar reasons, it was not possible to achieve strong engagement of stakeholders representing the interests of culturally and linguistically diverse groups including migrant and refugee families. We acknowledge that incorporating the perspectives of these stakeholders will be essential to ensure that the Baseline Report and implementation plan accurately capture and serve the needs of all Australians, including groups at risk of poor maternity outcomes. We strongly recommend further consultation with these groups by the Department with a timeframe that allows for meaningful and respectful engagement, preferably facilitated by those with appropriate community connections.

## 6.1 Conclusion

This is Part 1 of the Baseline Report and provides a starting point for the ongoing monitoring and evaluation of the Strategy. The qualitative data presented here is the baseline status at the time of writing, and the quantitative data describes trends in the key indicators of maternal and neonatal morbidity and mortality, along with maternity service use, in the years leading up to the release of the Strategy. An Implementation Plan for monitoring and evaluation is provided in Part 2. It is hoped that the two reports together provide a foundation for future work to understand the implementation of the Strategy's enabling activities and their impact on care for women and babies in Australia.



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# Appendix 1 Methods

A full report of the stakeholder consultations was presented to the Department in September 2022. This internal document informed the development and content of the Baseline Report Part 1 (this report).

To supplement the summary of methods provided in the Introduction and at the start of Chapter 4, we provide a more detailed description of methods for the two main components of the stakeholder consultations – the interviews and the environment scan – below, along with acknowledgement of limitations.

# Interviews

Consultations with the Commonwealth, state and territory health department representatives, professional colleges, peak organisations, NGOs, consumer advocacy groups and a select number of experts were conducted over an eight week period from 22 June to 19 August 2022.

Potential respondents for the consultation process included organisations or individuals previously involved in the development of Strategy, and in some instances, organisations or individuals recommended by initial stakeholders interviewed. For some stakeholder groups, direct liaison with the Department, the Senior Officials Group and each organisation was required to finalise the selection of the most appropriate representative.

In total, 37 individuals from 33 organisations were consulted. An additional six organisations were invited but did not participate in a full interview because they were not available during the consultation period due to competing commitments, felt the consultation period was inappropriately short or did not respond to the invitation. A list of organisations which participated in the consultation interviews is provided in Appendix 2.

The consultations were conducted over video-conference or phone. Interview questions were tailored to the expertise of the various stakeholder groups and designed to address the key evaluation questions. The interviews took 60 minutes on average, ranging from 29 to 100 minutes depending on the degree of involvement of stakeholders in Strategy-related activities and their level of expertise across each of the evaluation focus areas.

All stakeholders gave permission for the consultants to make audio recordings of the interviews to ensure an accurate record was available for analysis. In conducting the interviews, the project team adhered to the Department's principles for stakeholder engagement activities, ensuring that consultations were purposeful, inclusive, timely, transparent and respectful.<sup>82</sup>

Interviews were transcribed and managed in NVIVO. A modified framework method of analysis was used, as this is highly suited to working with large datasets where the data are derived from semi-structured interviews, multiple researchers are working on the project, and the goal is a holistic descriptive overview.<sup>83</sup> Iterative categorisation<sup>84,85</sup> was used to move from codes and themes to deeper analysis and interpretation of the data as this approach is systematic, comprehensive and auditable.

The project team also had numerous discussions with AIHW representatives regarding routine national reporting of maternal and perinatal data and priority data development activities. Less formal engagement with other stakeholder groups, including the Australian Bureau of Statistics (ABS), Australasian Health Infrastructure Alliance and Emerging Minds, was also undertaken during the project.

# **Environment scan**

The environment scan had two components:

- 1. Identifying any major changes to the context within which maternity services are provided in Australia, including international developments which might influence maternity services in Australia.
- 2. Serving as a data source for answering each of the five key evaluation questions in the Strategy.

Important sources of information included expert advice relating to the development of related monitoring and evaluation frameworks; data development activities; and seminal academic and practice documents



associated with the Strategy and maternity services more generally, including woman-reported experiences and outcomes of maternity care. The environmental scan was informed by the existing knowledge of the evaluation team and captured developments since the Strategy was released.

Scanning was limited to English language documents from the years 2018-2022. Any papers from 2018 referenced in the Strategy were excluded. In some cases, papers published prior to 2018 were included if those papers were not referenced in the Strategy but were considered to be relevant. In addition to Australia, countries considered to be 'in scope' for the environmental scan were the United Kingdom, the United States, Ireland, Canada, and New Zealand.

Medline, CINAHL and APA PsycInfo were searched using the terms (maternity OR obstetrics OR perinatal OR postpartum OR maternal OR childbirth) AND "clinical practice guidelines". Sorted by relevance, this produced 960 results, of which the first 500 were scanned.

The Advanced Google Search function was used to search .au domains using combinations of the following terms and the results of each search were scanned until no more useful results were identified:

- (maternity OR antenatal OR perinatal OR obstetric OR midwife OR pregnancy OR birth OR neonatal OR stillbirth OR "woman-centred")
- (evaluation OR outcomes)
- (postnatal AND access)
- (postnatal AND innovation)
- (improvement OR outcome OR evaluation OR study OR research)
- (standards OR guidelines OR pathways OR strategy OR policy)

Google Scholar was searched using the following terms:

- "evidence based practice" AND implementation AND maternity AND Australia first 200 papers scanned.
- "evidence based practice" AND implementation AND obstetrics AND Australia first 200 papers scanned.

In a small number of instances, articles citing what appeared to be particularly relevant papers were identified using Google Scholar. Citations were downloaded into an Endnote database to keep track of the papers and facilitate referencing.

# Limitations

**Qualitative data.** The environment scan was a purposive search designed to uncover evidence relating to the five key evaluation questions for the monitoring and evaluation project, which were defined in the RFQ. It also sought information about significant changes in the context for the delivery of maternity services in Australia, including strategic initiatives and the impacts of the COVID-19 pandemic. It involved an advanced Google search of domains ending in '.au', plus a key word search of three bibliographic databases. Scanning of the search results was limited to English language documents from the years 2018-2022. Although this approach has produced useful information to complement and cross-check the findings of the stakeholder interviews, the value of this information is dependent on the quality of the source material, over which we have no control. The goal was to identify 'new knowledge' in the public domain since 2019; however, some of these sources utilised data which predated the Strategy. Further, an environment scan is naturally limited by what information is findable.

Not all those invited to be interviewed were available in the timeframe available for the consultation process. In particular, it is important to note that the time constraints precluded deep engagement with stakeholders representing the interests of Aboriginal and Torres Strait Islander health professionals, service providers, mothers and families. For similar reasons, it was not possible to achieve strong engagement of stakeholders representing the interests of culturally and linguistically diverse groups including migrant and refugee families. We acknowledge that incorporating the perspectives of these stakeholders will be essential to



ensure that the Baseline Report and implementation plan accurately capture and serve the needs of all Australians, including groups at risk of poor maternity outcomes. We strongly recommend further consultation with these groups by the Department with a timeframe that allows for meaningful and respectful engagement, preferably facilitated by those with appropriate community connections.

**Quantitative data.** Baseline and trend data presented in this report are based on publicly available data from two main sources; the National Perinatal Data Collection (NPDC) by Australian Institute of Health and Welfare (AIHW) and the Medicare Benefits Scheme (MBS) items reports obtained from Services Australia.

In regard to the NPDC data (from which the National Core Maternity Indicators (NCMI) are derived), this Baseline Report does not include any new analysis rather than reproduces analyses undertaken by AIHW. These analyses come with limitations and caveats which are not repeated here, instead we refer to the specific data notes in Appendix 3.

One of the major limitations of the NPDC data is the time lag until public release. NPDC data are published 18 months after the end of the birth cohort and some data did not become available until the final stages of preparing this Baseline Report. This report did not include a breakdown of the NPDC data by jurisdiction. However, state and territory perinatal data are widely used and reported by the AIHW and other agencies.

The MBS item reports were downloaded from Services Australia. It should be noted that these reports include all MBS claims by registered providers but exclude services provided by hospital doctors to public patients in public hospitals or certain services provided under Department of Veterans' Affairs National Treatment Account. MBS Items are reported in the time period the claims were processed by Services Australia which may be different to the time period in which the service was provided.

MBS item descriptions can change over time. Where this occurred, these changes were reviewed and if these were deemed minor (e.g. rewording) the MBS item was deemed to persist. If the change was substantial, the item was deemed to be 'new' and any previous claims were disregarded. However, the number of claims for MBS items can also be influenced by changes to other, alternative MBS items. MBS items were grouped together into categories to allow better monitoring of services over time.



# Appendix 2 List of organisations that participated in the consultations

Specific organisation / agency
Senior Officials Group representatives
Department of Health and Aged Care
Australian Capital Territory Health Directorate
New South Wales Ministry of Health
Northern Territory Department of Health
Queensland Department of Health
South Australian Department of Health
Tasmanian Department of Health
Victorian Department of Health
Western Australian Department of Health
Colleges, NGOs and other key stakeholder groups (in alphabetical order)
Australian College of Midwives (ACM)
Australian Commission on Safety and Quality in Health Care
Australian Institute of Health and Welfare
Australian College of Rural and Remote Medicine (ACRRM)
Australian Medical Association (AMA)
Australian Nursing and Midwifery Federation (ANMF)
Australian Preterm Birth Prevention Alliance
Australian Psychological Society
Centre of Perinatal Excellence (COPE)
Consumer Health Forum
Homebirth Australia
Maternal Child and Family Health Nurses Australia (MCaFHNA)
Maternal Health Matters
Maternity Choices Australia
Maternity Consumer Network
Maternity policy expert
Molly Wardaguga Research Centre
My Midwives
National Association of Specialist Obstetricians and Gynaecologists (NASOG)
Perinatal Society Australia New Zealand (PSANZ)
Perinatal Anxiety and Depression Australia (PANDA)
Royal Australian College of General Practitioners (RACGP)
Royal Australian New Zealand College of Obstetricians & Gynaecologists (RANZCOG)
Royal Australian New Zealand College of Psychiatrists (RANZCP)
Women's Healthcare Australasia

