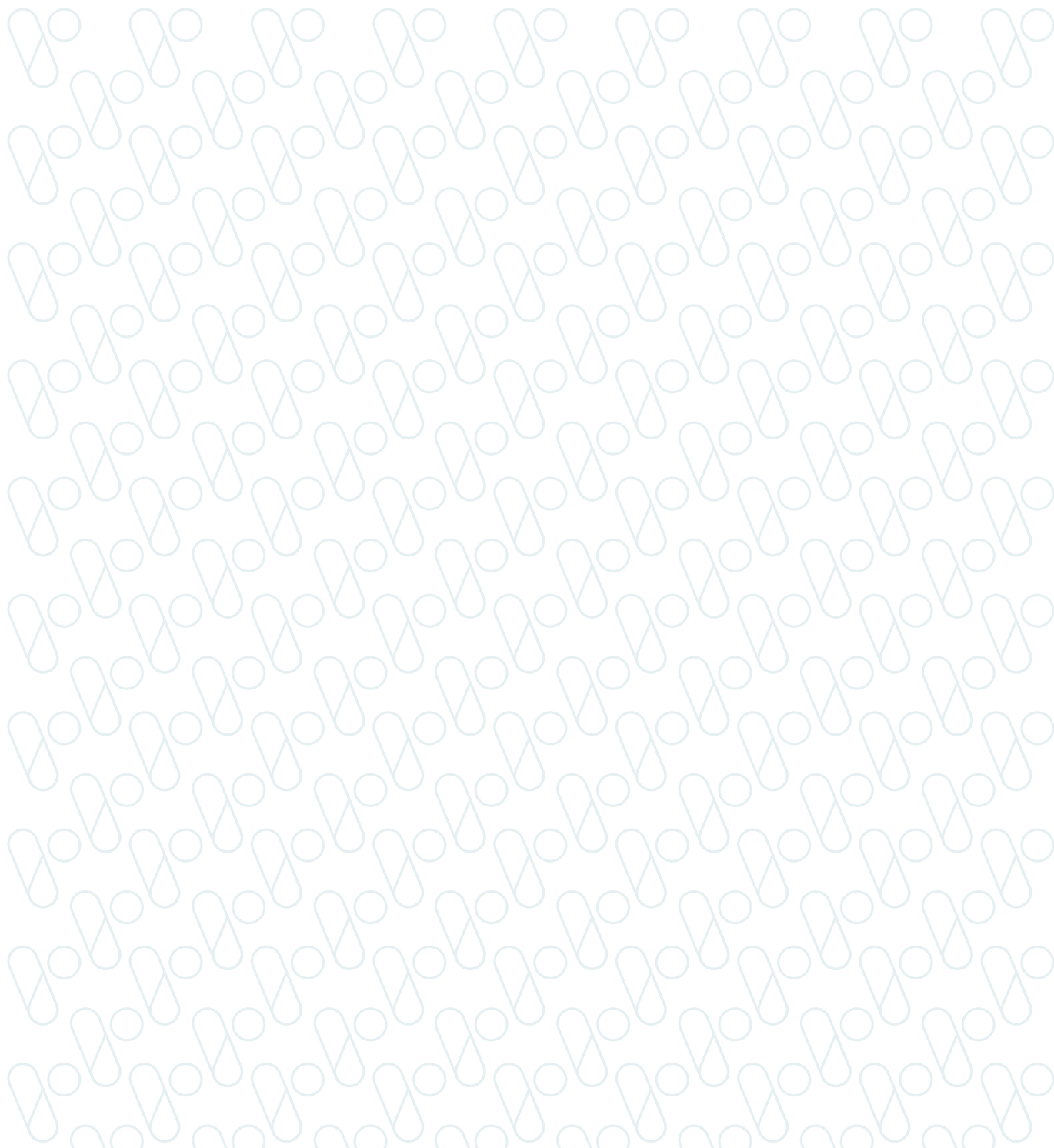

Victorian perinatal services performance indicators

2017–18





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Contents

Foreword	2
About this report	3
How to use this report	6
Summary of results	9
Performance indicators and outcomes	13
Indicator 1a: Induction of labour in standard primiparae	13
Indicator 1b: Caesarean sections in primiparae	16
Indicator 1c: Perineal tears in primiparae	20
Indicator 1d: Episiotomies in primiparae	24
Indicator 2: Term babies without congenital anomalies who required additional care	28
Indicator 3: Severe fetal growth restriction	31
Indicators 4a and 4b: Vaginal birth after primary caesarean section	34
Indicator 5: Five-year gestation standardised perinatal mortality ratio	38
Indicators 6a and 6b: Readmissions during the postnatal period	41
Indicator 7: Smoking cessation	47
Indicators 8a, 8b and 8c: Breastfeeding in hospital	50
Indicator 9: First antenatal visit	55
Indicator 10: Low Apgar score	58
Indicators 11a and 11b: Women's experiences of care	61
Trial Indicators 12a and 12b: Maternal immunisation	65
Appendix 1: Data sources and reporting rules	69
Appendix 2: Definitions and data sources	71
Appendix 3: Total women and babies born in Victorian maternity services 2017	93
Appendix 4: Overview of results	96
Terminology	104
Acknowledgements	107
References	108

Foreword

Victoria is one of the safest places in the world to have a baby. We, as Victorians, should be proud of that. We should also be proud of the dedicated health practitioners – midwives, nurses, physiotherapists, social workers, general practitioners, obstetricians, anaesthetists, paediatricians, paramedics, Aboriginal health worker and others – who provide us and our families with safe, high-quality care. They are exceptional people and the care provided is, mostly, outstanding. ‘Mostly’. What does that mean? It means that there is always an opportunity for us to improve.

In this report, we explicitly state where there has been improved care in the perinatal sector, and where there has not. For example, the reduction in the number of babies born after 40 weeks’ with severe fetal growth restriction (**Indicator 3**) is very positive. It reflects the concerted and coordinated efforts of Safer Care Victoria (SCV) and the Department of Health and Human Services (DHHS) to highlight the issue, facilitate education to all clinicians within the sector through professional colleges and networks, and provide health services with the support they require to improve this aspect of perinatal care.

There are further gains to be made and we look forward to a future where this rate is reduced even further. However, to exactly what level we should aim remains contentious for some indicators. In 2019 we hope to work with stakeholders to develop clearer targets for these indicators so that our local practice benchmarks favourably with national and international practice.

We remain committed to assessing and reporting on the experience of consumers and we again report on maternal satisfaction with their involvement in the birthing experience and with the advice provided to them about feeding their newborn infant. Having heard the consumer voice, we now hope to work with health services to develop strategies for optimising patient satisfaction.

Again, we have trialled a new indicator this year, reporting on rates of maternal immunisation for both pertussis and influenza. These preventable infectious diseases pose serious threats to pregnant women and ultimately their newborns. There appears to be significant variation in practice across Victoria for maternal immunisation. We will monitor these rates closely and will support health services to improve performance in the future.

I wish to acknowledge and thank Dr Shirin Anil, Dr Mary-Ann Davey and Taliesin Ryan-Atwood for the enormous effort invested to bring this report together. My thanks are also extended to the Maternity and Newborn Clinical Network INSIGHT Committee members who have diligently considered, analysed and improved the clarity and accessibility of the data reported herein.



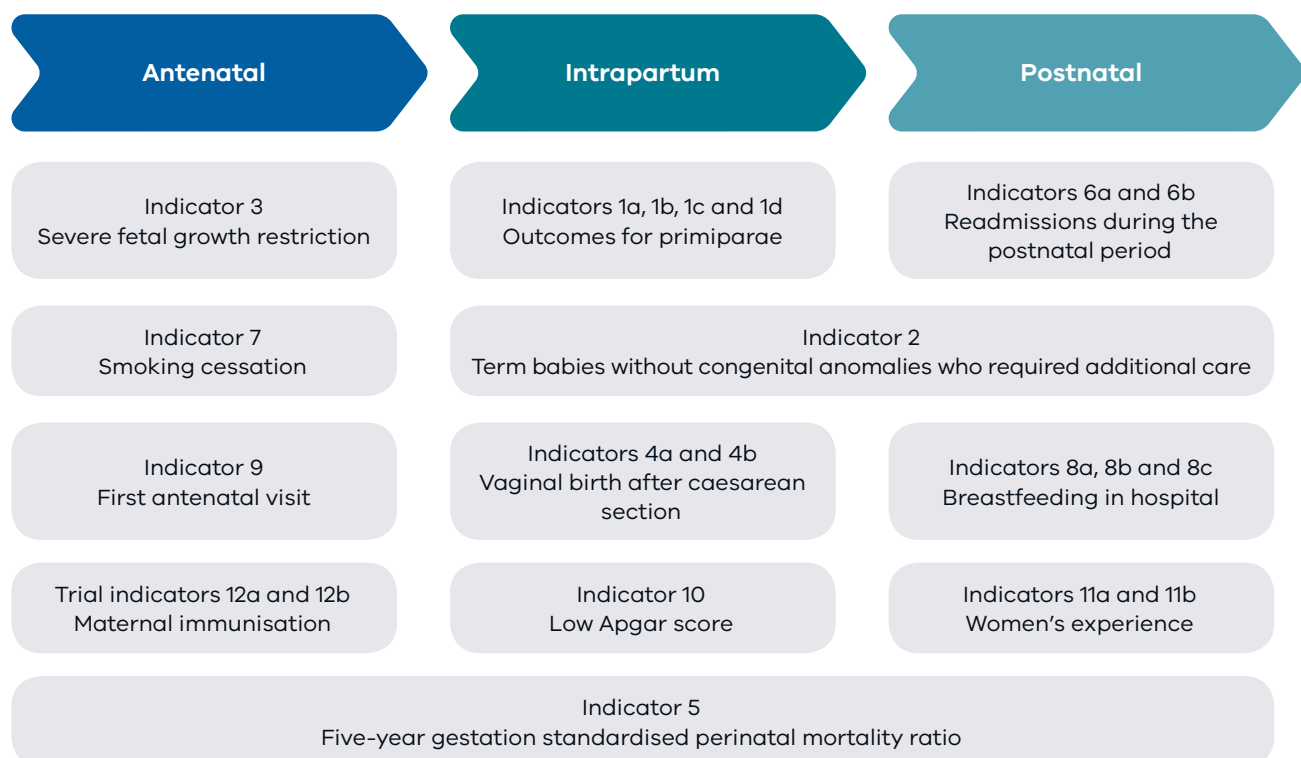
Professor Rod Hunt
Chair INSIGHT committee, SCV Maternity and Newborn Clinical Network

About this report

This report presents and discusses data from Victorian maternity services on 12 key performance areas and 24 performance indicators. Through transparently reporting this data, we can provide a picture of the care provided to pregnant women and babies – from antenatal and intrapartum (labour and birth), to postnatal care.

These performance indicators are widely accepted as appropriate, useful and insightful measures of the quality of care. They continue to be refined over time.

Figure 1. Perinatal services performance indicators by key performance area



The main section of this report details desired outcomes and statewide data observations, strategies for improvement for health services, and key information for pregnant women and families.

- Appendix 1 details the data sources for this report.
- Appendix 2 specifies the definitions of each indicator.
- Appendix 3 lists Victoria's maternity services and the number of women and babies cared for.
- Appendix 4 contains the results for each individual health service.

WHAT'S NEW?

All private hospitals are now identified

Public hospitals have been identified next to performance data for a long time now. This year is the first time all private hospitals have also been identified. This is a significant step in recognising the importance of transparent reporting of all services, as recommended in the *Targeting zero*¹ report.

Expanded definition of 'standard primipara'

'Standard primipara' is a term for a woman at very low risk when having a first birth. So, we can best compare birthing outcomes, we have broadened the definition to include more circumstances. The full definition is provided later in this report. But it is important to note results for **Indicator 1a** cannot be compared with previous reports.

Perinatal mortality now reported for every hospital

For the first time, we are reporting the gestation standardised perinatal mortality ratio (GSPMR) for every hospital. Perinatal mortality is adjusted for gestation to compare hospitals that have a different case mix. We specifically look at babies born at, or after, 32 weeks' gestation, and average rates over a five-year period to get a better sense of perinatal care a hospital provides.

New indicators

- **Indicators 1bi and 1bii** These indicators report the separate rates of caesarean section for spontaneous and induced labour. These indicators replace the previous Indicator 1b that reported a combined caesarean rate for all labour types.
- **Indicators 1ci and 1cii** These indicators report the separate rates of third- and fourth-degree perineal tears in women for unassisted and assisted vaginal birth. These indicators replace the previous **Indicator 1c**, which reported a combined rate of third and fourth degree perineal tears for all birth types.
- **Indicators 1di and 1dii** These indicators report the episiotomy rates separately for unassisted and assisted vaginal births.
- **Indicators 11a and 11b** These indicators report women's first-hand experience. Specifically, if they felt involved in decisions about their care and labour during birth, and if their midwives and other health professionals gave them consistent advice about feeding their baby.

¹ Duckett S, Cuddihy M, Newnham H 2016, Targeting zero: supporting the Victorian hospital system to eliminate avoidable harm and strengthen quality of care: report of the review of hospital safety and quality assurance in Victoria, Victorian Government, Melbourne.