# Appendix 3 Additional data on trends over time

	2011	2012	2013	2014	2015	2016	2017	2018	2019
		•		In	per cent (	%)			
Australia									
Total	12.9	12.1	11.3	10.6	10.1	9.5	9.5	9.2	9.0
Mother's age at birth									
Younger than 20	35.7	34.6	33.6	32.0	32.3	30.5	32.4	31.1	31.6
20-24	24.8	24.3	22.6	21.9	21.2	20.8	20.7	20.7	20.6
25-29	12.9	12.0	11.2	10.9	10.6	10.1	10.3	10.0	10.1
30-34	8.3	7.8	7.2	6.8	6.4	6.1	6.3	6.0	5.7
35-39	8.2	7.4	7.1	6.4	6.3	6.0	5.9	6.0	5.7
40 and over	8.7	8.5	7.8	7.5	6.8	6.9	6.7	6.3	6.4
Mother's Indigenous status									
Indigenous	47.0	46.6	46.4	44.7	43.8	42.8	43.4	43.1	43.0
Non-Indigenous	14.5	13.8	12.8	12.2	11.8	11.2	11.4	10.9	10.9
Remoteness of mother's usual i	residence								
Major cities	n.a.	9.5	8.5	8.0	7.7	7.1	7.2	6.9	6.7
Inner regional	n.a.	18.3	17.0	16.2	15.2	14.6	14.9	14.3	14.3
Outer regional	n.a.	19.8	18.9	17.8	16.7	16.5	16.8	16.5	16.5
Remote	n.a.	23.6	20.9	19.7	18.8	19.5	17.6	17.9	19.6
Very remote	n.a.	36.0	37.3	33.9	36.9	34.6	33.6	36.3	34.8
Disadvantage quintile of mothe	r's usual re	sidence							
Q1 - most disadvantaged	n.a.	20.5	19.6	18.6	17.9	17.4	17.8	17.2	17.0
Q2	n.a.	15.7	14.6	13.6	12.8	12.2	13.0	12.6	12.4
Q3	n.a.	12.0	10.7	10.0	9.6	9.0	8.4	8.3	8.1
Q4	n.a.	7.9	6.9	6.7	6.4	5.9	5.5	5.5	5.1
Q5 - least disadvantaged	n.a.	4.4	3.7	3.5	3.4	3.1	2.9	2.7	2.7
Hospital sector									
Private	2.7	2.6	2.2	1.9	1.8	1.7	2.0	1.7	1.7
Public	17.1	16.0	14.9	13.9	13.2	12.4	12.2	11.8	11.4
Hospitals annual number of bir	ths								
1-100 births	22.0	20.9	20.5	18.2	17.9	16.6	16.7	16.7	15.9
101-500 births	20.7	18.3	19.4	17.8	15.9	15.3	15.8	14.8	13.1
501-1,000 births	11.8	12.4	10.9	10.2	8.9	8.2	9.4	9.4	8.4
1,001-2,000 births	12.9	12.3	10.9	10.6	11.1	10.6	10.3	10.0	10.1
2,001 births and over	11.8	10.6	10.2	9.6	9.2	8.6	8.5	8.2	8.0

# Table 10Smoking in first 20 weeks, all women giving birth (PI01a), 2011–2019

n.a..: data not available.

#### Data Notes:

1. Data excludes mothers whose smoking status was not stated

- 2. Smoking during pregnancy is self-reported smoking of tobacco.
- 3. Percentages for mother's Indigenous status are age-standardised.
- 4. Source: AIHW analysis of National Perinatal Data Collection. Australian Institute of Health and Welfare 2021. National Core Maternity Indicators. Cat no. PER 95. Canberra: AIHW



# Table 11Smoking after first 20 weeks, all women giving birth who reported smoking during pregnancy (PI01b),<br/>2011–2019

	2011	2012	2013	2014	2015	2016	2017	2018	2019
				In	per cent (	%)			
Australia							-		
Total	70.8	71.6	72.9	72.8	71.8	72.4	72.7	75.5	75.1
Mother's age at birth									
Younger than 20	75.6	76.2	74.8	76.0	74.7	75.7	76.8	79.1	76.1
20-24	73.3	74.4	74.6	74.6	74.5	74.4	74.2	76.4	75.8
25-29	70.1	70.1	72.6	72.5	71.4	71.7	72.3	75.5	75.0
30-34	67.8	68.7	70.8	70.1	69.0	71.3	70.4	73.8	74.1
35-39	68.2	69.0	71.7	71.4	69.1	70.0	72.5	74.6	74.9
40 and over	67.7	72.9	73.6	74.0	74.0	71.7	74.1	75.6	77.2
Mother's Indigenous status									
Indigenous	86.1	87.2	86.7	85.8	84.0	85.9	86.2	87.2	86.2
Non-Indigenous	68.0	69.4	70.5	70.8	69.6	69.6	70.5	73.0	72.7
Remoteness of mother's usual r	esidence								
Major cities	n.a.	66.0	67.2	67.3	65.9	65.9	66.3	70.6	69.7
Inner regional	n.a.	76.2	77.5	77.7	77.3	78.4	78.6	80.0	81.1
Outer regional	n.a.	81.5	80.9	80.4	78.9	81.3	81.8	81.7	81.0
Remote	n.a.	82.4	82.8	83.1	83.5	81.9	82.8	85.1	82.3
Very remote	n.a.	84.5	85.7	85.1	86.8	87.4	86.9	87.5	84.6
Disadvantage quintile of mothe	r's usual r	esidence						-	
Q1 - most disadvantaged	n.a.	77.0	78.5	77.8	77.4	77.6	78.8	81.1	80.0
Q2	n.a.	72.5	74.2	74.4	72.5	73.5	73.9	76.5	77.1
Q3	n.a.	69.4	69.5	70.7	69.2	69.7	69.5	73.5	72.2
Q4	n.a.	63.1	63.8	63.4	63.0	65.1	63.1	65.7	65.9
Q5 - least disadvantaged	n.a.	62.8	61.4	62.5	61.7	59.8	58.6	61.5	62.0
Hospital sector									
Private	62.3	60.1	60.4	64.1	66.8	62.1	67.3	69.2	68.6
Public	71.3	72.3	73.6	73.2	72.0	72.8	72.9	75.5	75.3
Hospitals annual number of birt	:hs								
1-100 births	81.4	84.0	78.8	74.7	78.4	75.1	81.3	80.5	82.1
101-500 births	79.1	81.1	79.8	80.0	81.1	80.9	80.1	80.8	81.7
501-1,000 births	72.2	75.3	75.3	76.4	74.4	71.6	76.9	78.0	75.5
1,001-2,000 births	72.4	74.3	76.4	75.3	78.3	79.4	78.7	80.9	81.4
2,001 births and over	67.2	67.7	68.8	69.1	66.9	67.9	67.7	71.5	70.6

n.a..: data not available.

#### Data notes

1. Data excludes mothers whose smoking status was not stated

2. Smoking during pregnancy is self-reported smoking of tobacco.

3. Percentages for mother's Indigenous status are age-standardised



	2011	2012	2013	2014	2015	2016	2017	2018	2019
				In	per cent	(%)			
Australia									
Total	65.7	62.7	61.8	61.6	64.6	68.6	72.0	74.2	76.6
Mother's age at birth									
Younger than 20	49.5	47.4	46.9	47.5	51.8	57.7	61.4	62.8	64.6
20-24	55.6	52.7	51.4	51.9	55.7	61.7	65.3	68.5	71.6
25-29	63.9	60.3	59.4	59.1	62.2	66.8	70.0	72.8	75.8
30-34	69.6	66.7	65.8	65.0	67.8	70.8	74.4	76.1	78.2
35-39	71.5	68.5	67.3	67.4	69.3	72.0	75.0	76.8	78.4
40 and over	70.2	68.4	67.1	66.6	68.3	71.2	74.3	76.7	78.3
Mother's Indigenous status									
Indigenous	50.5	50.6	51.7	53.2	56.6	61.5	62.9	64.9	67.0
Non-Indigenous	64.4	61.4	60.3	60.1	63.1	67.2	70.7	73.0	75.1
Remoteness of mother's usual resid	dence								
Major cities	n.a.	61.2	60.7	60.6	64.0	67.3	71.5	73.8	76.2
Inner regional	n.a.	60.3	60.2	60.6	62.6	70.0	73.5	75.0	77.8
Outer regional	n.a.	70.7	71.8	71.2	72.7	76.4	73.5	76.4	79.2
Remote	n.a.	64.9	69.0	65.6	71.0	74.1	73.0	77.0	73.4
Very remote	n.a.	60.4	64.3	60.8	65.1	66.4	68.5	69.5	69.1
Disadvantage quintile of mother's	usual resid	dence							
Q1 - most disadvantaged	n.a.	55.4	54.8	54.8	58.6	63.5	67.2	70.3	73.7
Q2	n.a.	60.8	60.2	59.6	63.1	67.5	69.9	71.9	75.7
Q3	n.a.	61.1	61.6	61.6	64.5	69.2	72.4	74.4	76.9
Q4	n.a.	64.2	64.7	64.5	67.4	71.0	75.1	77.4	78.4
Q5 - least disadvantaged	n.a.	69.4	68.4	68.2	69.9	71.6	75.8	77.4	78.5
Hospital sector	_	-				-			-
Private	87.4	87.8	87.7	87.7	86.7	86.7	85.2	84.9	84.6
Public	57.3	53.1	51.9	51.9	56.6	62.2	67.5	70.7	74.1
Hospitals annual number of births	_	-				-			-
1-100 births	65.0	63.2	57.8	57.5	58.1	67.0	67.9	72.5	74.0
101-500 births	69.8	65.0	63.0	62.3	64.0	69.5	75.4	76.1	77.6
501-1,000 births	79.8	75.6	75.4	77.6	75.0	82.2	80.1	81.0	82.1
1,001-2,000 births	62.0	58.5	58.8	57.1	60.2	65.7	71.0	73.6	76.0
2,001 births and over	63.9	59.9	59.9	60.4	64.4	67.0	70.7	73.4	75.9

#### Table 12 Antenatal care visits in first trimester, all women giving birth (PI02a), 2011-2019

n.a.: data not available.

#### Data notes

1. Where gestational age at first antenatal visit was invalid or missing, these records were removed from the analysis. The valid range for gestational age is 3 to 46 weeks.

2. In the Australian Capital Territory (ACT), the first antenatal visit is often the first hospital antenatal clinic visit, which is scheduled for around 16–18 weeks of pregnancy. If earlier antenatal care was provided by the woman's general practitioner, it is generally not reported.

- 3. Percentages for mother's Indigenous status are age-standardised.
- 4. Source: AIHW analysis of National Perinatal Data Collection. Australian Institute of Health and Welfare 2021. National Core Maternity Indicators. Cat no. PER 95. Canberra: AIHW



	2011	2012	2013	2014	2015	2016	2017	2018	2019
				In	per cent (	%)			
Australia									
Total	37.5	34.7	33.7	34.6	38.0	43.3	47.9	52.4	55.7
Mother's age at birth									
Younger than 20	29.1	26.9	26.5	27.2	31.4	37.9	42.5	46.0	46.7
20-24	33.1	30.3	29.2	30.2	34.3	41.3	45.7	50.2	54.4
25-29	36.8	33.3	32.6	33.2	36.6	42.8	47.5	52.4	56.4
30-34	39.4	36.4	35.5	36.3	39.5	44.1	48.8	53.4	56.6
35-39	40.0	37.6	36.2	37.4	40.2	44.3	49.0	52.7	55.4
40 and over	39.5	38.1	35.8	37.5	39.6	44.0	47.5	51.5	53.8
Mother's Indigenous status									
Indigenous	28.4	28.8	28.0	30.9	34.3	40.1	42.9	46.0	47.4
Non-Indigenous	36.8	34.2	33.0	33.8	37.1	42.6	47.3	51.6	54.4
Remoteness of mother's usual resid	lence								
Major cities	n.a.	32.5	31.7	32.7	36.2	41.2	46.7	51.8	55.2
Inner regional	n.a.	36.3	36.5	37.6	39.7	48.0	52.9	54.5	58.0
Outer regional	n.a.	41.9	41.6	43.3	46.9	51.4	48.9	53.3	57.2
Remote	n.a.	37.8	41.4	39.1	44.4	49.0	46.9	51.3	48.4
Very remote	n.a.	34.7	35.7	35.2	39.9	41.7	44.6	47.5	45.9
Disadvantage quintile of mother's u	usual resid	dence							
Q1 - most disadvantaged	n.a.	32.0	31.2	31.2	34.9	40.1	44.1	48.8	52.7
Q2	n.a.	34.2	33.1	33.4	36.7	42.2	46.3	49.9	54.4
Q3	n.a.	33.1	32.8	34.2	37.4	43.9	48.0	52.8	56.3
Q4	n.a.	33.4	33.7	35.2	38.8	44.9	50.6	55.6	57.6
Q5 - least disadvantaged	n.a.	38.0	37.4	39.0	41.5	45.1	50.6	54.7	57.1
Hospital sector									
Private	47.8	48.3	48.7	51.0	52.0	52.0	51.0	51.3	51.8
Public	33.7	29.7	28.2	28.6	32.9	40.3	46.9	52.7	57.0
Hospitals annual number of births									
1-100 births	39.1	41.0	34.4	33.7	39.2	42.1	43.4	49.5	50.6
101-500 births	43.4	40.9	38.7	38.1	41.4	44.9	50.2	52.6	53.9
501-1,000 births	49.0	45.8	45.7	47.9	47.7	54.2	51.4	51.4	53.5
1,001-2,000 births	34.9	32.5	33.4	33.8	37.7	43.6	50.0	52.7	57.1
2,001 births and over	35.5	33.2	30.5	32.1	36.0	41.2	46.6	52.7	56.2

#### Table 13 Antenatal care visits in first 10 weeks, all women giving birth (PI02b), 2011–2019

n.a.: data not available.

#### Data Notes

- 1. Where gestational age at first antenatal visit was invalid or missing, these records were removed from the analysis. The valid range for gestational age is 3 to 46 weeks.
- 2. In the Australian Capital Territory (ACT), the first antenatal visit is often the first hospital antenatal clinic visit, which is scheduled for around 16–18 weeks of pregnancy. If earlier antenatal care was provided by the woman's general practitioner, it is generally not reported.
- 3. Percentages for mother's Indigenous status are age-standardised.
- 4. Remoteness and socioeconomic area of mother's usual residence was captured between 2012 and 2019.
- 5. Source: AIHW analysis of National Perinatal Data Collection. Australian Institute of Health and Welfare 2021. National Core Maternity Indicators. Cat no. PER 95. Canberra: AIHW

#### Table 14Five or more antenatal care visits, 2012–2019

	2012	2013	2014	2015	2016	2017	2018	2019
				In per c	ent (%)			
Australia								
Total	95.2	95.4	95.2	95.5	95.7	95.7	95.4	95.5
Mother's age at birth								
Younger than 20	90.4	90.9	90.7	91.3	90.7	91.5	91.2	91.4
20-24	92.5	92.8	93.0	93.3	93.5	93.8	93.4	93.6
25-29	95.1	95.4	95.1	95.3	95.6	95.5	95.2	95.4
30-34	96.3	96.4	96.1	96.4	96.4	96.4	96.1	96.1
35-39	96.3	96.4	96.2	96.3	96.6	96.4	96.1	96.1
40 and over	96.1	96.3	96.3	96.4	96.5	95.9	95.7	95.7
Mother's country of birth								
Born in Australia	95.2	95.5	95.3	95.5	95.7	95.7	95.5	95.6
Born overseas	95.2	95.2	95.2	95.5	95.7	95.5	95.2	95.4
Mother's Indigenous status (Age-standardised)								
Indigenous	85.5	85.1	85.5	86.9	86.6	87.6	87.2	88.6
Non-Indigenous	95.1	95.4	95.3	95.5	95.6	95.6	95.2	95.3
Remoteness of mother's usual residence								
Major cities	95.7	95.9	95.6	95.8	95.9	95.9	95.6	95.7
Inner regional	94.6	95.2	95.4	95.5	95.6	95.6	95.3	95.3
Outer regional	93.5	94.1	93.9	94.8	95.3	95.3	95.3	95.3
Remote	92.3	92.9	93.2	94.1	94.3	93.8	93.8	94.1
Very remote	89.3	90.4	90.4	90.8	90.1	91.2	90.6	92.7
Disadvantage quintile of mother's usual residence								
Q1 - most disadvantaged	92.9	93.5	93.5	93.9	94.0	94.1	93.9	94.0
Q2	95.0	95.2	95.2	95.4	95.7	95.5	95.1	95.2
Q3	95.7	95.8	96.0	96.1	96.2	96.1	95.9	96.1
Q4	96.3	96.3	96.0	96.2	96.1	96.3	96.1	96.2
Q5 - least disadvantaged	96.5	96.7	96.0	96.3	96.8	96.5	96.4	96.4
Hospital sector								
Private	98.5	98.7	97.9	97.9	97.9	97.8	97.5	97.5
Public	93.9	94.1	94.2	94.6	94.9	94.9	94.7	94.9

#### Data notes

1. Number of antenatal visits are based on women who gave birth at 32 weeks or more gestation (excluding unknown gestation).

2. Data excludes Victoria.

3. Percentage calculated after excluding records with 'Not stated' values. Care must be taken when interpreting percentages.

4. Country of birth (mother): Between 2012 and 2016, data were mapped to the ABS 2011 SACC. From 2017, data were mapped to the ABS 2016 SACC, with the exception of Qld which used the ABS 2011 SACC until 30 June 2017.

5. Hospital sector: Includes women who gave birth in hospital only (excludes birth centres attached to hospitals).

- 6. Indigenous status (mother, age-standardised): 1. Age-standardised percentage calculated after excluding records with Not stated values. Care must be taken when interpreting percentages. 2. Percentages are directly age-standardised using the 30 June 2001 Australian female Estimated Resident Population (ERP) aged 15–44 as the standard population. Five-year age groups are used for age-standardisation. The lowest age group was 15–19 years and the highest was 40–44 years.
- Remoteness area: 1. Between 2012 and 2016, Remoteness area derived by applying ABS 2011 Australian Statistical Geography Standard (ASGS) to area of mother's usual residence. From 2017, Remoteness area derived by applying ABS 2016 ASGS. Remoteness area only calculated where geographic area of usual residence was provided. Excludes mothers not usually resident in Australia and those whose state or territory of usual residence was 'Not stated'. 2. Data may not add to the total due to rounding.
- 8. Socioeconomic status: Between 2012 and 2016, Socioeconomic status derived by applying ABS 2011 Socio-Economic Indexes for Areas Index of Relative Socio-economic Disadvantage (SEIFA IRSD) to area of mother's usual residence. From 2017, socioeconomic status derived by applying ABS 2016 SEIFA IRSD. Socioeconomic status only calculated where geographic area of usual residence was provided. Excludes mothers not usually resident in Australia and those whose state or territory of usual residence was 'Not stated'.

9. Source: AIHW analysis of National Perinatal Data Collection. National Perinatal Data Collection annual update 2020-data tables

# Table 15Induction of labour, 2010–2019

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
					In per c	ent (%)				
Australia										
Total	25.2	26.0	26.3	27.6	28.4	29.3	30.5	32.5	34.2	34.7
Mother's age at birth										
Younger than 20	25.1	26.7	27.4	27.9	30.1	31.3	32.4	35.7	38.2	38.1
20-24	25.3	26.5	26.9	28.4	29.5	30.6	32.5	35.6	37.4	37.8
25-29	26.2	26.9	27.3	28.7	29.4	30.7	32.1	34.4	36.3	36.8
30-34	25.0	25.8	26.0	27.3	27.8	28.4	29.8	31.4	33.1	34.0
35-39	24.5	24.7	24.9	25.9	26.9	27.7	27.9	30.0	31.2	31.8
40 and over	24.3	25.5	26.0	27.4	28.4	30.3	31.2	31.5	33.1	33.4
Mother's country of birth										
Born in Australia	26.2	27.0	27.3	28.4	29.3	30.1	31.3	33.3	35.0	35.6
Born overseas	22.8	23.8	24.3	25.9	26.7	27.9	29.1	31.2	32.8	33.3
Mother's Indigenous state	us (Age-s	tandard	ised)							
Indigenous	24.1	24.6	24.6	28.0	27.8	29.3	31.0	34.0	35.0	34.9
Non-Indigenous	25.2	26.3	26.6	27.7	28.9	30.0	31.2	33.2	35.0	35.5
Remoteness of mother's u	usual res	idence								
Major cities	n.a.	n.a.	26.4	27.7	28.4	29.6	30.7	32.7	34.4	35.0
Inner regional	n.a.	n.a.	26.1	27.5	28.6	28.7	30.4	32.5	34.0	34.7
Outer regional	n.a.	n.a.	26.3	27.0	27.8	29.1	29.2	31.2	32.7	32.7
Remote	n.a.	n.a.	27.5	27.5	27.8	27.1	30.0	30.0	32.4	31.9
Very remote	n.a.	n.a.	25.3	25.9	27.6	27.9	28.4	28.4	32.4	32.4
Hospital sector										
Private	28.3	29.0	28.5	29.4	29.8	30.5	30.6	31.8	33.2	34.4
Public	24.9	25.8	26.4	27.7	28.7	29.8	31.3	33.7	35.5	35.8

n.a.: data not available.

#### Data notes

1. 'Induced' may include cases where induction of labour was attempted but labour did not result.

 Country of birth (mother): Prior to 2012, data were mapped to the ABS 2008 Standard Australian Classification of Countries (SACC). Between 2012 and 2016, data were mapped to the ABS 2011 SACC. From 2017, data were mapped to the ABS 2016 SACC, with the exception of Qld which used the ABS 2011 SACC until 30 June 2017.

3. Hospital sector: Includes women who gave birth in hospital only (excludes birth centres attached to hospitals).

4. Indigenous status (mother, age-standardised): Percentages are directly age-standardised using the 30 June 2001 Australian female Estimated Resident Population (ERP) aged 15–44 as the standard population. Five-year age groups are used for agestandardisation. The lowest age group was 15–19 years and the highest was 40–44 years.

5. Remoteness area: 1. Between 2012 and 2016, Remoteness area derived by applying ABS 2011 Australian Statistical Geography Standard (ASGS) to area of mother's usual residence. From 2017, Remoteness area derived by applying ABS 2016 ASGS. Remoteness area only calculated where geographic area of usual residence was provided. Excludes mothers not usually resident in Australia and those whose state or territory of usual residence was 'Not stated'. 2. Data may not add to the total due to rounding.