We are trialling two new indicators

Indicators 12a and 12b report the rate of women vaccinated for pertussis (whooping cough) and influenza (flu) at any point during pregnancy. The vaccines protect pregnant women from infections that can cause serious complications during pregnancy and affect the health of their babies.

We plan to introduce targets for all indicators in the next report

Targets can be used to provide guidance and drive quality improvement. If you are currently using targets for any of the indicators in this report, we would like to hear from you.

How to use this report

Outcomes are reported here to help all of us identify best care by comparing services with each other and over time. By 'all of us' we mean women and their families, public and private health services, community and private maternity care providers, SCV and the DHHS .

We call this comparison 'benchmarking'. It can be done internally to identify best practice within a health service and compare practice over time. Done externally, benchmarking can:

- allow health services to assess their performance relative to other health services
- identify best practice in their field
- highlight opportunities for improvements, particularly where changes have been successful in other organisations.

Interpreting the data

Data for this report comes from the Victorian Perinatal Data Collection (VPDC) and Victorian Healthcare Experience Survey (VHES), and the Victorian Admitted Episodes Dataset (VAED).

Statewide, public and private rates provide an average of combined hospitals. They do not represent a desired target. In most cases, even where a hospital appears to be doing well, there are often opportunities for improvement.

Interquartile ranges represent variation between services. The graphs throughout this report use purple and blue vertical lines to show the least (purple) and most (blue) favourable 25 per cent of services.

Trend graphs are provided only when at least three years of data is available.

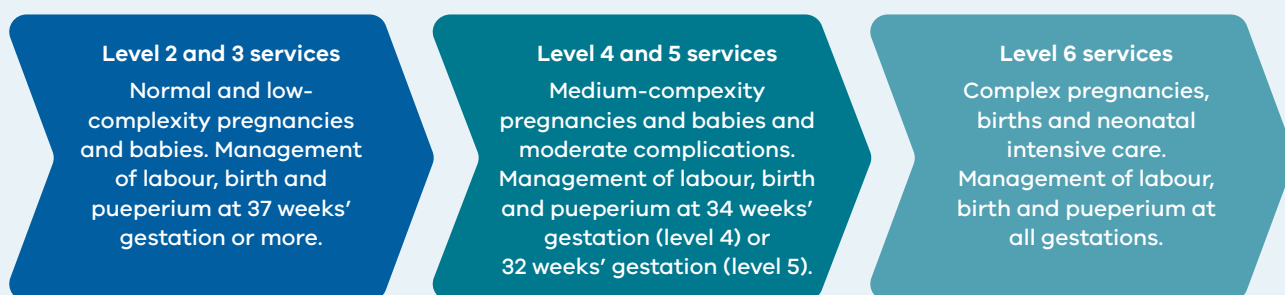
Compare your performance

Consider sharing your individual health service profile with others to help identify trends. Collaborating with neighbouring health services and community-based healthcare can help with appropriate referrals where required.

Capability levels

We have clustered health services by capability level so you can easily compare your service with others that care for mothers and babies with a similar level of complexity.

Figure 2. Levels of maternity and neonatal care



Source: Capability framework for Victorian maternity and newborn services.

Inform quality improvement activities

Analysis provided in this report can guide and inform local audits, including adverse event reviews, through your mortality and morbidity committees. Use this report to identify priority areas for performance improvement, and to measure the impact of improvement programs.

If you are seeing great results from local improvement activities, let us know. We would love to share your experience with other health services.

Our Maternity and Newborn Clinical Network will also use the statewide data to inform priority improvement programs across the state.

Suggested improvements

We have provided a list of strategies for improvement under each indicator. You can use these as a starting point to support performance improvement.

Need help? We are happy to work with you to understand the drivers for your performance, identify opportunities for improvement, and share positive examples of good practice.

Engage with your clinicians

Share your service's maternity and newborn outcomes with your clinical workforce, building clinician engagement.

Share with your community

We encourage you to share this report with women, their families and carers, explaining your outcomes and seeking their suggestions for service improvements. Produce an easy-to-read summary and give a copy to every woman who uses your service.



What pregnant women and families need to know

While this report is primarily for maternity services, we want to make sure women and their families can read and understand it too.

Look out for this icon. It represents important information pregnant women need to know about each indicator. We've also included a list of terminology at page 104.

Please speak to your maternity service if you want more information about their results.

Contact us

Email info@safercare.vic.gov.au.

Summary of results

WHERE WE ARE GETTING BETTER

Compared with previous years, the following indicators have improved in 2017.

Severe fetal growth restriction

Indicator 3

For the second consecutive year there was a decrease in the statewide rate of severe fetal growth restricted (FGR) babies undelivered by 40 weeks' gestation.

The statewide (combined public and private) FGR rate dropped from 30.8 per cent in 2016 to 28.1 per cent in 2017 (p-value=0.11). In public hospitals the rate decreased from 30.6 per cent in 2016 to 28.0 per cent in 2017 (p-value=0.16). In private hospitals the rate dropped from 31.1 per cent in 2016 to 28.8 per cent in 2017 (p-value=0.58). Statewide severe FGR has improved significantly over time (35.6 per cent in 2013 to 28.1 per cent in 2017, p-value < 0.001).

FGR remains a priority focus for SCV's Maternity and Newborn Clinical Network. If you are interested in improving your health service's outcomes in this area, please go to bettersafercare.vic.gov.au/maternityandnewbornclinicalnetwork or email maternityclinicalnetwork@safercare.vic.gov.au.

Smoking cessation in pregnancy

Indicator 7

The statewide rate of smoking cessation in pregnancy has increased from 26.1 per cent in 2016 to 27.1 per cent in 2017 (p-value=0.19). This increase is attributed to an improvement in smoking cessation across public hospitals, where rates increased from 24.4 per cent in 2016 to 25.5 per cent in 2017 (p-value=0.15). The cessation rate in private hospitals dropped slightly from 66.1 per cent to 65.2 per cent (p-value=0.83).

While it is fantastic to see an increase in statewide smoking cessation rates, it is important to continue efforts to encourage and support smoking cessation among pregnant women. Smoking is a preventable cause of morbidity and mortality in pregnant women and babies. The ideal smoking cessation rate is 100 per cent.

First antenatal visit

Indicator 9

The rate of women attending their first antenatal visit by 12 weeks' gestation has increased for the second consecutive year, from 45.4 per cent statewide in 2016 to 54.1 per cent in 2017 (p-value=<0.001). The rate increased in public hospitals from 32.3 per cent in 2016 to 44.5 per cent in 2017 (p-value=<0.001). In private hospitals the rate increased slightly, from 86.7 per cent in 2016 to 86.9 per cent in 2017 (p-value=0.57).

WHERE WE ARE DOING LESS WELL

The following outcomes suggest the need for health services to comprehensively review their practices and identify and actively plan for performance improvement. This includes improvements to data collection.

Planned vaginal births after caesarean

Indicators 4a and 4b

The statewide rate of women who planned vaginal births after caesarean (VBACs) (**Indicator 4a**) dropped from 25.5 per cent in 2016 to 23.7 per cent in 2017 (p-value=0.01), and the rate of achieved VBACs (**Indicator 4b**) dropped from 54.8 per cent in 2016 to 52.4 per cent in 2017 (p-value=0.14). The falling rate of VBACs suggests lack of choice rather than improved care.

Breastfeeding in hospital

Indicator 8c

The statewide rate of a breastfed baby's final feed in hospital being taken directly and exclusively from the breast decreased in 2017 to 75.1 per cent, down from 76.8 per cent in 2016 (p-value=<0.001). The rate across public hospitals decreased from 78.0 per cent in 2016 to 76.1 per cent in 2017 (p-value=<0.001). The rate in private hospitals also decreased slightly from 72.0 per cent in 2016 to 71.5 per cent in 2017 (p-value=0.16).

Table 1: Summary of statewide public and private maternity hospital rates 2017–18

Indicator		Statewide 2016–17*	Statewide 2017–18*	Statewide public 2017–18	Statewide private 2017–18	Least favourable quartile cut-off	Most favourable quartile cut-off
1a	Rate of induction of labour in standard primiparae	NA	11.3%	7.4%	18.1%	19.3%	5.8%
1bi	Rate of caesarean section in Robson group 1	16.4%	16.7%	15.0%	22.5%	25.0%	12.8%
1bii	Rate of caesarean section in modified Robson group 2	31.0%	30.1%	29.6%	32.3%	36.6%	26.8%
1ci	Rate of third and fourth-degree perineal tears during unassisted vaginal births to primiparae	4.3%	3.2%	3.6%	1.0%	3.8%	0.0%
1cii	Rate of third and fourth-degree perineal tears during assisted vaginal births to primiparae	6.2%	4.7%	5.5%	2.5%	6.8%	0.0%
1di	Rate of primiparae who received an episiotomy during unassisted vaginal births	26.0%	26.2%	25.4%	31.1%	NA	NA
1dii	Rate of primiparae who received an episiotomy during assisted vaginal births	81.7%	81.9%	85.7%	71.7%	NA	NA
2	Rate of term babies without congenital anomalies who required additional care†	NA	NA	8.7%	NA	8.2%	2.1%
3	Rate of severe fetal growth restriction in a singleton pregnancy undelivered by 40 weeks	30.8%	28.1%	28.0%	28.8%	32.5%	19.7%
4a	Rate of women who planned a vaginal birth after a primary caesarean section	25.5%	23.7%	27.8%	14.3%	13.3%	30.5%
4b	Rate of women who achieved a planned vaginal birth after a primary caesarean section	54.8%	52.4%	54.4%	42.8%	33.3%	60.0%
5	Five-year gestation standardised perinatal mortality ratio (GSPMR) for babies born at ≥ 32 weeks	NA	NA	1	0.75	NA	NA
6a	Rate of maternal readmissions during the postnatal period	2.5%	2.5%	2.5%	2.5%	3.0%	1.8%
6b	Rate of newborn readmissions during the postnatal period†	4.2%	NA	4.1%	NA	4.4%	1.5%

Table 1: Summary of statewide public and private maternity hospital rates 2017–18 (continued)

Indicator		Statewide 2016–17*	Statewide 2017–18*	Statewide public 2017–18	Statewide private 2017–18	Least favourable quartile cut-off	Most favourable quartile cut-off
7	Rate of smoking cessation during pregnancy	26.1%	27.1%	25.5%	65.2%	16.2%	34.4%
8a	Rate of breastfeeding initiation for babies born at ≥ 37 weeks' gestation	95.4%	95.4%	95.0%	96.5%	93.3%	97.0%
8b	Rate of use of infant formula in hospital by breastfed babies born at ≥ 37 weeks' gestation	28.2%	28.2%	25.2%	38.2%	32.5%	16.1%
8c	Rate of final feed being taken directly from the breast by breastfed babies born at ≥ 37 weeks' gestation	76.8%	75.1%	76.1%	71.5%	74.2%	89.0%
9	Rate of women attending their first antenatal visit prior to 12 weeks' gestation	45.4%	54.1%	44.5%	86.9%	37.1%	82.8%
10	Rate of term babies without congenital anomalies with an Apgar score < 7 at five minutes	1.4%	1.3%	1.5%	1.0%	1.7%	0.7%
11a	Rate of women who felt involved, as much as they wanted to be, in decisions about their care during labour and birth	80.0%	78.9%	78.9%	NA	NA	NA
11b	Rate of women who felt that midwives and other health professionals gave them consistent advice about feeding their baby	51.0%	49.5%	49.5%	NA	NA	NA
Trial indicators							
12a	Rate of women vaccinated for pertussis during pregnancy	NA	77.5%	83.0%	59.9%	NA	NA
12b	Rate of women vaccinated for influenza during pregnancy	NA	53.7%	53.9%	53.4%	NA	NA

* Result includes public and private services.

NA – not applicable

† The number of admitted (unqualified or qualified) neonates discharged from hospital forms the denominator of this indicator. As VAED reporting of unqualified neonate admissions is optional for private hospitals, it is not possible to establish an accurate denominator (that includes public and private hospitals) for this indicator. Therefore, **Indicator 6b** will only report the performance of public hospitals.

Note: Quartiles are calculated for statewide public and private health services combined, unless stated otherwise.

Performance indicators and outcomes

INDICATOR 1A: INDUCTION OF LABOUR IN STANDARD PRIMIPARAE

Definition

This indicator shows the rate of induction of labour for standard primiparae. Standard primiparae in this indicator are defined as women aged between 20 and 39 years, with no obstetric complications, and who do not have pre-existing hypertension, diabetes, heart disease or serious psychiatric conditions, giving birth to their first child who is singleton, not growth restricted and presenting head-first at 37 to 40 completed weeks' gestation.

Excluding women with complicated pregnancies, this indicator controls for complexity and compares between similar women at all hospitals. These women would be expected to need little intervention.

Clinical significance

Induction of labour is sometimes necessary. However, Victorian data show it can increase the need for further intervention, such as caesarean (refer to **Indicator 1bii**). Safely reducing the number of primiparous women who have an induced labour may reduce the number who require birthing interventions overall.

Desired outcome

Rate of induction should, in most cases, be close to zero for this low-risk group of women.

Observations on the data

In 2017, the statewide rate of standard primiparae having an induced labour was 11.3 per cent. The rate was lower in public hospitals than in private hospitals (7.4 per cent and 18.1 per cent respectively, $p\text{-value}=\leq 0.001$). There was considerable variation between hospitals, from zero to 46.2 per cent (Figure 3).

Strategies for improvement

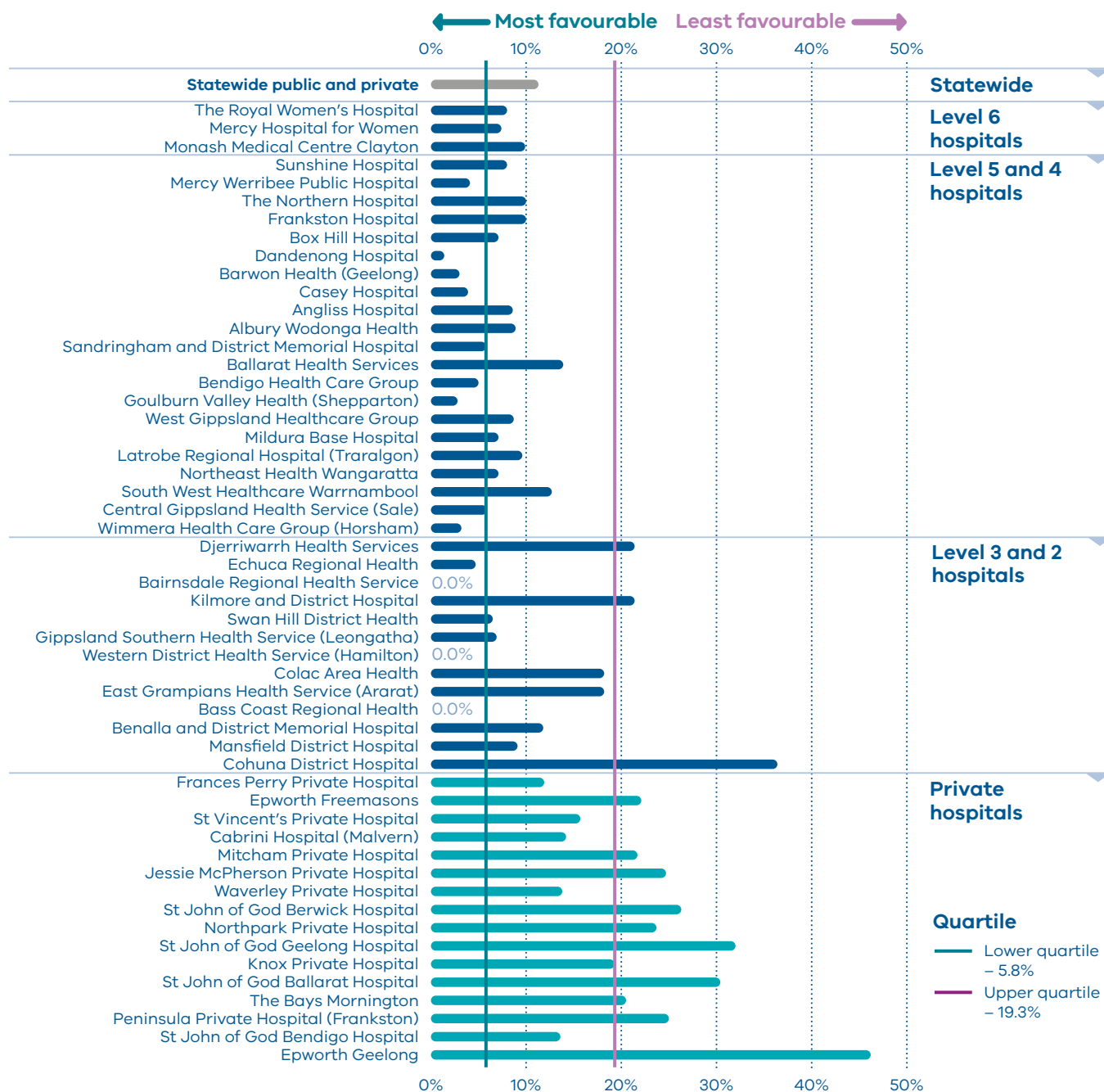
- Provide information (verbal and written) to women regarding the benefits and risks of induction of labour based on best evidence.
- Ensure your health service is aligned with evidence based guidelines for induction.
- Undertake regular multidisciplinary audit and review of the indications for induction of labour (weekly or monthly depending on the size of the service).
- Undertake a review of the local booking, prioritisation and authorisation processes for induction of labour including escalation in the absence of clinical indication.
- Verify a sample of unit records with SCV to ensure local coding of standard primiparae is correct (when local data varies from rates published in this report).



Inducing, or bring on, labour is sometimes necessary. However, if you are healthy and having a normal first pregnancy, you should not require much intervention like this. Inducing labour for what we consider to be 'low-risk' births can sometimes lead to health problems that need help from doctors and midwives.

The graph below shows there is a big difference between Victorian hospitals in how many low-risk, first time mothers have labour induced. Health services should aim to reduce this rate to nearly zero.

Figure 3. Indicator 1a: Rate of induction of labour in standard primiparae 2017



As the definition of the standard primipara was broadened in 2017 no comparison can be made with previous years.

INDICATOR 1B: CAESAREAN SECTIONS IN PRIMIPARAE

Definition

This indicator shows the rate of caesarean sections in primiparae giving birth to one baby at more than 37 weeks' gestation with cephalic (head-first) presentation in:

- i. Robson group 1 (spontaneous labour)²
- ii. Modified Robson group 2 (induced labour)³.

The Robson classification system (also known as the 10-group classification) categorises all women into one of 10 groups that are mutually exclusive and exhaustive based on basic obstetric characteristics.

Robson group 1 includes first-time pregnant women with a singleton cephalic pregnancy, at greater than or equal to 37 weeks' gestation in spontaneous labour.

Modified Robson group 2 includes women pregnant for the first-time with a singleton cephalic pregnancy, at greater than or equal to 37 weeks' gestation who had labour induced. Modified Robson group 2 excludes pre-labour caesareans, which are included in the standard Robson group 2.

Clinical significance

Caesarean sections are lifesaving in some situations. They are accompanied by higher morbidity for women and babies, slower recovery from the birth, increased risk of placental complications in subsequent births and increased cost to the healthcare system. A caesarean for the first baby increases the risk of caesarean birth for subsequent babies.

Desired outcome

There is no consensus on the ideal rate of caesarean section. However, there is widespread agreement that safely reducing the rate of caesareans is desirable, particularly where safe vaginal birth could be expected.

Observations on the data

The statewide rate of primiparae in Robson group 1 who gave birth by caesarean section (following a spontaneous labour) (**Indicator 1bi**) was 16.7 per cent. The rate was lower across public hospitals (15.0 per cent) than private hospitals (22.5 per cent, p-value <0.001) (Figure 4).

The statewide rate of primiparae in modified Robson group 2 who gave birth by caesarean section (following an induced labour) (**Indicator 1bii**) was 30.1 per cent and was also lower in public than private hospitals (29.6 and 32.3 per cent respectively, p-value=0.006) (Figure 5).

2 Robson MS 2001, *Classification of caesarean sections*, *Fetal and Maternal Medicine Review*, <<https://www.cambridge.org/core/journals/fetal-and-maternal-medicine-review/article/classification-of-caesarean-sections/1489F66B41725CF7719525EC11655D4C>>.

3 Zhang J, Geerts C, Hukkelhoven C, Offerhaus P, Zwart J, de Jonge A 2016, *Caesarean section rates in subgroups of women and perinatal outcomes*, *British Journal of Obstetrics and Gynaecology*, <<https://obgyn.onlinelibrary.wiley.com/doi/full/10.1111/1471-0528.13520>>.

Strategies for improvement

- Undertake regular multidisciplinary audit and review of the indications for and outcomes of caesarean section (weekly or monthly depending on the size of the service).
- Provide information (verbal and written) to women regarding the benefits and risks of caesarean section based on current evidence.
- Consider processes to have a second opinion for interventions.



Caesarean sections can be lifesaving. But if you are healthy and having your baby on time (or 'at term', after 37 weeks), you should be encouraged to have a natural (vaginal) birth.

Having a caesarean section (or surgical delivery) will slow the mother's recovery and increase their chances of needing a caesarean section for your next baby.

The graph below shows the rates of caesarean section for healthy first-time mothers having a baby on time. There is a lot of variation between hospitals and the rate for some hospitals is very high. Ideally this should be similar between hospitals. At some hospitals as few as seven per cent of healthy first-time mothers have a caesarean section.

Figure 4. Indicator 1bi: Rate of caesarean section in Robson group 1 2017

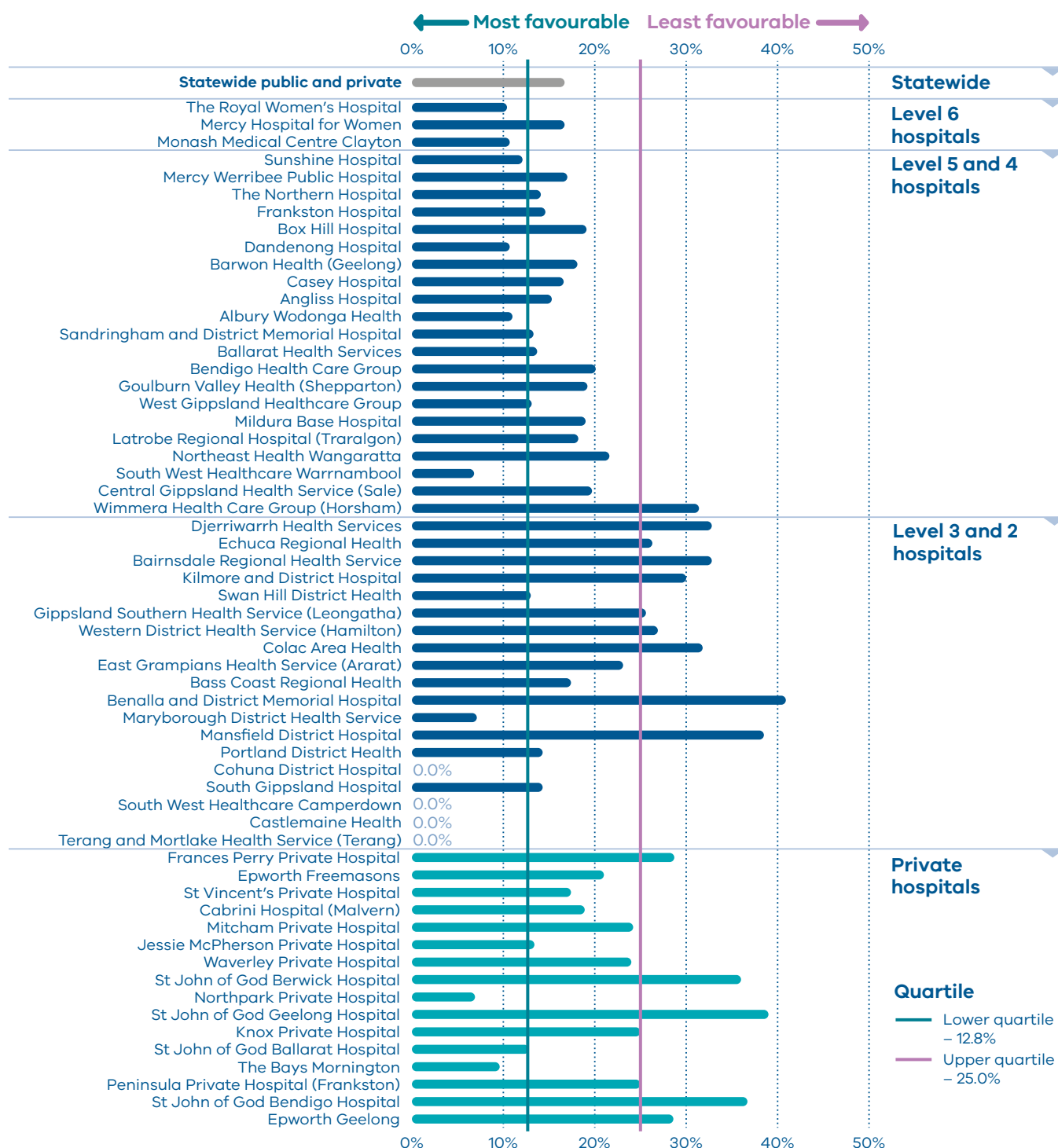


Figure 5. Indicator 1bii: Rate of caesarean section in modified Robson group 2 2017