6. Source: AIHW analysis of National Perinatal Data Collection. National Perinatal Data Collection annual update 2020—data tables

#### Table 16 No labour, 2010–2019

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
					In per c	ent (%)				
Australia										
Total	18.8	19.1	19.4	19.7	20.3	20.5	21.0	21.9	22.5	22.7
Mother's age at birth										
Younger than 20	5.5	5.4	5.3	6.0	6.0	6.1	6.6	6.9	6.7	6.5
20-24	9.6	9.9	10.2	10.3	10.8	10.7	10.8	11.2	11.7	11.3
25-29	14.4	14.7	14.9	15.2	15.7	15.5	15.5	16.2	16.7	16.8
30-34	21.0	21.1	21.3	21.4	22.0	22.0	22.5	23.1	23.7	23.5
35-39	27.5	28.5	28.6	29.0	29.2	29.6	30.0	30.8	31.4	31.9
40 and over	34.6	35.3	36.8	37.2	39.0	39.9	40.6	42.3	42.8	42.7
Mother's country of birth										
Born in Australia	19.2	19.6	19.9	20.1	20.6	20.7	21.2	21.9	22.3	22.3
Born overseas	17.8	18.1	18.6	19.0	19.9	20.2	20.7	21.9	22.9	23.5
Mother's Indigenous state	us (Age-s	tandardi	ised)							
Indigenous	16.9	18.3	17.3	17.1	19.5	19.8	19.3	19.6	20.9	20.8
Non-Indigenous	19.3	19.7	20.1	20.4	21.0	21.2	21.6	22.3	22.7	22.7
Remoteness of mother's u	usual res	idence								
Major cities	n.a.	n.a.	19.8	20.3	20.9	21.2	21.5	22.5	23.2	23.5
Inner regional	n.a.	n.a.	17.7	18.3	19.0	19.1	19.8	20.2	21.1	20.7
Outer regional	n.a.	n.a.	18.5	18.7	19.1	18.8	19.9	20.2	20.8	20.6
Remote	n.a.	n.a.	17.8	17.9	18.4	18.3	19.0	19.6	19.8	19.8
Very remote	n.a.	n.a.	16.8	17.4	18.4	17.7	20.2	20.1	18.8	19.5
Hospital sector										
Private	29.0	29.2	29.9	30.5	31.6	32.1	33.3	34.1	34.9	35.6
Public	15.3	15.9	16.0	16.2	16.8	17.0	17.4	18.6	19.5	19.5

n.a.: data not available.

#### Data notes

- Country of birth (mother): Prior to 2012, data were mapped to the ABS 2008 Standard Australian Classification of Countries (SACC). Between 2012 and 2016, data were mapped to the ABS 2011 SACC. From 2017, data were mapped to the ABS 2016 SACC, with the exception of Qld which used the ABS 2011 SACC until 30 June 2017.
- 2. Hospital sector: Includes women who gave birth in hospital only (excludes birth centres attached to hospitals).
- Indigenous status (mother, age-standardised): Percentages are directly age-standardised using the 30 June 2001 Australian female Estimated Resident Population (ERP) aged 15–44 as the standard population. Five-year age groups are used for agestandardisation. The lowest age group was 15–19 years and the highest was 40–44 years.
- 4. Remoteness area: 1. Between 2012 and 2016, Remoteness area derived by applying ABS 2011 Australian Statistical Geography Standard (ASGS) to area of mother's usual residence. From 2017, Remoteness area derived by applying ABS 2016 ASGS. Remoteness area only calculated where geographic area of usual residence was provided. Excludes mothers not usually resident in Australia and those whose state or territory of usual residence was 'Not stated'. 2. Data may not add to the total due to rounding.
- 5. Source: AIHW analysis of National Perinatal Data Collection. National Perinatal Data Collection annual update 2020-data tables

# Table 17Spontaneous labour, 2010–2019

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
					In per c	ent (%)				
Australia										
Total	56.0	54.8	54.2	52.7	51.3	50.1	48.4	45.6	43.2	42.5
Mother's age at birth										
Younger than 20	69.4	67.9	67.3	66.1	63.8	62.6	61.0	57.4	54.7	55.3
20-24	65.0	63.6	62.9	61.3	59.7	58.7	56.6	53.1	50.8	50.9
25-29	59.4	58.3	57.8	56.2	54.9	53.8	52.3	49.4	47.0	46.4
30-34	54.0	53.1	52.6	51.3	50.2	49.5	47.6	45.4	43.1	42.5
35-39	48.0	46.8	46.4	45.1	43.8	42.6	42.1	39.2	37.3	36.3
40 and over	41.1	39.1	37.2	35.4	32.6	29.8	28.2	26.1	24.1	23.9
Mother's country of birth										
Born in Australia	54.6	53.4	52.8	51.5	50.1	49.2	47.4	44.8	42.6	42.0
Born overseas	59.4	58.1	57.1	55.0	53.4	51.8	50.1	46.9	44.2	43.3
Mother's Indigenous state	us (Age-s	tandard	ised)							
Indigenous	59.0	57.0	58.0	54.9	52.7	50.9	49.7	46.3	44.1	44.2
Non-Indigenous	55.5	54.0	53.3	51.8	50.2	48.7	47.2	44.4	42.1	41.8
Remoteness of mother's u	usual res	idence								
Major cities	n.a.	n.a.	53.7	52.0	50.7	49.2	47.8	44.7	42.3	41.5
Inner regional	n.a.	n.a.	56.2	54.2	52.4	52.2	49.7	47.2	44.8	44.6
Outer regional	n.a.	n.a.	55.3	54.4	53.1	52.1	50.9	48.6	46.5	46.6
Remote	n.a.	n.a.	54.7	54.6	53.8	54.6	51.0	50.4	47.8	48.3
Very remote	n.a.	n.a.	57.9	56.6	54.0	54.4	51.4	51.6	48.8	48.0
Hospital sector										
Private	42.8	41.8	41.5	40.0	38.6	37.3	36.0	34.0	31.7	30.0
Public	59.8	58.4	57.5	56.0	54.6	53.2	51.2	47.7	45.0	44.7

n.a..: data not available.

#### Data notes

- Country of birth (mother): Prior to 2012, data were mapped to the ABS 2008 Standard Australian Classification of Countries (SACC). Between 2012 and 2016, data were mapped to the ABS 2011 SACC. From 2017, data were mapped to the ABS 2016 SACC, with the exception of Qld which used the ABS 2011 SACC until 30 June 2017.
- 2. Hospital sector: Includes women who gave birth in hospital only (excludes birth centres attached to hospitals).
- Indigenous status (mother, age-standardised): Percentages are directly age-standardised using the 30 June 2001 Australian female Estimated Resident Population (ERP) aged 15–44 as the standard population. Five-year age groups are used for agestandardisation. The lowest age group was 15–19 years and the highest was 40–44 years.
- 4. Remoteness area: 1. Between 2012 and 2016, Remoteness area derived by applying ABS 2011 Australian Statistical Geography Standard (ASGS) to area of mother's usual residence. From 2017, Remoteness area derived by applying ABS 2016 ASGS. Remoteness area only calculated where geographic area of usual residence was provided. Excludes mothers not usually resident in Australia and those whose state or territory of usual residence was 'Not stated'. 2. Data may not add to the total due to rounding.
- 5. Source: AIHW analysis of National Perinatal Data Collection. National Perinatal Data Collection annual update 2020-data tables

	2011	2012	2013	2014	2015	2016	2017	2018	2019
				In	per cent (	%)			
Australia									
Total	33.6	34.0	36.1	37.3	38.9	40.5	43.1	45.3	46.8
Mother's Indigenous status									
Indigenous	36.8	33.6	39.1	44.8	44.7	43.3	44.1	48.6	49.9
Non-Indigenous	33.5	33.8	35.9	37.0	38.7	40.5	43.3	45.3	46.7
Remoteness of mother's usual resid	ence								
Major cities	n.a.	34.3	36.1	37.4	39.3	40.8	43.5	45.6	47.4
Inner regional	n.a.	33.4	36.4	36.9	37.1	40.1	42.6	45.0	45.5
Outer regional	n.a.	34.1	34.9	36.4	38.4	38.3	41.0	43.4	43.8
Remote	n.a.	38.0	36.4	37.1	34.3	38.6	39.5	43.3	43.3
Very remote	n.a.	35.6	37.7	38.1	38.7	37.8	37.1	42.9	44.6
Hospital sector									
Private	35.6	34.8	36.7	37.1	39.0	39.6	40.8	43.4	46.0
Public	33.8	34.7	36.7	38.2	39.7	41.7	45.0	47.1	48.1
Hospitals annual number of births									
1-100 births	22.5	21.6	23.8	20.5	18.3	23.8	21.2	22.8	24.0
101-500 births	28.1	26.4	28.6	29.0	29.2	31.3	35.4	38.4	39.9
501-1,000 births	36.5	35.0	37.6	38.4	39.5	41.4	42.1	44.2	46.7
1,001-2,000 births	32.9	32.7	34.3	36.3	37.7	40.3	42.8	46.0	47.2
2,001 births and over	34.3	34.6	37.6	38.7	40.4	41.7	44.7	46.5	48.2

#### Table 18 Induction of labour, selected women, first birth (PI05), 2011–2019

n.a.: data not available.

#### Data notes

- Selected women are defined as 'aged between 20 and 34 years, where gestational age at birth was between 37 and 41 completed weeks, with a singleton baby in the vertex presentation)'. They are reported on separately as it is expected that they will have fewer labour complications and more optimal birth outcomes due to their lower risk. This cohort represents about one quarter of all women who give birth in Australia.
- Data for Tasmania was not available until 2013. Presentations via caesarean births between 2005 and 2012 were not reported by hospitals who were still using the paper-based form. In these instances, if a caesarean section occurred the presentation was recorded as 'Not stated'. Presentations via caesarean births was included in the paper-based form from 1 January 2013.
- 3. Percentages for mother's Indigenous status are age-standardised.
- 4. Source: AIHW analysis of National Perinatal Data Collection. Australian Institute of Health and Welfare 2021. National Core Maternity Indicators. Cat no. PER 95. Canberra: AIHW

#### Table 19 Non-instrumental vaginal birth, 2010–2019

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
					In per c	ent (%)				
Australia										
Total	56.3	55.6	55.2	54.8	54.4	54.2	53.4	52.8	52.0	51.3
Mother's age at birth										
Younger than 20	70.3	69.7	70.3	68.7	69.2	68.8	68.9	67.7	66.5	67.2
20-24	66.9	66.2	66.0	65.6	65.3	65.1	64.9	64.1	63.0	62.7
25-29	58.7	58.0	58.1	57.4	57.2	57.4	56.6	56.3	55.7	54.9
30-34	53.5	53.2	52.4	52.3	51.9	52.0	51.1	50.6	50.2	49.5
35-39	49.6	48.4	48.3	48.1	48.0	47.5	47.2	46.7	45.9	45.4
40 and over	43.3	42.7	41.4	41.3	40.6	39.5	38.7	38.1	37.5	37.4
Mother's country of birth										
Born in Australia	57.1	56.4	56.1	55.8	55.5	55.4	54.8	54.4	53.8	53.3
Born overseas	54.3	53.6	53.2	52.6	52.1	51.6	50.9	49.9	48.6	47.5
Mother's Indigenous status (A	Age-stand	dardised)								
Indigenous	64.9	63.3	64.8	64.7	62.4	61.2	61.8	61.7	59.6	59.6
Non-Indigenous	56.3	55.7	55.3	54.8	54.7	54.3	53.8	53.3	52.5	52.1
Remoteness of mother's usua	ıl residen	ce								
Major cities	n.a.	n.a.	53.9	53.1	52.7	52.5	51.9	51.1	50.4	49.6
Inner regional	n.a.	n.a.	59.6	58.8	58.7	58.5	57.0	56.8	55.9	55.6
Outer regional	n.a.	n.a.	59.8	59.6	59.0	59.1	58.0	58.0	57.0	56.6
Remote	n.a.	n.a.	60.7	60.8	60.0	60.7	59.9	59.0	58.3	58.7
Very remote	n.a.	n.a.	63.2	61.6	60.3	61.1	59.5	59.9	59.2	59.1
Disadvantage quintile of mot	her's usu	al reside	nce							
Q1 - most disadvantaged	n.a.	n.a.	61.8	61.0	60.7	60.1	59.2	59.0	58.0	57.3
Q2	n.a.	n.a.	58.0	57.2	56.8	56.4	55.6	55.2	54.1	53.9
Q3	n.a.	n.a.	55.3	54.6	53.9	53.6	53.3	52.4	51.9	51.2
Q4	n.a.	n.a.	52.2	51.4	51.4	51.2	50.4	49.9	49.3	48.3
Q5 - least disadvantaged	n.a.	n.a.	49.5	49.1	48.8	49.3	48.5	47.1	46.6	45.9
Hospital sector										
Private	42.5	41.9	41.0	40.8	40.1	39.7	38.8	38.1	38.1	37.0
Public	60.3	59.3	59.1	58.7	58.3	58.0	57.1	55.9	54.5	54.0

n.a.: data not available.

#### Data notes

1. For multiple births, the method of birth of the first-born baby was used.

- Country of birth (mother): Prior to 2012, data were mapped to the ABS 2008 Standard Australian Classification of Countries (SACC). Between 2012 and 2016, data were mapped to the ABS 2011 SACC. From 2017, data were mapped to the ABS 2016 SACC, with the exception of Qld which used the ABS 2011 SACC until 30 June 2017.
- 3. Hospital sector: Includes women who gave birth in hospital only (excludes birth centres attached to hospitals).
- 4. Indigenous status (mother, age-standardised): Percentages are directly age-standardised using the 30 June 2001 Australian female Estimated Resident Population (ERP) aged 15–44 as the standard population. Five-year age groups are used for agestandardisation. The lowest age group was 15–19 years and the highest was 40–44 years.
- 5. Remoteness area: 1. Between 2012 and 2016, Remoteness area derived by applying ABS 2011 Australian Statistical Geography Standard (ASGS) to area of mother's usual residence. From 2017, Remoteness area derived by applying ABS 2016 ASGS. Remoteness area only calculated where geographic area of usual residence was provided. Excludes mothers not usually resident in Australia and those whose state or territory of usual residence was 'Not stated'. 2. Data may not add to the total due to rounding.
- 6. Socioeconomic status: Between 2012 and 2016, Socioeconomic status derived by applying ABS 2011 Socio-Economic Indexes for Areas Index of Relative Socio-economic Disadvantage (SEIFA IRSD) to area of mother's usual residence. From 2017, socioeconomic status derived by applying ABS 2016 SEIFA IRSD. Socioeconomic status only calculated where geographic area of usual residence was provided. Excludes mothers not usually resident in Australia and those whose state or territory of usual residence was 'Not stated'.
- 7. Source: AIHW analysis of National Perinatal Data Collection. National Perinatal Data Collection annual update 2020-data tables

# Table 20Instrumental vaginal birth, 2010–2019

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
					In per o	ent (%)				
Australia										
Total	12.0	12.1	12.4	12.4	12.5	12.5	12.8	12.6	12.7	12.6
Mother's age at birth										
Younger than 20	12.1	12.6	12.7	13.0	12.6	12.9	13.5	12.6	13.7	13.2
20-24	11.8	11.5	11.7	11.9	11.6	11.7	12.0	12.1	12.3	12.1
25-29	13.5	13.6	13.8	13.9	13.9	13.9	14.3	14.1	14.0	14.0
30-34	12.5	12.6	13.0	13.0	13.3	13.2	13.4	13.4	13.4	13.6
35-39	10.1	10.1	10.4	10.3	10.4	10.5	10.7	10.4	10.6	10.4
40 and over	8.6	8.4	8.7	8.1	7.8	8.3	8.4	7.8	8.4	7.7
Mother's country of birth										•
Born in Australia	11.4	11.4	11.7	11.7	11.7	11.7	11.8	11.6	11.6	11.7
Born overseas	13.7	13.8	14.0	14.0	14.0	14.0	14.5	14.4	14.5	14.3
-										
Remoteness of mother's	usual res	idence								
Major cities	n.a.	n.a.	13.2	13.2	13.5	13.5	13.7	13.5	13.5	13.5
Inner regional	n.a.	n.a.	10.6	10.8	10.3	10.4	10.9	10.6	10.7	10.5
Outer regional	n.a.	n.a.	9.3	9.4	9.3	9.0	9.2	9.2	9.4	9.9
Remote	n.a.	n.a.	8.2	9.0	8.2	8.8	8.5	8.6	8.6	8.7
Very remote	n.a.	n.a.	7.7	8.4	8.5	8.1	7.9	7.7	8.9	8.6
Disadvantage quintile of	mother's	usual re	sidence							
Q1 - most			0.6	0.6	0.6	0.0	10.0	10.0	10.2	10.1
disadvantaged	n.d.	n.d.	9.0	9.0	9.0	9.8	10.0	10.0	10.2	10.1
Q2	n.a.	n.a.	11.3	11.6	11.4	11.7	12.0	11.5	11.7	11.7
Q3	n.a.	n.a.	12.7	12.8	12.9	12.9	13.2	12.8	12.8	12.8
Q4	n.a.	n.a.	13.7	13.7	13.9	13.8	14.2	14.0	13.7	13.9
Q5 - least			14 5	14 5	147	14.2	14.4	147	147	14 5
disadvantaged	n.d.	n.d.	14.5	14.5	14.7	14.2	14.4	14.7	14.7	14.5
Hospital sector										
Private	15.1	15.2	15.4	15.2	15.3	15.3	15.4	14.9	14.4	14.5
Public	11.2	11.3	11.6	11.7	11.7	11.8	12.2	12.2	12.4	12.4

n.a: data not available.

#### Data notes

1. For multiple births, the method of birth of the first-born baby was used.

2. .

- Country of birth (mother): Prior to 2012, data were mapped to the ABS 2008 Standard Australian Classification of Countries (SACC). Between 2012 and 2016, data were mapped to the ABS 2011 SACC. From 2017, data were mapped to the ABS 2016 SACC, with the exception of Qld which used the ABS 2011 SACC until 30 June 2017.
- 4. Hospital sector: Includes women who gave birth in hospital only (excludes birth centres attached to hospitals).
- Indigenous status (mother, age-standardised): Percentages are directly age-standardised using the 30 June 2001 Australian female Estimated Resident Population (ERP) aged 15–44 as the standard population. Five-year age groups are used for agestandardisation. The lowest age group was 15–19 years and the highest was 40–44 years.
- 6. Remoteness area: 1. Between 2012 and 2016, Remoteness area derived by applying ABS 2011 Australian Statistical Geography Standard (ASGS) to area of mother's usual residence. From 2017, Remoteness area derived by applying ABS 2016 ASGS. Remoteness area only calculated where geographic area of usual residence was provided. Excludes mothers not usually resident in Australia and those whose state or territory of usual residence was 'Not stated'. 2. Data may not add to the total due to rounding.
- 7. Socioeconomic status: Between 2012 and 2016, Socioeconomic status derived by applying ABS 2011 Socio-Economic Indexes for Areas Index of Relative Socio-economic Disadvantage (SEIFA IRSD) to area of mother's usual residence. From 2017, socioeconomic status derived by applying ABS 2016 SEIFA IRSD. Socioeconomic status only calculated where geographic area of usual residence was provided. Excludes mothers not usually resident in Australia and those whose state or territory of usual residence was 'Not stated'.
- 8. Source: AIHW analysis of National Perinatal Data Collection. National Perinatal Data Collection annual update 2020-data tables



#### Table 21Caesarean section, 2010–2019

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
					In per c	ent (%)				
Australia										
Total	31.6	32.3	32.4	32.8	33.1	33.3	33.8	34.6	35.3	36.0
Mother's age at birth										
Younger than 20	17.6	17.7	17.1	18.3	18.2	18.2	17.6	19.7	19.8	19.3
20-24	21.4	22.3	22.3	22.5	23.2	23.3	23.1	23.8	24.7	25.0
25-29	27.8	28.4	28.1	28.7	28.9	28.8	29.1	29.6	30.3	31.0
30-34	34.0	34.2	34.6	34.7	34.8	34.9	35.5	36.0	36.5	36.8
35-39	40.3	41.4	41.3	41.6	41.6	42.0	42.1	42.8	43.4	44.2
40 and over	48.0	48.8	49.9	50.6	51.6	52.2	52.9	54.0	54.0	54.8
Mother's country of birth										
Born in Australia	31.5	32.2	32.2	32.5	32.8	32.9	33.4	34.1	34.5	34.9
Born overseas	32.0	32.6	32.8	33.4	33.9	34.4	34.6	35.7	36.9	38.1
Mother's Indigenous status (A	Age-stand	lardised)								
Indigenous	29.7	31.2	29.8	29.2	31.5	32.4	31.8	32.3	33.5	33.7
Non-Indigenous	32.0	32.6	32.7	33.3	33.5	33.7	33.9	34.7	35.2	35.7
Remoteness of mother's usua	ıl residen	ce								
Major cities	n.a.	n.a.	32.9	33.7	33.8	34.1	34.4	35.4	36.1	36.9
Inner regional	n.a.	n.a.	29.8	30.4	31.0	31.1	32.1	32.6	33.4	33.8
Outer regional	n.a.	n.a.	30.8	31.0	31.7	31.9	32.8	32.7	33.6	33.5
Remote	n.a.	n.a.	31.1	30.2	31.8	30.5	31.6	32.4	33.1	32.6
Very remote	n.a.	n.a.	29.1	30.0	31.1	30.8	32.6	32.4	31.9	32.4
Disadvantage quintile of mot	her's usu	al reside	nce							
Q1 - most disadvantaged	n.a.	n.a.	28.6	29.4	29.7	30.1	30.8	31.1	31.8	32.6
Q2	n.a.	n.a.	30.7	31.3	31.8	31.9	32.4	33.3	34.2	34.4
Q3	n.a.	n.a.	31.9	32.6	33.3	33.5	33.5	34.7	35.3	36.0
Q4	n.a.	n.a.	34.0	34.9	34.7	35.0	35.3	36.1	37.0	37.7
Q5 - least disadvantaged	n.a.	n.a.	36.0	36.4	36.5	36.5	37.2	38.2	38.7	39.5
Hospital sector										
Private	42.4	42.8	43.6	44.0	44.6	45.1	45.8	47.0	47.5	48.4
Public	28.5	29.4	29.2	29.6	29.9	30.2	30.7	31.9	33.0	33.6

n.a.: data not available.