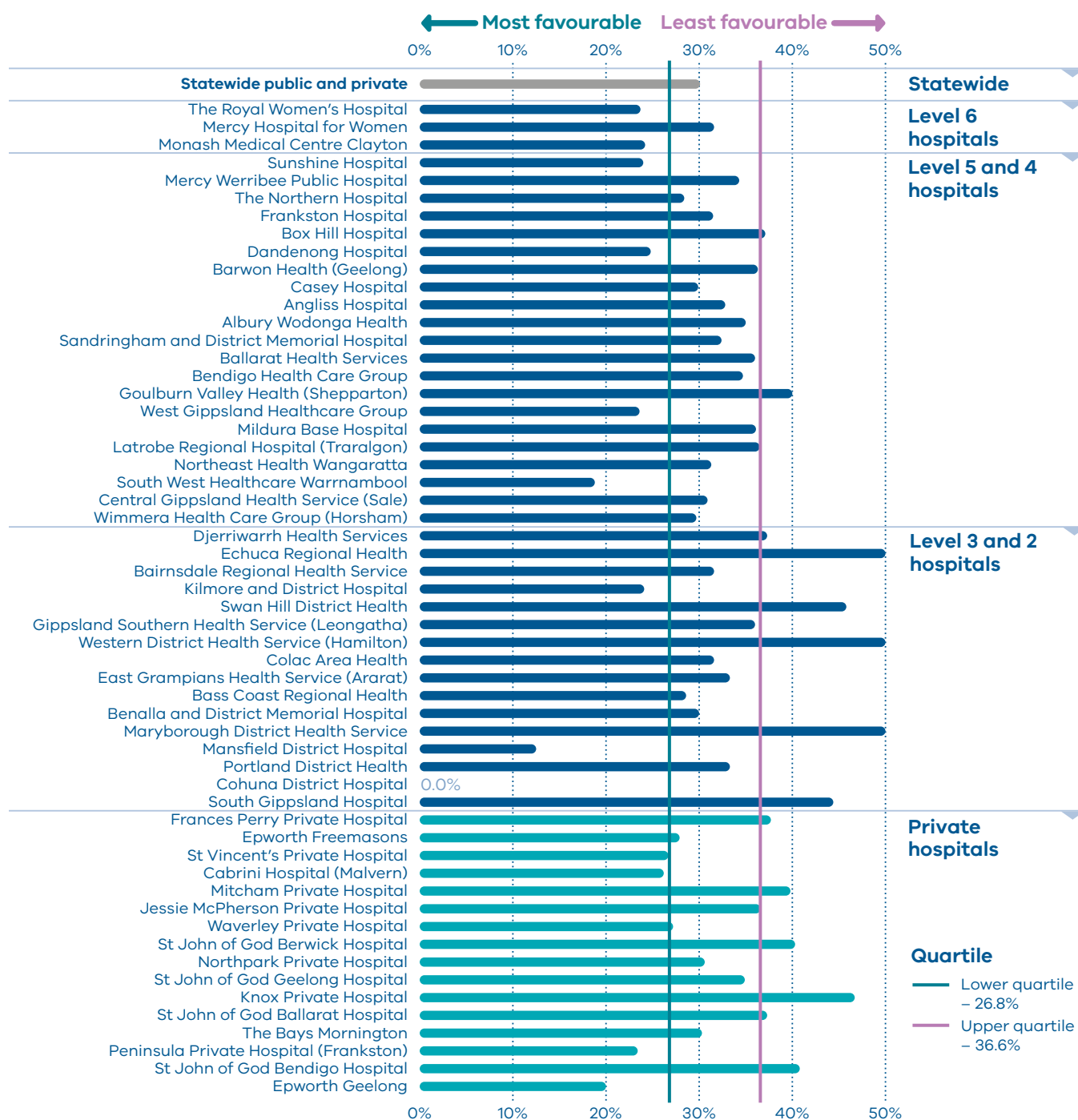


Table 2. Rate of caesarean section in Robson groups 1 and 2

	2016			2017		
	Public	Private	Combined	Public	Private	Combined
Robson group 1	14.9%	21.7%	16.4%	15.0%	22.5%	16.7%
Robson group 2	30.4%	32.8%	31.0%	29.6%	32.3%	30.1%

INDICATOR 1C: PERINEAL TEARS IN PRIMIPARAE

Definition

This indicator shows the rate of third and fourth-degree perineal tears in primiparae in:

- i. unassisted vaginal births
- ii. assisted vaginal births.

Clinical significance

Third- and fourth-degree perineal tears are a significant birth related complication that may lead to long-term disability. It is important that, where possible, they are prevented from happening and, where they do happen, they are recognised so that appropriate treatment can be provided. Third- and fourth-degree tear rates may reflect the quality of intrapartum care or differences in the accuracy of identification and reporting.

Desired outcome

The rate of perineal tears should be as low as possible.

Observations on the data

The statewide rate of third- and fourth-degree perineal tears in unassisted births (**Indicator 1ci**) was 3.2 per cent. The rate was higher in public hospitals (3.6 per cent) than private hospitals (1.0 per cent, $p\text{-value}=\leq 0.001$) (Figure 6).

The statewide rate of third- and fourth-degree tears in assisted births (**Indicator 1cii**) was 4.7 per cent. The rate was again higher in public hospitals (5.5 per cent) than private hospitals (2.5 per cent, $p\text{-value}=\leq 0.001$) (Figure 7).

There was significant variation between individual hospitals in both unassisted and assisted vaginal births, from zero to 20.0 per cent and zero to 11.1 per cent respectively.

Strategies for improvement

- Ensure clinicians are following best practice including:
 - applying warm perineal compresses during the second stage of labour at the start of perineal stretching
 - with a spontaneous vaginal delivery, using gentle verbal guidance to encourage a slow controlled birth of the fetal head and shoulders
 - episiotomy if indicated
 - a genito-anal examination following birth
 - accurate diagnosis and grading of perineal trauma by experienced clinicians.
- Ensure clinicians are competent in avoiding, identifying and classifying perineal tears.
- Hospitals with high rates should review their practices, while those with very low rates may need to ensure staff are appropriately trained to identify and classify perineal tears.
- Ensure systems are in place to provide clinical follow-up to women affected post-discharge and to monitor their outcomes over time.



A perineal tear is when the tissue at the opening of the birth canal tears. This is sometimes unavoidable with a vaginal birth, and small tears usually heal well. But the doctors and midwives should be doing their best to reduce the chances of a severe tear happening. They might cut an episiotomy to reduce the chance of severe tearing, and to make the opening big enough for the baby to fit through. More severe tears (referred to as third or fourth degree) can result in long term complications.

The graphs below show a big difference between hospitals in how often severe tearing occurs. We suspect hospitals may be measuring and reporting this in different ways, which may explain the difference. We aim to have the rate of severe tearing as low as possible, with the results similar between hospitals.

Figure 6. Indicator 1ci: Rate of third- and fourth-degree perineal tears during unassisted vaginal births to primiparae 2017

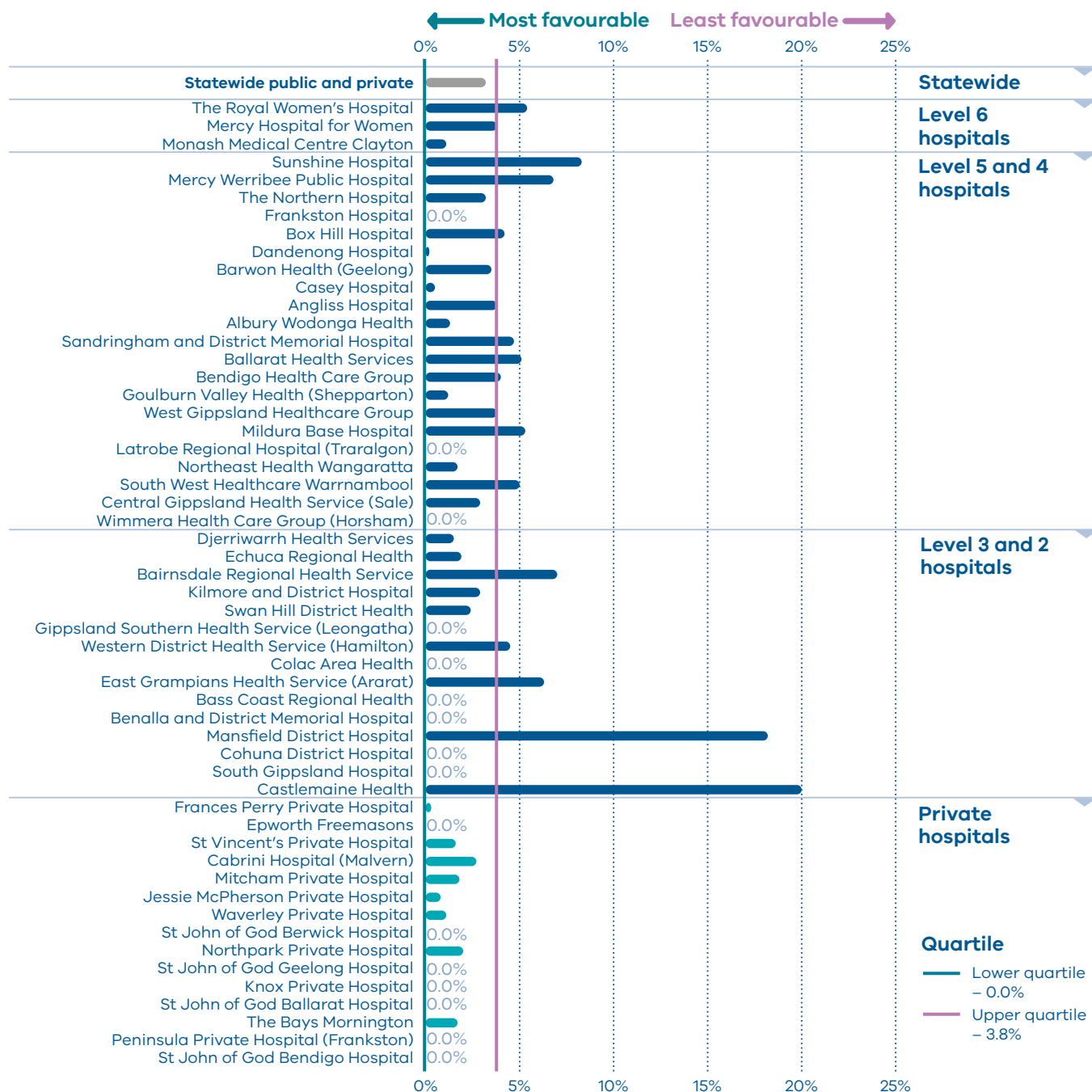


Figure 7. Indicator 1cii: Rate of third- and fourth-degree perineal tears during assisted vaginal births to primiparae 2017

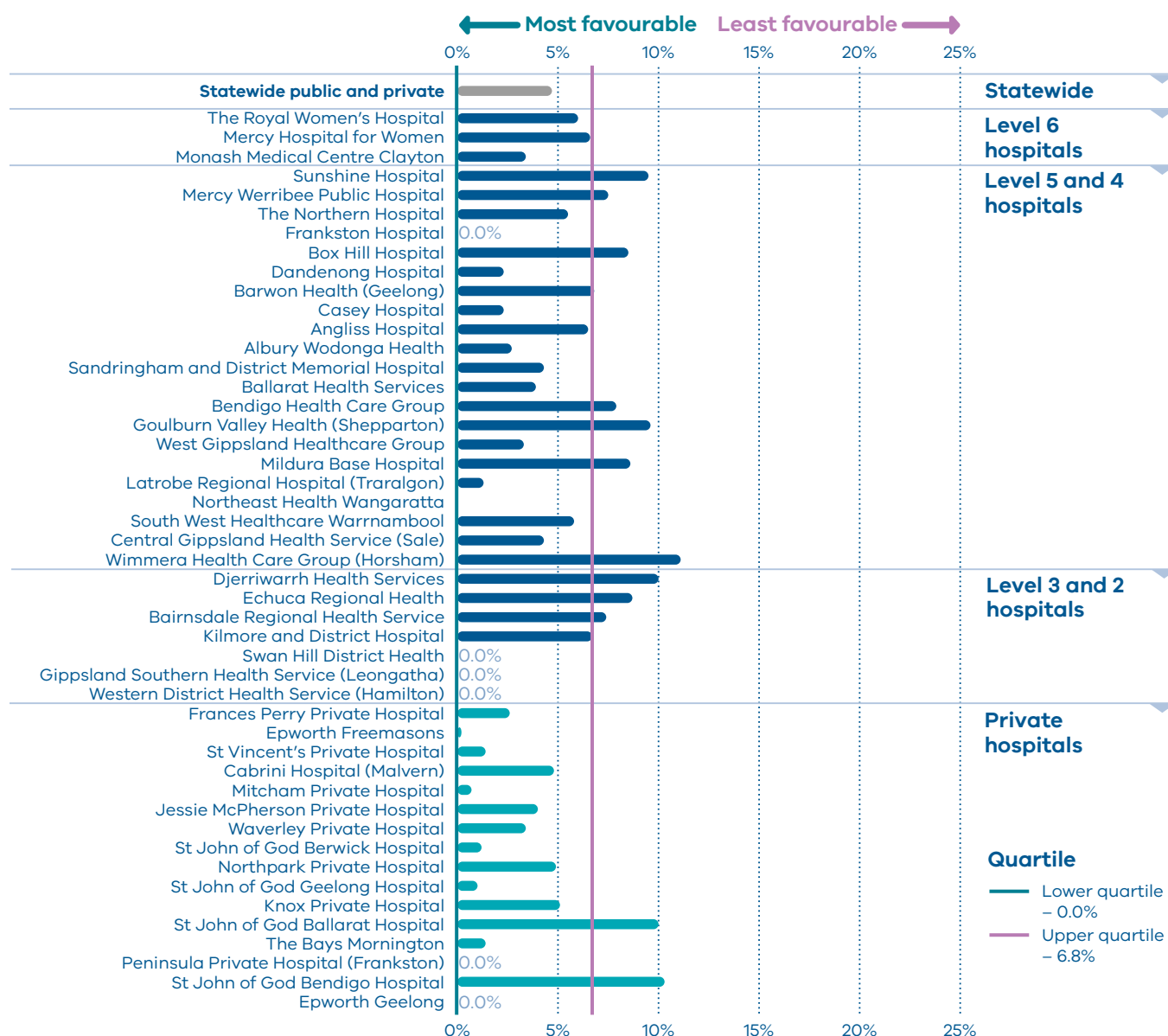


Table 3. Rate of third- and fourth-degree perineal tears

	2016			2017		
	Public	Private	Combined	Public	Private	Combined
During unassisted vaginal births	4.9%	1.3%	4.3%	3.6%	1.0%	3.2%
During assisted vaginal births	7.7%	2.5%	6.2%	5.5%	2.5%	4.7%

INDICATOR 1D: EPISIOTOMIES IN PRIMIPARAE

Definition

This indicator shows the rate of episiotomy in primiparae for:

- i. unassisted vaginal births
- ii. assisted vaginal births.

Clinical significance

An episiotomy should only be performed when clinically indicated, such as in instrumental birth or suspected fetal compromise, or when severe trauma is anticipated.

Desired outcome

The rate of episiotomy should, in most cases, be low for unassisted vaginal births in primiparae (**Indicator 1di**) but may not be for assisted vaginal births (**Indicator 1dii**).

Observations on the data

The statewide rate of episiotomy in unassisted births (**Indicator 1di**) was 26.2 per cent. The rate was lower in public hospitals (25.4 per cent) than private hospitals (31.1 per cent, p-value=<0.001) (Figure 8).

The statewide rate of episiotomy in assisted births (**Indicator 1dii**) was 81.9 per cent. The rate was higher in public hospitals than private hospitals at 85.7 and 71.7 per cent respectively (p-value=<0.001) (Figure 9).

There was significant variation between individual hospitals in both unassisted and assisted vaginal births, including those of similar size and capability level.

Strategies for improvement

- Undertake regular multidisciplinary audits and reviews of the indications for and outcomes of episiotomy for all unassisted vaginal births (weekly or monthly depending on the size of the service).
- Provide information (verbal and written) to women regarding the benefits and risks of an episiotomy based on best evidence.
- Ensure systems are in place to provide information for women regarding care of episiotomy after discharge.

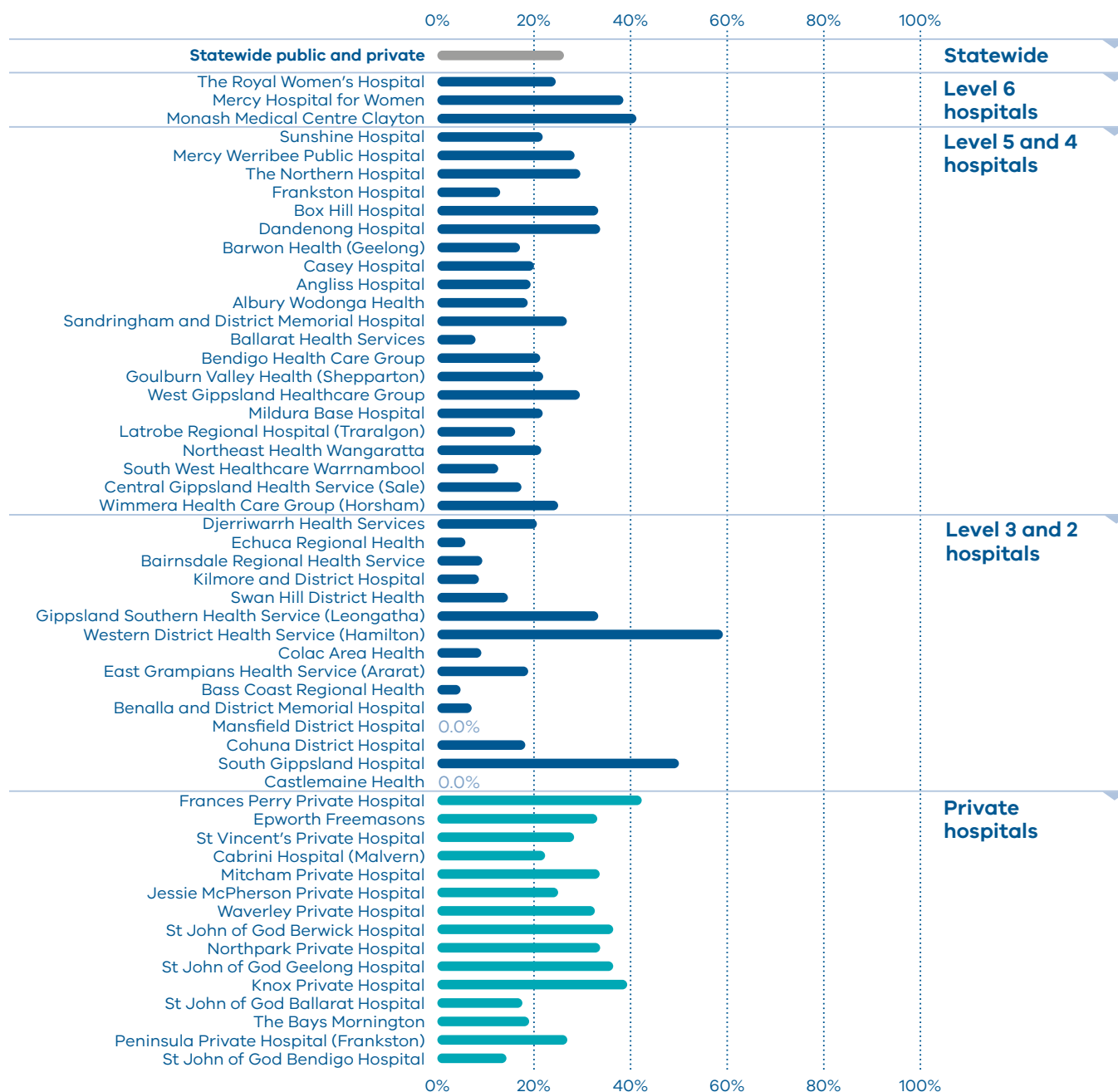


Midwives and doctors looking after women in labour will sometimes have to cut the opening of the birth canal (vagina) to make it big enough for the baby to fit through safely. This is called an episiotomy.

Midwives and doctors may do this if they think the baby needs to be born quickly or if the mother's perineum might tear excessively if it isn't cut. Almost all women having an assisted vaginal birth (forceps or vacuum) need an episiotomy.

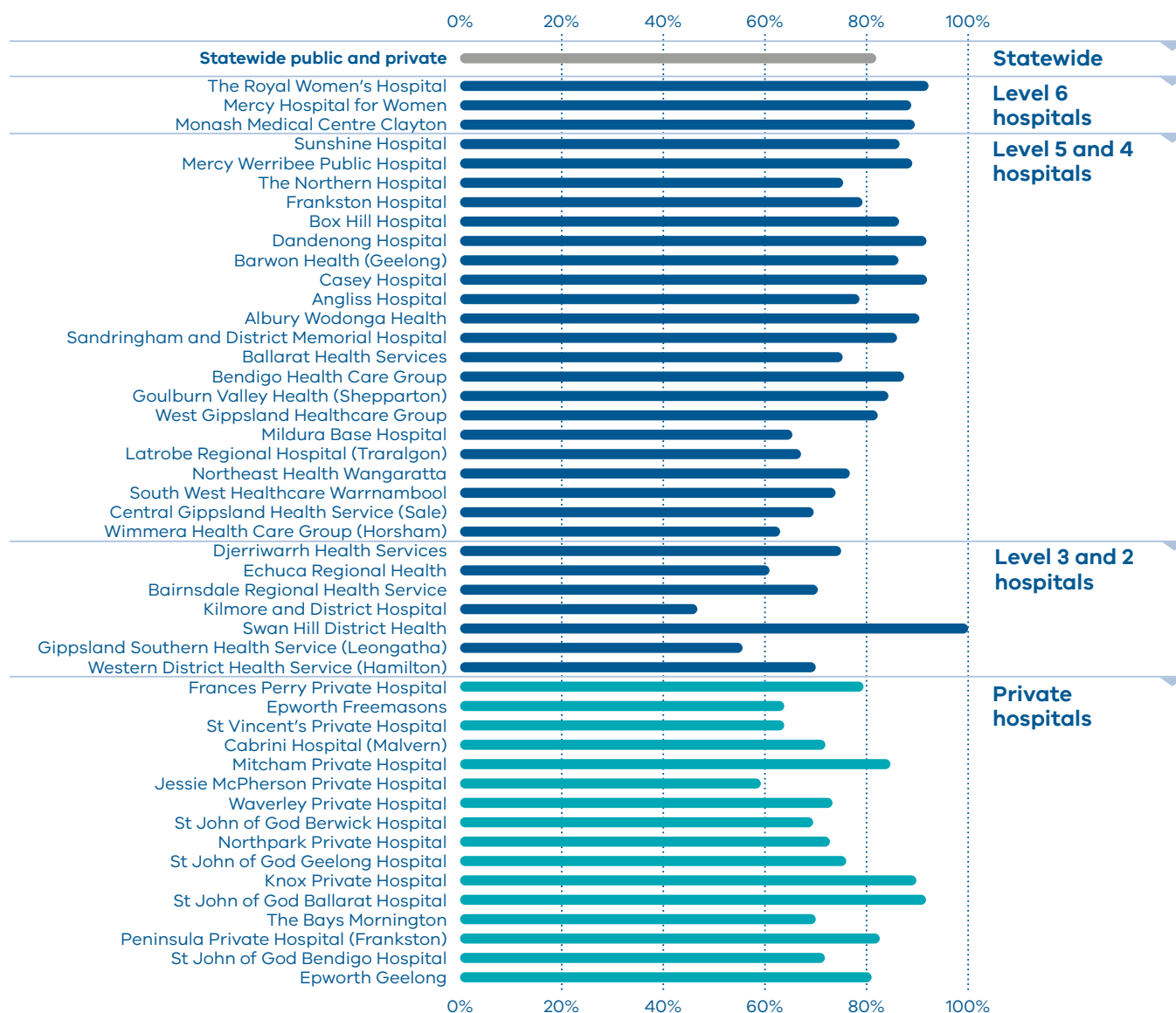
For healthy first-time mothers having a natural birth, the rate of cutting an episiotomy should be low.

Figure 8. Indicator 1di: Rate of primiparae who received an episiotomy during unassisted vaginal births 2017



Quartiles are not provided for the episiotomy indicators. The statewide average is provided for comparative purposes.

Figure 9. Indicator 1dii: Rate of primiparae who received an episiotomy during assisted vaginal births 2017



Quartiles are not provided for the episiotomy indicators. The statewide average is provided for comparative purposes.

Table 4. Rate of primiparae who received an episiotomy

	2016			2017		
	Public	Private	Combined	Public	Private	Combined
During unassisted vaginal births	24.8%	32.8%	26.0%	25.4%	31.1%	26.2%
During assisted vaginal births	85.6%	72.0%	81.7%	85.7%	71.7%	81.9%

INDICATOR 2: TERM BABIES WITHOUT CONGENITAL ANOMALIES WHO REQUIRED ADDITIONAL CARE

Definition

This indicator aims to highlight variations in the care required for term babies (born at 37 weeks or more) without congenital anomalies.

While we know some babies will experience medical conditions following birth that require admission to hospital for additional care (for example, hyperbilirubinaemia, low Apgar score, sepsis, seizures), we expect the need for additional care and treatment in this cohort to be low.

Higher rates may indicate quality of care issues during labour, birth and/or the immediate neonatal period.

Clinical significance

Most inborn babies, born at 37 weeks or more, with a birthweight of at least 2,500 grams and without the presence of a congenital anomaly are not expected to require additional care following birth.

As such, the indicator indirectly measures the quality of care provided during pregnancy, labour and birth and in the early neonatal period.

Desired outcomes

- The need for additional care and treatment for babies included in this indicator should be low.
- Higher rates may indicate quality of care issues during labour and birth or suboptimal identification and/or management of complications during pregnancy.

Observations on the data

The statewide public hospital rate of term babies without congenital anomalies who required additional care in 2017–18 was 8.7 per cent. Data shows variation between hospitals, ranging from zero to 17.6 per cent (Figures 10 and 11).

Strategies for improvement

- Undertake multidisciplinary reviews of adverse events and outcomes to identify areas for clinical practice or system improvement.
- Monitor the competency and confidence of clinicians in fetal surveillance during labour and in neonatal resuscitation.
- Review the availability and use of senior clinicians to supervise junior clinicians when care is escalated both during and after hours.
- Review reporting to the VAED to ensure accurate capture and reporting of diagnostic treatment codes relevant to the newborn.