#### Data notes

1. For multiple births, the method of birth of the first-born baby was used.

- Country of birth (mother): Prior to 2012, data were mapped to the ABS 2008 Standard Australian Classification of Countries (SACC). Between 2012 and 2016, data were mapped to the ABS 2011 SACC. From 2017, data were mapped to the ABS 2016 SACC, with the exception of Qld which used the ABS 2011 SACC until 30 June 2017.
- 3. Hospital sector: Includes women who gave birth in hospital only (excludes birth centres attached to hospitals).
- 4. Indigenous status (mother, age-standardised): Percentages are directly age-standardised using the 30 June 2001 Australian female Estimated Resident Population (ERP) aged 15–44 as the standard population. Five-year age groups are used for agestandardisation. The lowest age group was 15–19 years and the highest was 40–44 years.
- Remoteness area: 1. Between 2012 and 2016, Remoteness area derived by applying ABS 2011 Australian Statistical Geography Standard (ASGS) to area of mother's usual residence. From 2017, Remoteness area derived by applying ABS 2016 ASGS. Remoteness area only calculated where geographic area of usual residence was provided. Excludes mothers not usually resident in Australia and those whose state or territory of usual residence was 'Not stated'. 2. Data may not add to the total due to rounding.
- 6. Socioeconomic status: Between 2012 and 2016, Socioeconomic status derived by applying ABS 2011 Socio-Economic Indexes for Areas Index of Relative Socio-economic Disadvantage (SEIFA IRSD) to area of mother's usual residence. From 2017, socioeconomic status derived by applying ABS 2016 SEIFA IRSD. Socioeconomic status only calculated where geographic area of usual residence was provided. Excludes mothers not usually resident in Australia and those whose state or territory of usual residence was 'Not stated'.
- 7. Source: AIHW analysis of National Perinatal Data Collection. National Perinatal Data Collection annual update 2020-data tables

	2011	2012	2013	2014	2015	2016	2017	2018	2019		
				In	per cent (	%)					
Australia											
Total	27.4	27.1	27.5	27.9	27.9	28.5	29.3	30.1	30.7		
Mother's Indigenous status	-										
Indigenous	33.4	32.4	32.9	31.6	31.4	29.9	30.6	33.3	32.3		
Non-Indigenous	26.8	26.5	26.7	27.1	27.0	27.4	28.1	28.9	29.4		
Remoteness of mother's usual resid	lence										
Major cities	n.a.	27.3	28.0	28.1	28.2	28.8	29.6	30.3	31.1		
Inner regional	n.a.	24.9	26.1	26.9	26.9	27.3	28.2	29.2	29.6		
Outer regional	n.a.	26.6	26.3	27.9	28.0	28.8	28.7	29.9	29.0		
Remote	n.a.	27.8	27.0	28.7	24.9	26.3	27.6	28.7	28.6		
Very remote	n.a.	28.5	28.6	28.6	29.2	27.5	28.3	29.3	26.7		
Disadvantage quintile of mother's u	s usual residence										
Q1 – most disadvantaged	n.a.	25.1	26.4	25.9	26.5	27.4	27.3	27.9	28.6		
Q2	n.a.	26.5	26.9	27.8	27.5	27.8	28.9	30.2	30.6		
Q3	n.a.	26.6	27.2	28.3	28.3	27.9	29.3	30.2	30.6		
Q4	n.a.	27.8	28.5	29.0	28.6	29.4	30.0	30.6	31.7		
Q5 – least disadvantaged	n.a.	28.5	29.0	28.5	28.7	30.0	31.0	31.5	31.8		
Hospital sector	-										
Private	35.7	36.5	36.5	37.1	37.3	38.2	39.9	40.6	41.3		
Public	24.9	24.4	24.8	25.1	25.2	25.8	26.6	27.9	28.3		
Hospitals annual number of births											
1-100 births	20.4	15.8	20.4	22.6	21.2	27.8	21.4	21.5	22.1		
101-500 births	26.3	24.4	26.2	27.3	26.2	26.8	30.3	31.7	32.7		
501-1,000 births	29.4	29.6	30.5	31.9	32.2	31.9	30.6	31.2	34.8		
1,001-2,000 births	27.5	27.5	28.1	28.8	27.9	28.7	30.8	30.7	29.2		
2,001 births and over	27.3	26.9	27.1	27.2	27.6	28.2	28.8	29.9	30.5		

#### Table 22 Caesarean section, selected women, first birth (PI06), 2011–2019

n.a.: data not available.

#### Data notes

- 1. Data was included where age at birth was between 37 and 41 completed weeks, with a singleton baby in the vertex presentation
- 2. Selected women are defined as 'aged between 20 and 34 years, where gestational age at birth was between 37 and 41 completed weeks, with a singleton baby in the vertex presentation)'. They are reported on separately as it is expected that they will have fewer labour complications and more optimal birth outcomes due to their lower risk. This cohort represents about one quarter of all women who give birth in Australia.
- 3. Data for Tasmania was not available until 2013. Presentations via caesarean births between 2005 and 2012 were not reported by hospitals who were still using the paper-based form. In these instances, if a caesarean section occurred the presentation was recorded as 'Not stated'. Presentations via caesarean births was included in the paper-based form from 1 January 2013.

4. Percentages for mother's Indigenous status are age-standardised.

	2011	2012	2013	2014	2015	2016	2017	2018	2019		
				In	per cent (	%)					
Australia											
Total	47.9	47.9	47.1	46.6	46.5	45.5	44.6	43.8	43.1		
Mother's Indigenous status											
Indigenous	52.0	51.9	49.1	47.1	51.2	51.0	48.4	47.7	47.1		
Non-Indigenous	48.8	48.9	48.3	48.1	48.0	47.2	46.3	45.7	45.1		
Remoteness of mother's usual resid	lence										
Major cities	n.a.	47.3	45.9	45.3	45.2	44.2	43.2	42.6	41.5		
Inner regional	n.a.	51.5	50.1	50.1	50.0	48.7	48.0	47.2	47.2		
Outer regional	n.a.	51.9	52.0	51.1	51.7	50.1	49.8	48.8	48.5		
Remote	n.a.	52.0	53.7	52.9	54.2	53.7	49.9	51.7	51.7		
Very remote	n.a.	51.7	49.6	49.2	50.8	52.8	50.9	48.1	51.6		
Disadvantage quintile of mother's u	's usual residence										
Q1 - most disadvantaged	n.a.	53.4	52.1	52.4	51.0	49.8	49.1	48.1	48.0		
Q2	n.a.	49.8	48.8	48.0	48.1	47.1	46.4	45.4	44.7		
Q3	n.a.	48.2	46.7	46.1	45.9	45.4	44.1	43.6	42.8		
Q4	n.a.	45.9	44.7	44.1	44.6	43.2	42.7	42.5	40.5		
Q5 - least disadvantaged	n.a.	44.3	43.3	42.9	43.3	42.5	40.7	40.3	40.0		
Hospital sector											
Private	35.3	34.6	34.5	33.8	33.3	32.7	31.6	31.7	30.7		
Public	51.3	51.6	50.8	50.4	50.1	48.8	47.6	46.1	45.6		
Hospitals annual number of births											
1-100 births	61.3	69.9	63.3	59.1	63.7	55.8	65.4	63.8	64.4		
101-500 births	53.7	55.5	54.8	53.9	54.8	54.2	50.9	49.6	45.7		
501-1,000 births	44.6	45.5	43.7	42.9	41.9	41.7	43.9	43.7	38.7		
1,001-2,000 births	48.6	48.2	47.6	46.3	48.5	46.3	45.2	44.8	46.9		
2,001 births and over	47.1	47.2	46.4	46.2	45.5	44.6	43.3	42.4	41.6		

# Table 23 Non-instrumental vaginal birth, selected women, first birth (PI07), 2011–2019

n.a.: data not available.

#### Data Notes:

1. Non-instrumental vaginal births include spontaneous vaginal and vaginal breech.

- 2. Selected women are defined as 'aged between 20 and 34 years, where gestational age at birth was between 37 and 41 completed weeks, with a singleton baby in the vertex presentation)'. They are reported on separately as it is expected that they will have fewer labour complications and more optimal birth outcomes due to their lower risk. This cohort represents about one quarter of all women who give birth in Australia.
- 3. Data for Tasmania was not available until 2013. Presentations via caesarean births between 2005 and 2012 were not reported by hospitals who were still using the paper-based form. In these instances, if a caesarean section occurred the presentation was recorded as 'Not stated'. Presentations via caesarean births was included in the paper-based form from 1 January 2013.

4. Percentages for mother's Indigenous status are age-standardised.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	
				In p	er cent	(%)				
Australia										
Total	24.7	24.9	25.3	25.4	25.5	26.0	26.1	26.1	26.2	
Mother's Indigenous status							-			
Indigenous	14.6	15.7	18.0	21.3	17.5	19.2	21.0	19.0	20.5	
Non-Indigenous	24.4	24.6	24.9	24.8	25.0	25.4	25.5	25.5	25.5	
Remoteness of mother's usual residence										
Major cities	n.a.	25.4	26.1	26.5	26.6	27.0	27.2	27.1	27.3	
Inner regional	n.a.	23.6	23.8	23.0	23.0	23.9	23.9	23.6	23.1	
Outer regional	n.a.	21.5	21.7	21.0	20.3	21.2	21.5	21.3	22.4	
Remote	n.a.	20.2	19.4	18.4	20.9	19.9	22.5	19.6	19.7	
Very remote	n.a.	19.8	21.8	22.3	20.0	19.7	20.8	22.6	21.7	
Disadvantage quintile of mother's usual resid	ial residence									
Q1 - most disadvantaged	n.a.	21.6	21.6	21.7	22.4	22.8	23.5	24.0	23.4	
Q2	n.a.	23.7	24.3	24.1	24.4	25.1	24.7	24.4	24.7	
Q3	n.a.	25.2	26.0	25.6	25.8	26.7	26.6	26.2	26.6	
Q4	n.a.	26.3	26.7	26.9	26.7	27.4	27.3	26.9	27.7	
Q5 - least disadvantaged	n.a.	27.1	27.7	28.6	28.0	27.5	28.2	28.3	28.2	
Hospital sector										
Private	29.0	28.9	28.9	29.0	29.4	29.2	28.4	27.7	28.0	
Public	23.7	24.1	24.5	24.6	24.6	25.4	25.9	26.0	26.1	
Hospitals annual number of births										
1-100 births	18.4	14.1	16.4	18.3	15.1	16.3	13.2	14.6	13.5	
101-500 births	20.0	20.1	19.1	18.9	19.0	18.9	18.8	18.7	21.7	
501-1,000 births	26.0	24.9	25.7	25.2	26.0	26.4	25.4	25.1	26.5	
1,001-2,000 births	23.9	24.3	24.3	24.9	23.6	25.0	24.1	24.6	23.9	
2,001 births and over	25.6	25.9	26.5	26.6	26.9	27.2	27.9	27.7	27.9	

#### Table 24 Instrumental vaginal birth, selected women, first birth (PI08), 2011–2019

n.a.: data not available.

#### Data Notes:

1. Instrumental vaginal births include forceps and vacuum extraction.

- 2. Selected women are defined as 'aged between 20 and 34 years, where gestational age at birth was between 37 and 41 completed weeks, with a singleton baby in the vertex presentation)'. They are reported on separately as it is expected that they will have fewer labour complications and more optimal birth outcomes due to their lower risk. This cohort represents about one quarter of all women who give birth in Australia.
- 3. Data for Tasmania was not available until 2013. Presentations via caesarean births between 2005 and 2012 were not reported by hospitals who were still using the paper-based form. In these instances, if a caesarean section occurred the presentation was recorded as 'Not stated'. Presentations via caesarean births was included in the paper-based form from 1 January 2013.

4. Percentages for mother's Indigenous status are age-standardised.

	2011	2012	2013	2014	2015	2016	2017	2018	2019
				In	per cent (	%)			
Australia									
Total	13.4	13.3	13.8	13.2	13.5	13.1	12.2	12.2	12.2
Mother's age at birth									
Younger than 20	26.7	22.6	19.7	22.3	16.7	18.9	12.9	18.6	21.1
20-24	20.9	19.6	18.2	18.5	20.4	19.4	18.8	18.5	19.1
25-29	16.3	16.1	17.0	15.8	16.9	16.6	16.0	15.4	16.2
30-34	13.0	13.1	14.0	13.2	13.5	13.5	12.4	12.5	12.6
35-39	10.1	10.6	10.7	10.6	10.3	9.8	9.2	9.5	9.0
40 and over	7.1	6.6	7.5	6.7	6.3	5.2	5.5	5.4	4.3
Mother's indigenous status	;								
Indigenous	16.6	13.5	17.2	13.7	14.3	13.3	14.1	15.5	13.3
Non-Indigenous	15.3	14.7	13.9	14.0	13.7	13.3	12.2	13.6	13.3
Remoteness of mother's us	ual reside	nce							
Major cities	n.a.	13.2	13.5	12.8	13.1	12.5	11.9	11.6	11.5
Inner regional	n.a.	15.0	15.0	14.5	14.9	15.8	13.2	14.2	14.8
Outer regional	n.a.	12.8	12.8	13.3	14.3	13.4	12.9	13.2	13.9
Remote	n.a.	15.2	15.5	15.5	13.0	14.9	12.7	14.6	17.1
Very remote	n.a.	15.6	16.2	15.3	16.0	14.3	14.8	14.0	8.8
Hospital sector									
Private	7.6	7.4	7.9	6.8	6.9	6.4	5.7	5.6	5.8
Public	17.0	17.0	17.1	16.9	17.2	16.8	15.4	15.3	15.3
Hospitals annual number o	f births								
1-100 births	9.4	9.6	7.9	9.8	5.1	5.0	4.9	9.9	10.1
101-500 births	12.0	10.9	11.9	13.4	11.9	12.2	11.4	10.6	12.6
501-1,000 births	12.0	12.3	11.0	10.6	11.0	11.4	9.8	10.4	8.0
1,001-2,000 births	12.2	11.8	11.8	11.8	12.1	12.1	11.1	11.3	11.4
2,001 births and over	14.2	14.1	15.5	14.1	14.4	13.8	13.0	12.8	13.2

#### Table 25 Vaginal second birth, first by caesarean section (PI15), 2011–2019

n.a.: data not available.

# Data Notes:

1. Data for WA in 2013 is not published as complete data due to only half a year being reported.

 From 2014, Caesarean section at most recent previous birth indicator data item was introduced into the Perinatal NMDS. Although not an NMDS/DSS item prior to 2014, data items appear to match the data element developed by NPDDC, Caesarean section indicator (last previous birth)'.

3. Only women whose second birth was a singleton birth are included.

4. Percentages for mother's Indigenous status are age-standardised.

	2011	2012	2013	2014	2015	2016	2017	2018	2019
				In	per cent (	%)			
Australia									
Total	16.6	17.5	18.4	19.7	19.7	20.8	22.0	22.3	23.2
Mother's age at birth									
Younger than 20	10.1	10.2	10.7	12.4	13.2	14.7	14.9	15.7	15.2
20-24	13.3	14.1	14.2	15.6	15.4	16.3	17.9	17.6	19.4
25-29	18.4	19.3	20.1	21.5	21.3	22.3	23.4	23.4	24.2
30-34	19.8	20.6	22.2	22.9	22.5	23.9	24.4	25.0	25.8
35-39	18.2	19.6	20.8	20.8	21.7	21.7	24.4	24.3	25.2
40 and over	16.4	18.5	18.8	21.1	21.2	20.5	20.5	23.3	25.3
Hospital sector									
Private	25.4	25.6	25.5	27.4	27.4	28.1	28.2	28.8	29.1
Public	14.8	16.1	17.1	18.3	18.5	19.8	21.3	21.6	22.6
Hospitals annual number of birt	hs								
1-100 births	9.8	7.5	9.5	9.2	12.6	11.8	10.5	10.6	8.3
101-500 births	10.6	9.6	9.8	10.5	10.1	10.8	11.7	13.6	15.0
501-1,000 births	17.3	16.5	17.8	18.5	18.1	18.5	18.5	17.2	21.3
1,001-2,000 births	16.2	16.2	17.0	18.9	18.7	19.6	20.9	21.0	22.6
2,001 births and over	17.8	19.3	20.6	21.7	21.7	23.2	24.6	24.9	25.5

# Table 26 Episiotomy, first baby, vaginal non-instrumental births (PI03a), 2011–2019

Data Notes:

1. Non-instrumental vaginal births include spontaneous vaginal and vaginal breech.

2. For multiple births, the perineal status after the birth of the first-born baby was used.

3. From 2004 to 2013, a 'combined laceration and episiotomy' value could be recorded; from 2014 onwards, episiotomy could be recorded separately.

	2011	2012	2013	2014	2015	2016	2017	2018	2019
				In	per cent (	%)			
Australia									
Total	61.9	66.6	69.6	71.6	72.7	73.2	75.2	77.6	79.6
Mother's age at birth									
Younger than 20	56.6	63.8	68.6	69.3	70.2	68.7	72.4	74.8	80.6
20-24	62.6	65.7	70.1	72.2	71.9	73.0	75.9	78.7	80.6
25-29	62.9	67.9	70.5	72.6	73.8	74.1	75.8	79.2	81.3
30-34	61.3	66.6	69.3	71.1	72.4	73.2	75.1	76.5	78.5
35-39	61.8	65.1	67.7	70.4	72.4	72.0	74.1	76.4	77.6
40 and over	62.7	67.8	69.8	70.5	69.2	73.4	72.2	76.4	78.6
Hospital sector									
Private	58.7	61.5	63.0	63.5	64.5	63.2	64.9	65.0	66.4
Public	63.6	69.1	72.8	75.5	76.5	77.5	79.3	82.3	84.4
Hospitals annual number of birt	hs								
1-100 births	49.4	n.a	56.6	49.3	n.a.	53.0	56.0	56.0	66.1
101-500 births	53.6	55.7	60.4	62.8	64.6	61.2	52.8	58.0	65.8
501-1,000 births	59.1	61.8	66.9	66.4	68.3	67.8	65.9	67.5	72.3
1,001-2,000 births	60.5	66.6	65.7	70.1	71.0	70.3	73.7	74.8	75.8
2,001 births and over	63.9	68.5	72.3	73.8	74.4	75.8	78.6	81.1	83.2

#### Table 27Episiotomy, first baby, vaginal instrumental births (PI03b), 2011–2019

n.a..: data not available; or not publishable because of small numbers, confidentiality or other concerns about the quality of the data

#### Data Notes:

1. Instrumental vaginal births include forceps and vacuum extraction.

2. Data was not publishable for instrumental deliveries for hospitals with between 1 and 100 annual births, so proportions were not available for these years

3. For multiple births, the perineal status after the birth of the first-born baby was used.

- 4. From 2004 to 2013, a 'combined laceration and episiotomy' value could be recorded; from 2014 onwards, episiotomy could be recorded separately.
- 5. Source: AIHW analysis of National Perinatal Data Collection. Australian Institute of Health and Welfare 2021. National Core Maternity Indicators. Cat no. PER 95. Canberra: AIHW



	2011	2012	2013	2014	2015	2016	2017	2018	2019
				In	per cent (	%)			
Australia									
Total	7.2	6.7	6.4	6.5	6.2	6.3	6.1	6.0	5.5
Mother's age at birth									
Younger than 20	16.8	17.8	16.2	15.6	16.2	15.1	16.1	15.2	15.1
20-24	11.3	10.8	10.3	10.5	10.2	11.3	10.6	10.8	10.3
25-29	7.8	7.3	7.0	7.0	7.0	7.2	7.2	7.0	6.4
30-34	5.9	5.5	5.3	5.4	5.3	5.3	5.1	5.0	4.5
35-39	6.1	5.3	5.0	5.4	5.1	5.0	5.0	4.7	4.5
40 and over	6.3	6.6	5.5	6.2	5.1	5.8	4.6	4.9	4.9
Mother's Indigenous status									
Indigenous	12.9	13.5	11.6	11.4	12.5	11.9	10.9	12.1	10.2
Non-Indigenous	8.7	8.6	8.0	8.1	7.8	8.0	7.7	7.6	7.4
Remoteness of mother's usual resid	lence								
Major cities	n.a.	6.3	5.9	6.1	5.8	6.0	5.7	5.6	5.2
Inner regional	n.a.	7.8	7.5	7.4	7.3	7.2	7.2	6.8	6.5
Outer regional	n.a.	9.1	8.2	7.8	7.9	7.4	7.3	7.2	6.6
Remote	n.a.	8.5	6.8	7.2	7.2	6.4	6.0	6.3	5.8
Very remote	n.a.	7.6	7.3	7.3	7.2	6.9	7.0	6.2	4.7
Disadvantage quintile of mother's u	usual resid	dence							
Q1 - most disadvantaged	n.a.	10.1	9.2	9.0	9.0	9.1	8.8	8.7	8.3
Q2	n.a.	7.8	7.7	7.6	7.1	7.2	7.3	7.0	6.3
Q3	n.a.	6.7	5.9	6.0	6.0	6.1	5.8	5.7	5.2
Q4	n.a.	5.4	5.1	5.6	5.1	5.2	5.1	4.9	4.4
Q5 - least disadvantaged	n.a.	4.5	4.3	4.4	4.3	4.3	4.0	3.8	3.6
Hospital sector									
Private	3.3	2.7	2.6	2.8	2.7	2.5	2.7	2.4	2.3
Public	9.5	9.1	8.5	8.5	8.1	8.3	7.9	7.7	7.0
Hospitals annual number of births									
1-100 births	7.1	6.7	5.7	4.6	2.6	4.3	7.7	5.1	3.9
101-500 births	7.7	6.5	6.7	5.8	5.1	5.2	5.2	4.6	4.4
501-1,000 births	5.8	5.6	4.6	4.9	5.4	4.4	4.9	4.5	3.8
1,001-2,000 births	7.0	6.8	5.9	6.0	6.3	6.2	6.0	5.8	5.4
2,001 births and over	7.5	7.0	6.9	7.1	6.5	6.9	6.4	6.4	6.0

# Table 28 General anaesthetic, births by caesarean section (PI09), 2011–2019

n.a.: data not available.

#### Data Notes:

1. Percentages for mother's Indigenous status are age-standardised.

	2011	2012	2013	2014	2015	2016	2017	2018	2019
				In	per cent (	%)			
Australia									
Total	1.2	1.2	1.3	1.3	1.3	1.4	1.3	1.3	1.3
Mother's age at birth									
Younger than 20	1.8	1.9	2.1	2.3	2.2	2.0	2.1	2.4	2.1
20-24	1.4	1.5	1.5	1.6	1.7	1.8	1.5	1.5	1.6
25-29	1.1	1.2	1.4	1.4	1.4	1.4	1.4	1.4	1.4
30-34	1.0	1.2	1.2	1.2	1.2	1.3	1.2	1.2	1.2
35-39	1.1	1.1	1.2	1.2	1.3	1.2	1.2	1.1	1.2
40 and over	1.1	1.3	1.3	1.4	1.4	1.4	1.4	1.2	1.3
Mother's Indigenous status									
Indigenous	1.7	1.6	1.5	1.9	2.2	2.1	1.8	2.0	1.9
Non-Indigenous	1.2	1.4	1.4	1.5	1.5	1.5	1.4	1.4	1.5
Hospital sector									
Private	0.6	0.7	0.7	0.8	0.8	0.9	0.8	0.9	0.9
Public	1.4	1.5	1.6	1.6	1.6	1.6	1.5	1.5	1.5
Hospitals annual number of birt	hs								
1-100 births	1.0	1.1	0.9	0.9	1.2	1.3	1.4	1.1	1.5
101-500 births	1.0	1.2	1.3	1.2	1.3	1.2	1.3	1.3	1.5
501-1,000 births	1.1	1.2	1.2	1.2	1.3	1.2	1.3	1.4	1.3
1,001-2,000 births	1.0	1.3	1.3	1.3	1.4	1.5	1.4	1.4	1.4
2,001 births and over	1.3	1.3	1.4	1.4	1.4	1.4	1.3	1.3	1.3

# Table 29Apgar score < 7 at 5 minutes for births at or after term (PI04), 2011–2019</th>

Data Notes:

1. Some caution is required with interpretation of these percentages as the number of babies born at or after term with an Apgar score less than 7 is small.