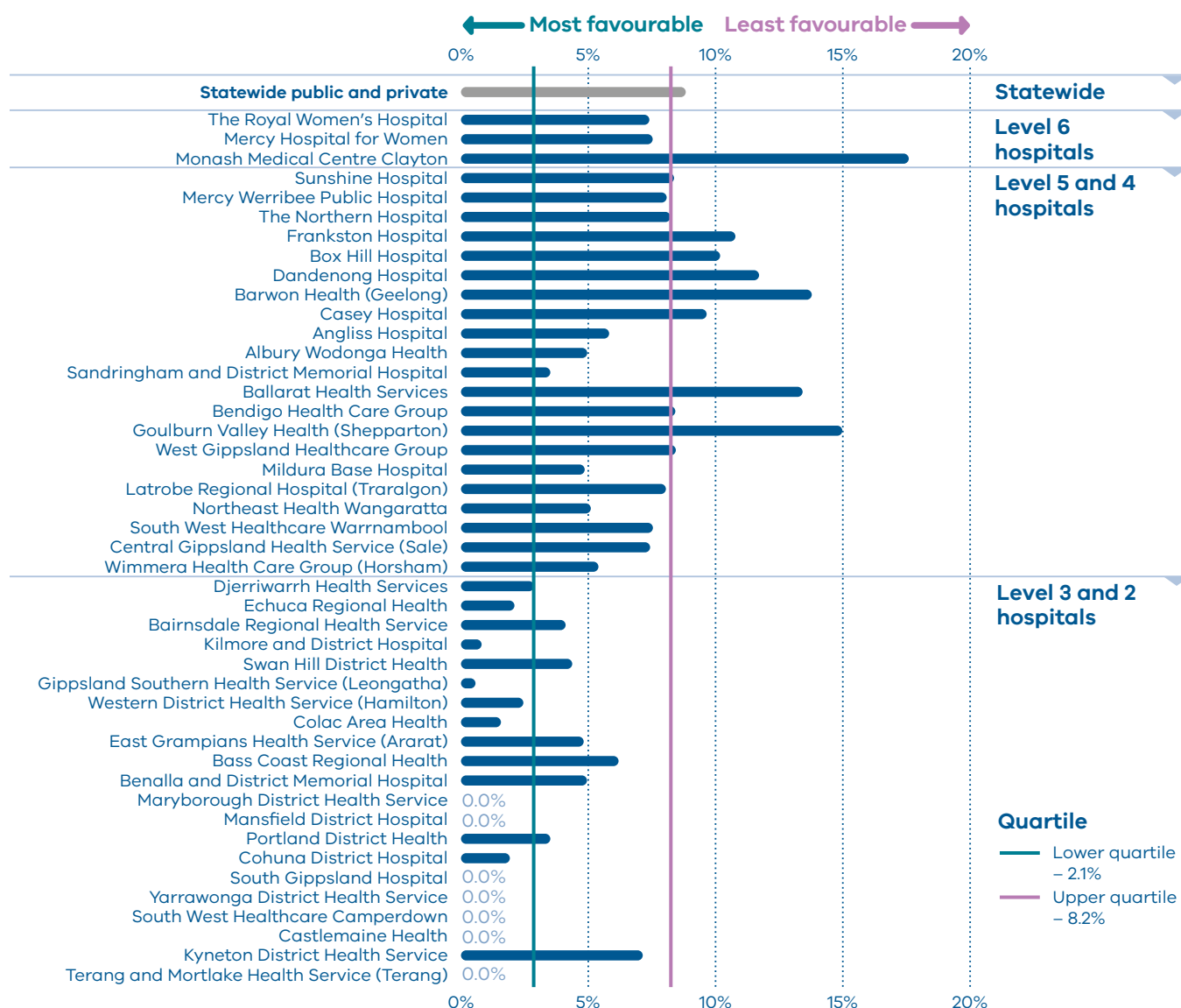


Healthy babies should be kept with their mothers whenever possible.

We measure how many babies who we expect to stay with their mother, but end up being separated from their mother and admitted to a nursery.

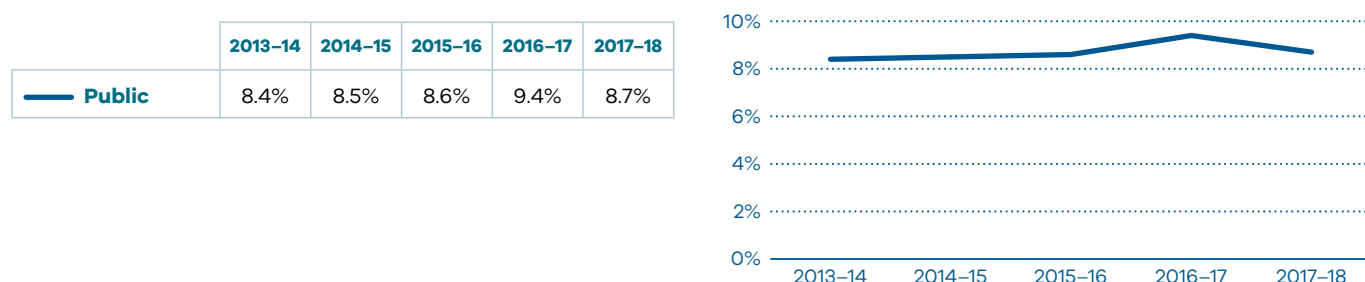
Sometimes this is necessary – for example if the baby develops jaundice signs of an infection and needs to be treated. But generally this rate should be low.

Figure 10. Indicator 2: Rate of term babies without congenital anomalies who required additional care 2017–18



Note: Reporting of unqualified neonate admissions to the VAED for private hospitals is optional. It is therefore not possible to establish an accurate denominator (that includes public and private hospitals) for this indicator. As such, only public hospitals are included in the results.

Figure 11. Rate of term babies without congenital anomalies who required additional care



INDICATOR 3: SEVERE FETAL GROWTH RESTRICTION

Definition

This indicator shows the proportion of severely growth restricted singleton babies (defined as birthweight below the third centile, corrected for gestational age, plurality and sex) who were born at or after 40 weeks' gestation.

Clinical significance

Undetected fetal growth restriction (FGR) is the strongest risk factor for stillbirth and is associated with poor perinatal and long-term outcomes, including low Apgar scores, birth asphyxia and neurodevelopmental delay. These risks are heightened in severe FGR.

The timely detection of severe FGR allows appropriate fetal surveillance and timing of birth to optimise short and longer-term outcomes for the child.

Desired outcomes

- Rates should be low and consistent across peer group hospitals.
- Health services should aim to be specific in their detection and management of severe FGR, with caution taken to avoid suspecting FGR in normally grown babies.

Observations on the data

In 2017, 28.1 per cent of singleton babies with severe FGR were born at 40 or more weeks' gestation in Victorian public and private hospitals. This is an improvement from 30.8 per cent in 2016 (p-value=0.11). The rate was similar between public and private hospitals (28.0 and 28.8 per cent respectively, p-value=0.81). However, there is wide variation between individual hospitals, from 9.1 per cent to 54.5 per cent (Figures 12 and 13).

Strategies for improvement

Improved detection of severe FGR and improved monitoring and management of these pregnancies is important.

- Monitor rates and outcomes of growth-restricted babies delivered at or after 40 weeks at regular intervals (monthly or quarterly depending on the size of the service) including the possible reasons for the lack of detection.
- Contact SCV's Maternity and Newborn Clinical Network for support.
- Provide direct feedback to clinicians following multidisciplinary case review.
- Support clinicians to optimise their competency and confidence in assessing fetal size during pregnancy.
- Review and update local fetal surveillance procedures and FGR guidelines to ensure there is a clear and evidence-based course of action.
- Ensure obstetric ultrasound procedures to monitor fetal wellbeing and growth are of high quality and according to current clinical standards.
- Refer women with higher risk pregnancies to the most appropriate level of service, within or outside of the organisation.



Sometimes babies don't grow as well as expected during pregnancy. The smallest babies (who we describe as having 'fetal growth restriction') are more likely to be sick at birth or die before birth.

Doctors and midwives monitor the growth of babies during a pregnancy. If the baby isn't growing well they should consider the safest time to deliver the baby – before the due date if the baby is severely growth restricted.

Recognising these very small unborn babies is not always easy. However, we want to see very low rates of these babies being born past their due date.

The graphs below show that over the past three years the rate has decreased, but there is still a lot of variation between hospitals.

Figure 12. Indicator 3: Rate of severe fetal growth restriction in a singleton pregnancy undelivered by 40 weeks 2017

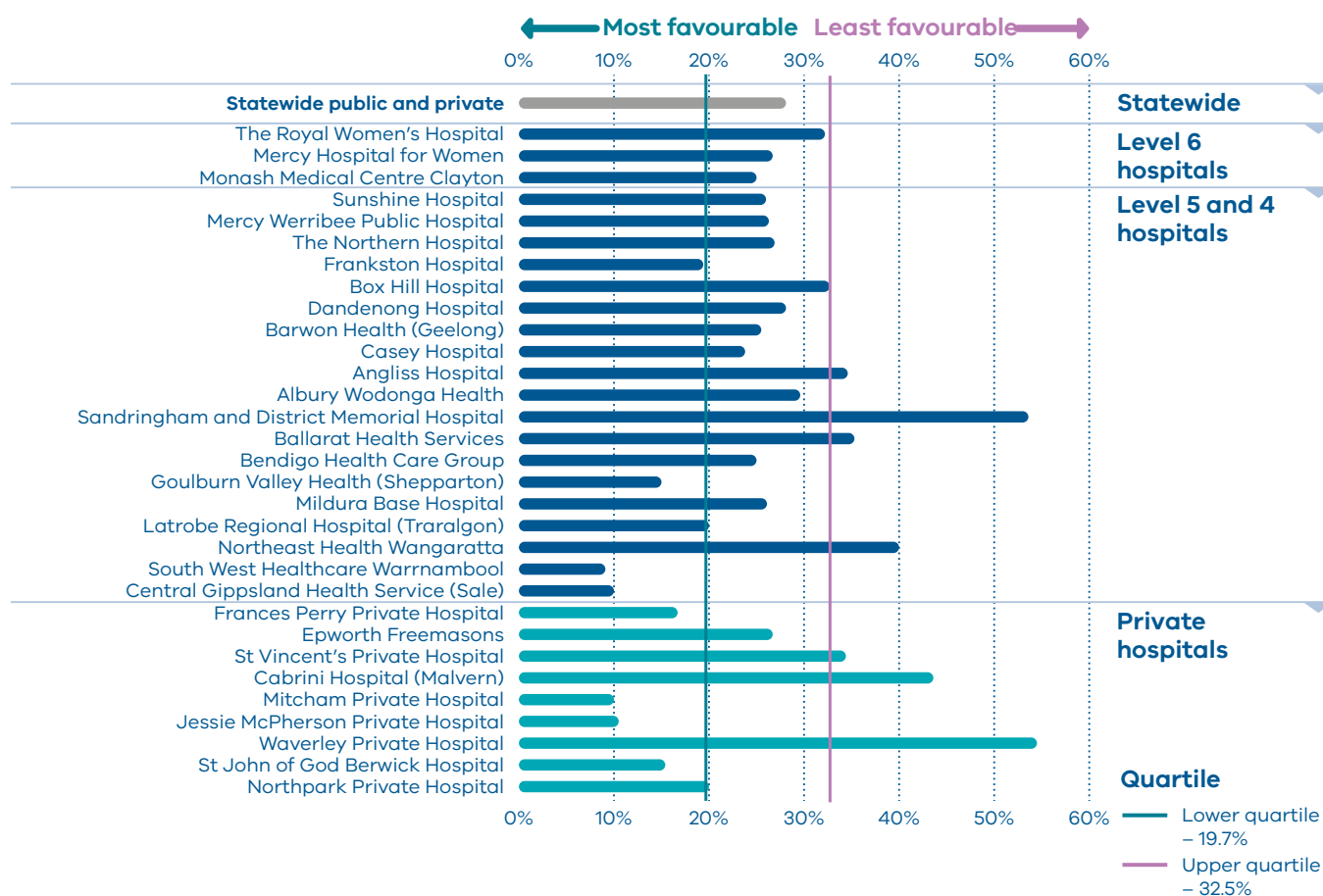
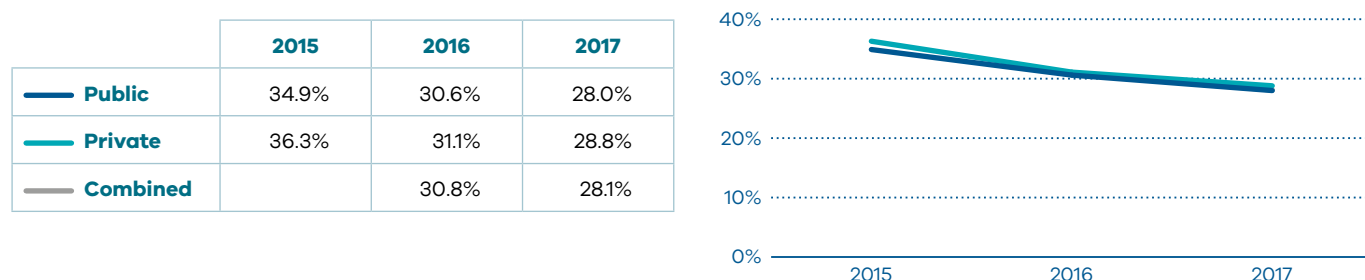


Figure 13. Rate of severe fetal growth restriction in a singleton pregnancy undelivered by 40 weeks



INDICATORS 4A AND 4B: VAGINAL BIRTH AFTER PRIMARY CAESAREAN SECTION

Definition

Indicator 4a identifies the proportion of women who planned for a vaginal birth for their second baby after a caesarean section for their first (VBAC).

Indicator 4b shows the proportion of women who planned a VBAC and achieved a VBAC.

Clinical significance

Caesarean sections are often necessary and can improve outcomes for women and babies. However, caesareans can prolong recovery after birth and can increase the chance of long-term health risks and major complications in subsequent pregnancies.