2. Percentages for mother's Indigenous status are age-standardised.



	2011	2012	2013	2014	2015	2016	2017	2018	2019
				In	per cent	(%)			
Australia									
Total	1.7	1.6	1.6	1.5	1.4	1.4	1.3	1.3	1.2
Mother's age at birth									
Younger than 20	2.5	2.0	2.2	2.0	1.7	1.8	1.8	1.4	1.5
20-24	2.0	1.9	1.6	1.5	1.5	1.3	1.5	1.4	1.4
25-29	1.7	1.6	1.6	1.5	1.5	1.4	1.3	1.2	1.3
30-34	1.5	1.5	1.4	1.4	1.3	1.3	1.2	1.4	1.1
35-39	1.5	1.4	1.5	1.4	1.3	1.5	1.2	1.2	1.1
40 and over	2.2	1.8	1.6	1.7	1.5	1.5	1.8	1.6	1.5
Mother's Indigenous status									
Indigenous	3.4	3.5	3.0	3.1	3.6	2.4	2.3	2.7	1.4
Non-Indigenous	1.8	1.6	1.6	1.5	1.3	1.4	1.4	1.3	1.3
Remoteness of mother's usual re	sidence								
Major cities	n.a.	1.6	1.6	1.5	1.4	1.4	1.3	1.3	1.2
Inner regional	n.a.	1.5	1.5	1.2	1.2	1.3	1.0	1.0	1.1
Outer regional	n.a.	1.8	1.7	1.5	1.5	1.4	1.4	1.4	1.3
Remote	n.a.	1.9	1.8	1.4	1.3	1.6	1.5	1.2	1.0
Very remote	n.a.	3.3	2.7	2.3	3.0	2.1	3.0	2.3	1.0
Disadvantage quintile of mother	's usual resic	lence							
Q1 - most disadvantaged	n.a.	1.9	1.7	1.8	1.7	1.7	1.6	1.6	1.4
Q2	n.a.	1.8	1.7	1.5	1.5	1.6	1.3	1.3	1.2
Q3	n.a.	1.5	1.5	1.3	1.4	1.2	1.3	1.2	1.1
Q4	n.a.	1.5	1.4	1.4	1.3	1.2	1.2	1.2	1.1
Q5 - least disadvantaged	n.a.	1.4	1.4	1.4	1.2	1.2	1.1	1.1	1.1
Hospital sector									
Private	1.5	1.2	1.4	1.3	1.3	1.2	1.1	1.2	1.2
Public	1.8	1.8	1.6	1.5	1.5	1.5	1.3	1.3	1.2
Hospitals annual number of birth	IS								
1-100 births	2.4	1.8	1.7	1.8	2.3	0.6	0.9	1.2	0.8
101-500 births	1.6	1.4	1.4	1.3	1.4	1.4	1.3	1.1	1.3
501-1,000 births	1.7	1.4	1.6	1.2	1.1	1.4	1.2	1.0	1.0
1,001-2,000 births	1.7	1.7	1.6	1.4	1.4	1.3	1.2	1.2	1.1
2,001 births and over	1.7	1.6	1.6	1.5	1.5	1.5	1.3	1.4	1.3

#### Table 30 Small babies among births at or after 40 weeks' gestation (PI10), 2011–2019

n.a. : data not available.

#### Data Notes:

1. Caution should be used when comparing these results with other nationally and internationally reported indicators, as the cut-off birthweight may be different to this indicator.

2. Some caution is required with interpretation of these percentages as the number of small babies born at or after 40 weeks gestation is small.

3. Percentages for mother's Indigenous status are age-standardised.

	2013	2014	2015	2016	2017	2018	2019
			In	per cent (	%)		
Australia							
Total	5.2	5.4	5.6	5.3	5.0	5.0	5.0
Mother's age at birth							
Younger than 20	2.8	3.3	3.3	2.7	2.9	2.9	2.8
20-24	4.1	4.4	4.3	4.2	4.3	4.1	4.0
25-29	6.3	6.4	6.7	6.1	5.5	5.8	5.6
30-34	5.6	5.9	6.0	5.8	5.4	5.3	5.4
35-39	4.7	4.5	4.9	4.6	4.7	4.7	4.5
40 and over	3.6	4.0	3.2	3.5	3.5	2.9	3.0
Mother's Indigenous status							
Indigenous	4.6	4.9	3.2	4.3	4.4	4.8	5.1
Non-Indigenous	4.5	4.7	4.7	4.5	4.4	4.2	4.2
Remoteness of mother's usual residence							
Major cities	5.5	5.6	5.8	5.4	5.1	5.0	4.9
Inner regional	4.4	5.0	4.8	4.9	4.6	4.8	4.9
Outer regional	4.6	4.7	5.2	4.9	5.2	5.4	5.0
Remote	3.7	4.7	5.8	5.6	4.0	4.7	5.1
Very remote	5.3	7.1	6.2	6.4	5.0	6.7	3.8
Hospital sector							
Private	2.8	2.8	3.4	2.6	2.8	2.3	2.5
Public	6.0	6.3	6.3	6.1	5.7	5.7	5.6
Hospitals annual number of births							
1-100 births	3.2	4.5	4.4	3.1	4.6	4.7	4.4
101-500 births	4.5	5.3	5.0	4.9	4.9	4.8	4.8
501-1,000 births	4.0	3.9	5.8	4.1	4.3	4.0	3.8
1,001-2,000 births	5.0	5.3	5.3	5.1	4.9	5.0	4.9
2,001 births and over	5.7	5.8	5.7	5.6	5.2	5.2	5.2

# Table 31 Third and fourth degree tears, all vaginal first births (PI13a), 2011–2019

#### Data Notes:

1. For multiple births, the perineal status after the birth of the first-born baby was used.

2. Some caution is required with interpretation of these percentages as the number of small babies born at or after 40 weeks gestation is small.

3. Some caution is required in interpretating these percentages as the total number of annual tears is small.

	2013	2014	2015	2016	2017	2018	2019
			In	per cent (%	6)		
Australia							
Total	3.0	3.1	3.2	3.0	2.9	2.9	2.9
Mother's age at birth							
Younger than 20	2.5	2.9	2.9	2.2	2.5	2.6	2.4
20-24	2.6	2.7	2.7	2.7	2.8	2.7	2.7
25-29	3.7	3.8	4.0	3.7	3.3	3.4	3.4
30-34	3.1	3.2	3.4	3.2	3.0	3.0	3.1
35-39	2.1	2.1	2.4	2.2	2.1	2.2	2.2
40 and over	1.7	1.6	1.6	1.5	1.4	1.3	1.5
Mother's Indigenous status							
Indigenous	1.6	1.6	1.8	1.4	1.7	1.5	1.8
Non-Indigenous	2.6	2.7	2.8	2.6	2.5	2.5	2.6
Remoteness of mother's usual resident	ce						
Major cities	3.2	3.3	3.5	3.2	3.0	2.9	2.9
Inner regional	2.3	2.6	2.6	2.7	2.4	2.7	2.7
Outer regional	2.5	2.3	2.6	2.6	2.7	2.7	2.7
Remote	2.1	2.4	3.0	2.7	2.2	2.3	2.8
Very remote	2.4	3.2	2.8	2.9	2.8	3.4	2.6
Hospital sector							
Private	1.6	1.7	2.2	1.5	1.6	1.3	1.4
Public	3.4	3.5	3.6	3.5	3.2	3.3	3.3
Hospitals annual number of births							
1-100 births	1.5	1.7	1.7	1.5	2.0	2.2	2.0
101-500 births	2.2	2.5	2.5	2.5	2.5	2.4	2.5
501-1,000 births	2.2	2.3	3.6	2.2	2.4	2.2	2.1
1,001-2,000 births	2.8	2.9	2.9	2.9	2.7	2.7	2.9
2,001 births and over	3.4	3.4	3.4	3.3	3.1	3.1	3.1

# Table 32 Third and fourth degree tears, all vaginal births (PI13b), 2011–2019

#### Data Notes:

1. For multiple births, the perineal status after the birth of the first-born baby was used.

2. Some caution is required with interpretation of these percentages as the number of small babies born at or after 40 weeks gestation is small.

3. Some caution is required in interpretating these percentages as the total number of annual tears is small.

#### Table 33 Perinatal, stillbirth and neonatal death rates, 2019

	Perinatal deaths	Stillbirths	Neonatal deaths
	Rate		
Australia			
Total	9.6	7.2	2.4
Mother's age at birth			
Younger than 20	18.4	13.5	5.0
20-24	11.1	8.4	2.7
25-29	8.5	6.2	2.3
30-34	8.7	6.5	2.1
35-39	9.5	7.4	2.2
40 and over	15.1	11.4	3.7
Mother's country of birth			
Born in Australia	9.2	7.0	2.2
Born overseas	10.2	7.5	2.7
Mother's Indigenous status			
Indigenous	14.8	10.4	4.4
Non-Indigenous	9.3	7.1	2.3
Remoteness of mother's usual residence			
Major cities	9.3	7.1	2.2
Inner regional	9.6	7.0	2.6
Outer regional	10.6	7.7	2.9
Remote	8.7	6.3	2.4
Very remote	19.6	14.6	5.1
Disadvantage quintile of mother's usual residence			
Q1 - most disadvantaged	11.1	8.3	2.9
Q2	9.8	7.4	2.4
Q3	9.4	6.9	2.5
Q4	9.1	6.9	2.2
Q5 - least disadvantaged	8.3	6.5	1.8

Data notes:

1. The rate is the number of deaths per 1,000 births. Stillbirth and perinatal death rates were calculated using total births (live births and stillbirths). Neonatal death rates were calculated using live births.

2. Mother's age at birth excludes births where mother's age is less than 10 years.

3. Country of birth (mother): Data were mapped to the ABS Standard Classification of Countries (SACC), 2011.

4. Indigenous status (mother): The status of Indigenous includes Aboriginal, Aboriginal and Torres Strait Islander, and Torres Strait Islander.

 Remoteness area: Remoteness assigned using the ABS Australian Statistical Geography Standard (ASGS) 2016 remoteness structure applied to Statistical Areas Level 2 (SA2) of mother's area of usual residence. Only includes records where mothers' usual residence is an Australian state and/or territory (excluding 'Other territories').

 Socioeconomic status: Disadvantage quintile assigned using the ABS SEIFA IRSD 2016 scores applied to Statistical Areas Level 2 (SA2) of mother's area of usual residence. Only includes records where mothers' usual residence is an Australian state and/or territory (excluding 'Other territories').

7. Source: AIHW analysis of the National Perinatal Mortality Data Collection and the National Perinatal Data Collection.