To minimise these problems, there are two main strategies:

- Safely preventing a women's first caesarean section will reduce the need for caesarean in subsequent births.
- If there are no contraindications, women who have had prior caesareans should be encouraged to consider and plan a VBAC.

For health services, caesarean sections require additional resources and add costs.

Not all health services are equipped to provide the opportunity for women to attempt a VBAC.

Desired outcomes

- Rates should be moderately high, with little variation across peer group hospitals.
- Unless contraindicated, women should be provided with the opportunity for VBAC and information to support decision making.

Observations on the data

The proportion of women planning a VBAC (**Indicator 4a**) decreased from 30.0 per cent in 2016 to 27.8 per cent in 2017 for public hospitals (p-value=0.01) and 16.3 per cent in 2016 to 14.3 per cent in 2017 for private hospitals (p-value=0.05). There was wide variation between hospitals, from 5.6 per cent to 52.9 per cent (Figures 14 and 15).

The proportion of women who achieved a planned VBAC (**Indicator 4b**) also decreased from 2016 in both public (56.4 per cent in 2016, 54.4 per cent in 2017, p-value=0.27) and private hospitals (48.8 per cent in 2016, 42.8 per cent in 2017, p-value=0.10). Again, there was wide variation in rates between hospitals, from 21.4 per cent to 75.7 per cent (Figures 16 and 17).

Strategies for improvement

- Women requesting a VBAC should be referred to a service with the capability to perform this.
- Ensure your health service is aligned with evidence based clinical guidelines for induction of labour.
- Report on the capability of the health service to offer a VBAC to women without contraindications.
- Undertake a review of the VBAC pathway offered and report on identified deficiencies to accessing facilities, specialists or standards of care.
- Provide evidence-based information (verbal and written) to women regarding the benefits and risks of VBAC, as in the box below.



In the right situation, women who have previously had a caesarean section can be encouraged to have a natural (vaginal) birth for their next baby.

This indicator measures how many of these women intended to have a vaginal birth, and how many actually had a vaginal birth.

Figure 14. Indicator 4a: Rate of women who planned a vaginal birth after a primary caesarean section 2017

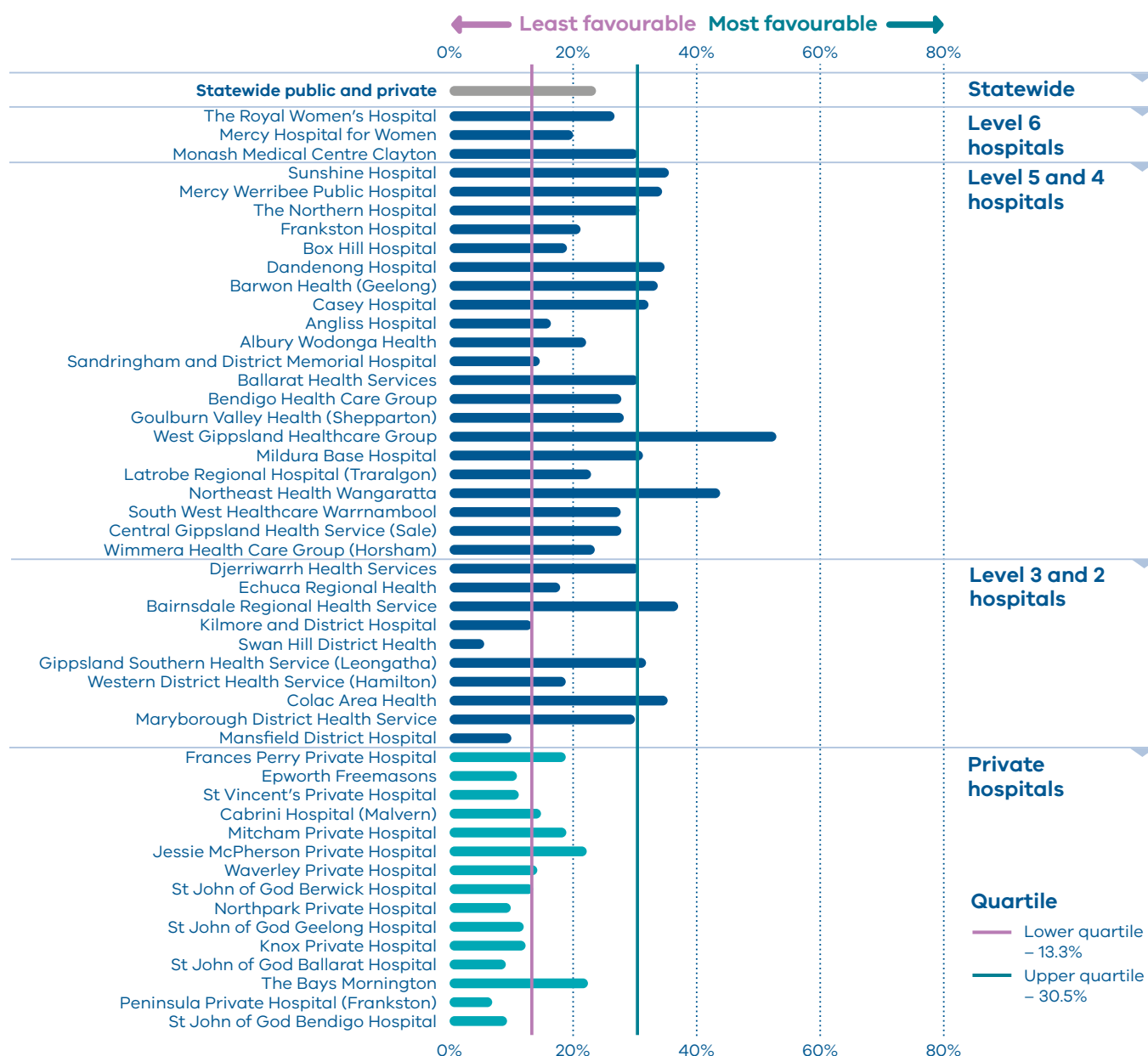


Figure 15. Rate of women who planned a vaginal birth after a primary caesarean section

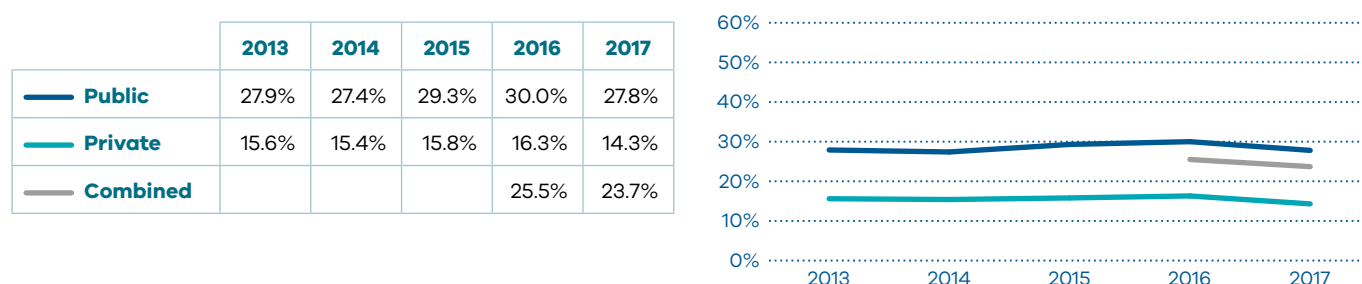


Figure 16. Indicator 4b: Rate of women who achieved a planned vaginal birth after a primary caesarean section 2017

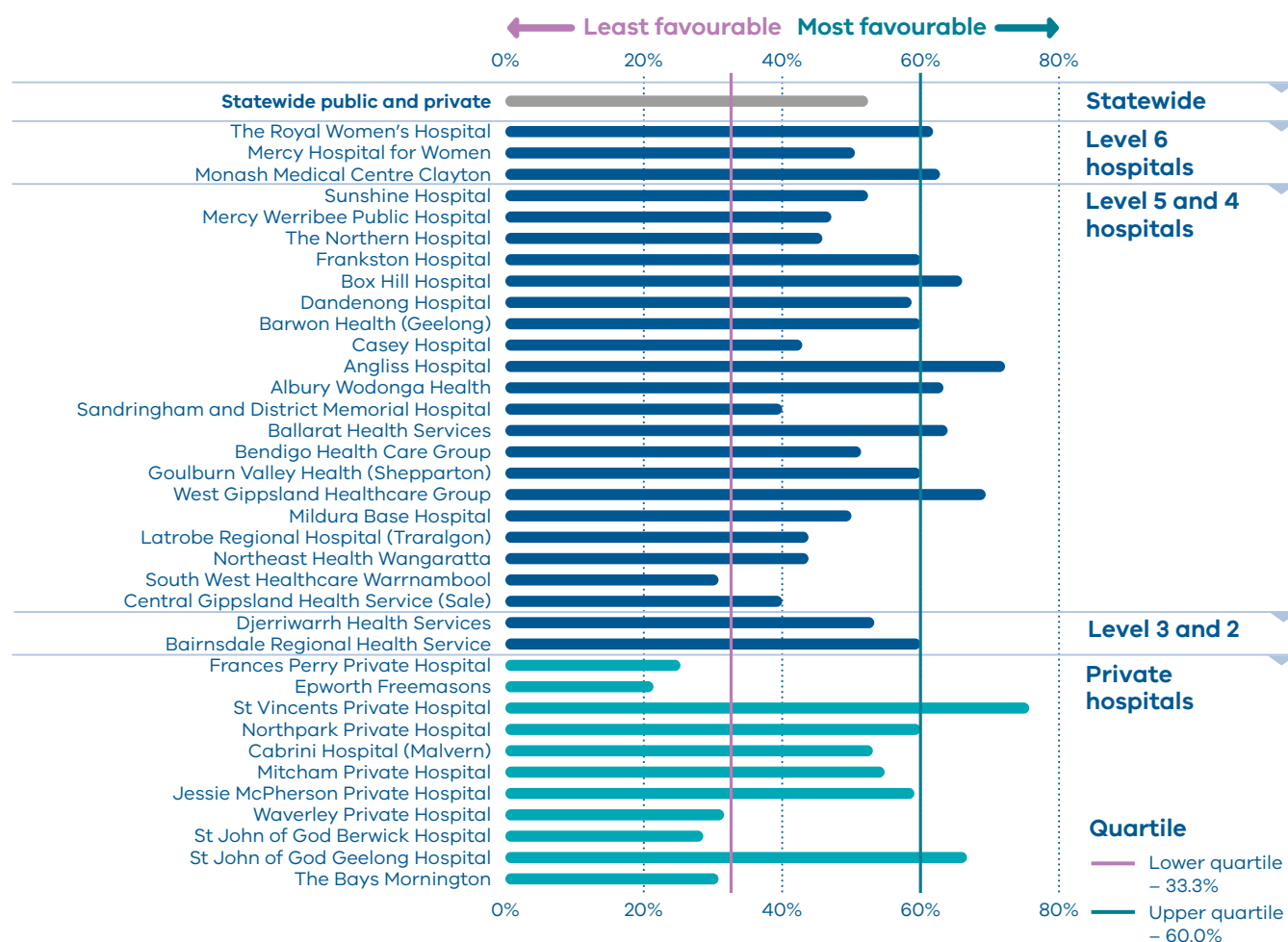
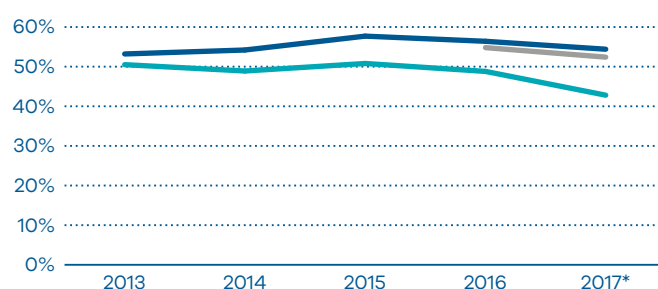


Figure 17. Rate of women who achieved a planned vaginal birth after a primary caesarean section

	2013	2014	2015	2016	2017*
Public	53.2%	54.2%	57.7%	56.4%	54.4%
Private	50.5%	48.9%	50.8%	48.8%	42.8%
Combined				54.8%	52.4%

* New definition of primip – not comparable



INDICATOR 5: FIVE-YEAR GESTATION STANDARDISED PERINATAL MORTALITY RATIO

For the first time, gestation standardised perinatal mortality ratio (GSPMR) of all public and private hospitals is being reported.

Definition

GSPMR is a measure of perinatal mortality that compares the observed perinatal mortality rate for babies born at individual hospitals with what would be expected, accounting for the gestation at birth. It is a partially risk-adjusted calculation, enabling hospitals with higher proportions of births at lower gestations (and therefore higher likelihood of perinatal mortality) to be validly compared with hospitals that have a different casemix.

Pooling the data over five-year periods adds stability to the data and reduces the risk of over interpretation of chance fluctuations.

The indicator provides a visual representation of the variation in perinatal mortality occurring across Victorian public and private hospitals compared with the statewide public hospital rate.

How to interpret the rate

The statewide public hospital rate (the reference population) is set at '1'. A GSPMR of 1 indicates that the observed number of perinatal deaths at that hospital is exactly what would be expected, considering the gestation of babies born there.

The statewide public rate does not necessarily represent the optimal or clinically appropriate rate for perinatal mortality.

An individual hospital with a ratio of:

- 0.5 has a perinatal mortality that is half the statewide public rate
- 1 has a perinatal mortality that is equal to the statewide public rate
- 1.5 has a perinatal mortality that is 50 per cent above the statewide public rate
- 2 represents perinatal mortality that is double the statewide public rate.

These rates include only babies who were born at 32 or more weeks' gestation.

What does the GSPMR tell us?

- It shows where there is variation in perinatal mortality rates for hospitals of similar capability or size.
- It adjusts for gestation, the most important risk for perinatal death.

What can't the GSPMR tell us?

The GSPMR does not indicate:

- statewide or individual hospital perinatal mortality rates
- whether the results for a given hospital are improving over the five-year period
- the reasons for the deaths or how the babies died (a baby may have died before arriving at the birth hospital, while in the hospital or following discharge from hospital, for example, due to SIDS, a car accident or injury)
- whether the death could have been avoided
- whether the care around the time of death was provided by a different hospital (transfer) or health professional than the birth hospital
- where the baby died – it only tells us where the baby was born
- the safety of a maternity service
- the contribution of important risk factors associated with perinatal mortality such as obesity, smoking, pre-existing illness of the mother, low socioeconomic status and ethnicity.

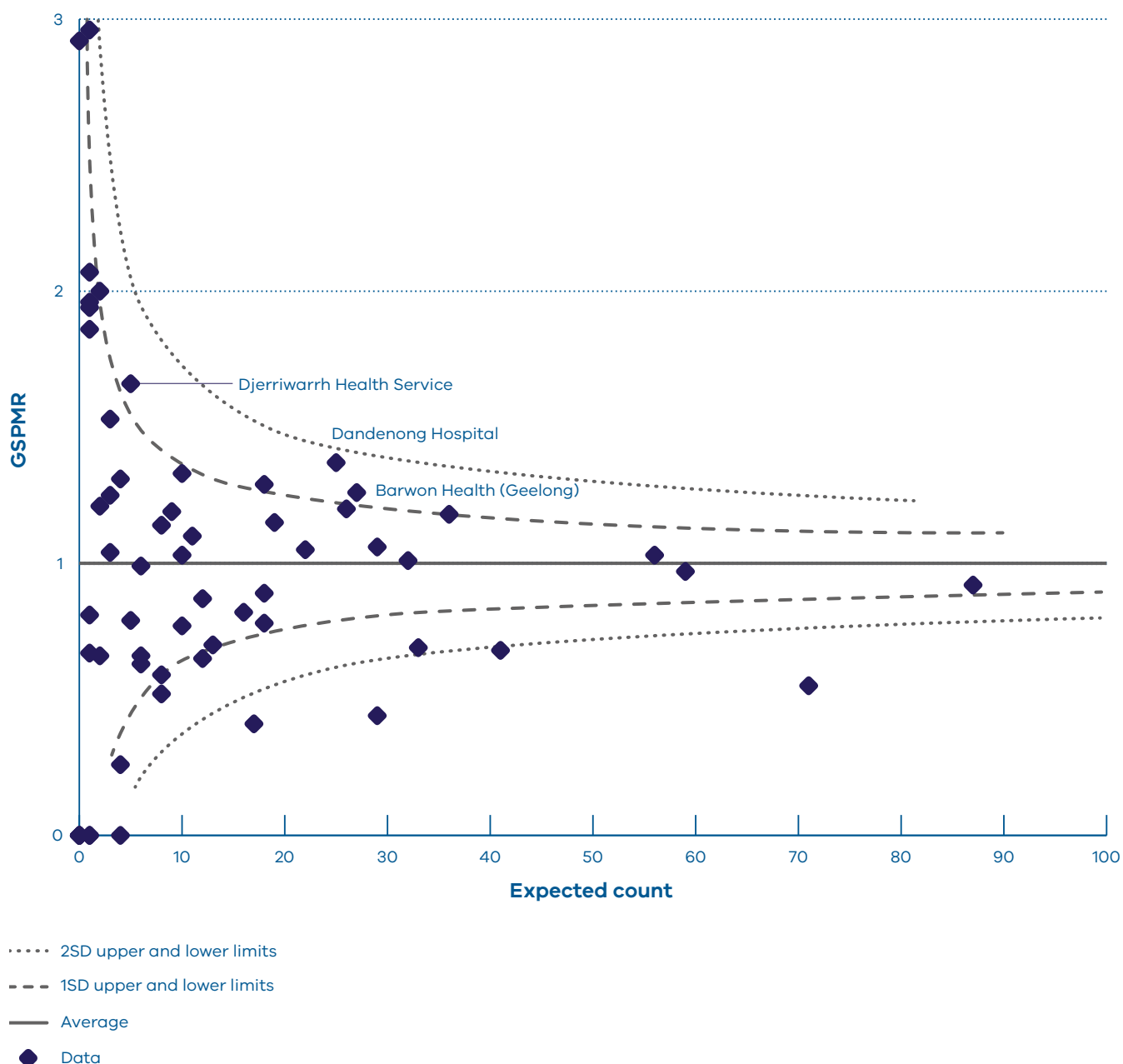


Counting how many unborn and newborn babies die tells us part of the story about the quality of care for new mothers and babies.

We know some deaths are unexpected and could not have been prevented. So we average the number of deaths over a five-year period to get a better sense of the overall care that a hospital provides. We specifically look at babies born at, or after, 32 weeks' gestation.

There should be very little difference between hospitals. The rates for Victorian hospitals are generally very good.

Figure 18. Indicator 5: Funnel plot of five-year GSPMR compared to statewide public rate 2013–17



All health services are represented on the funnel plot. Those with results above one standard deviation from the mean are labelled. The GSPMRs for individual health services are given in Appendix 4.

How to read this plot

A funnel plot shows variation (differences) and how it compares to an average.

Each dot represents one hospital.

The solid horizontal line represents the average GSPMR of **all** public hospitals. Hospitals (dots) that are above this line (above 1) have a GSPMR that is higher than the public hospital average. Hospitals that are below this line (below 1) have a GSPMR that is lower than the public hospital average. It is desirable to have a GSPMR of less than 1, however due to the nature of this indicator, around half of all hospitals will always have a GSPMR greater than 1 and around half will have a GSPMR less than 1.

The dashed and dotted lines represent one and two standard deviation limits respectively. The standard deviations measure how different individual results are from the average, taking the size of the hospital into consideration. If a hospital falls outside of the two-standard deviation limit of the plot it is considered to be significantly different. There are no results that are higher than two standard deviations above the average. This shows there are no hospitals with a GSPMR that is significantly higher than the public hospital average.

It is important to note that the GSPMR is adjusted only for the gestation at birth. Many other factors also put babies at higher and lower risk of perinatal death, including the socio-economic situation of the woman. This may explain some of these results that are lower than average .

INDICATORS 6A AND 6B: READMISSIONS DURING THE POSTNATAL PERIOD

Definition

This pair of indicators measures the rate of unplanned and potentially preventable readmissions of pregnant women (6a) and newborns (6b) within 28 days of discharge from hospital.

High quality and coordinated care means most women and their babies should not return to hospital during the postnatal period. Unplanned and preventable hospital stays during this period reflects a deviation from the normal course of postnatal recovery. This results in increased healthcare costs and a possible impact on health and wellbeing outcomes for women and their babies.

Clinical significance

Postnatal care supports women to recover and adjust following birth, establish breastfeeding and develop early parenting skills. Providing high quality and timely postnatal care can have a positive effect on the long-term health and wellbeing of women and their families.

Higher readmission rates are sometimes associated with inconsistent discharge procedures, poor postnatal care and limited support in the community. The transition from hospital to community-based maternity, newborn and child health services is a key point of care following birth. For most women and babies admitted as public patients, this transition usually occurs after at least one home visit by a hospital midwife. This visit should occur between 24 to 48 hours of discharge.

Desired outcome

Rates should be low and consistent among peer-group hospitals.

Observations on the data

In 2017–18 the statewide average rate of unplanned maternal readmissions within 28 days of discharge (**Indicator 6a**) was 2.47 per cent (Figures 19–21).

The public hospital statewide average rate of unplanned newborn readmissions within 28 days of discharge (**Indicator 6b**) was 4.10 per cent (Figures 22–24).

Strategies for improvement

The reasons for local variation in practice can be multifactorial and encompass population differences, model of care, the influence of community care and readmission thresholds.

Please use the data and your own local analysis to review and improve their postnatal care programs and links with community-based services such as maternal and child health services. This review should focus on women and newborns at higher risk of readmission to ensure they are receiving tailored and responsive programs.

Specifically, health services should consider:

- whether the length of stay in hospital following birth is appropriate
- which cohorts of women and babies have higher readmission rates
- providing information and education tools for women and their families at discharge
- the number of home-based visits and the extent of care different cohorts of women can expect from hospital midwives
- an analysis of the common reasons for readmission of pregnant women and newborns discharged from their service
- a review of how their postnatal program is targeted to reduce risks and how effective it is.



Healthy babies born to healthy mothers generally don't need to go back to hospital in their first month.

Sometimes it is completely unavoidable and readmitting the baby or the mother is the safest thing to do. But sometimes it is because something was missed during the first stay in hospital.

The graphs below show how many mothers and babies needed to go back to hospital within 28 days of birth for each hospital. The rate will never be zero, but it should be low.

Figure 19. Indicator 6a: Rate of maternal readmissions during the postnatal period 2017–18

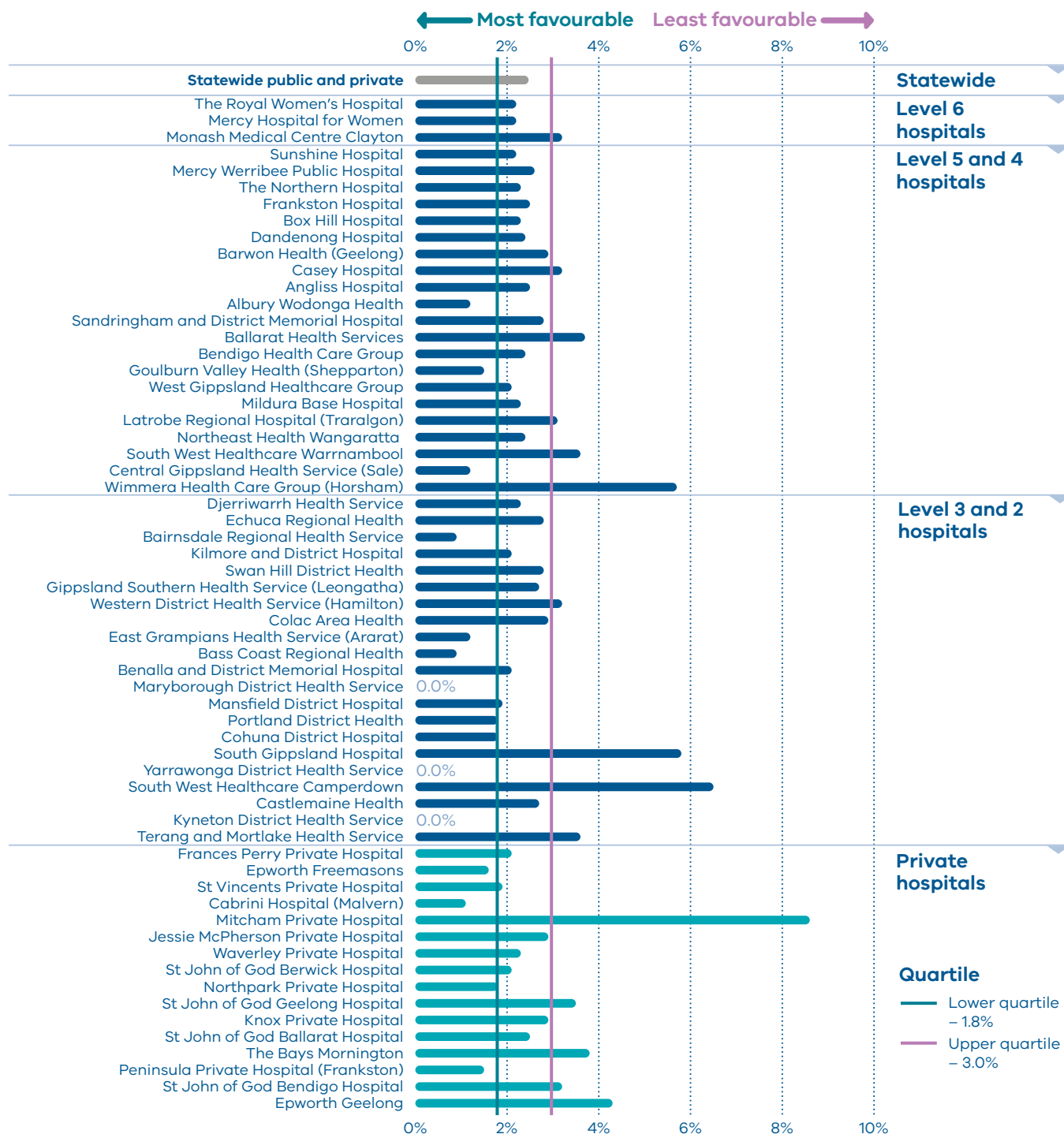


Figure 20. Rate of maternal readmissions during the postnatal period

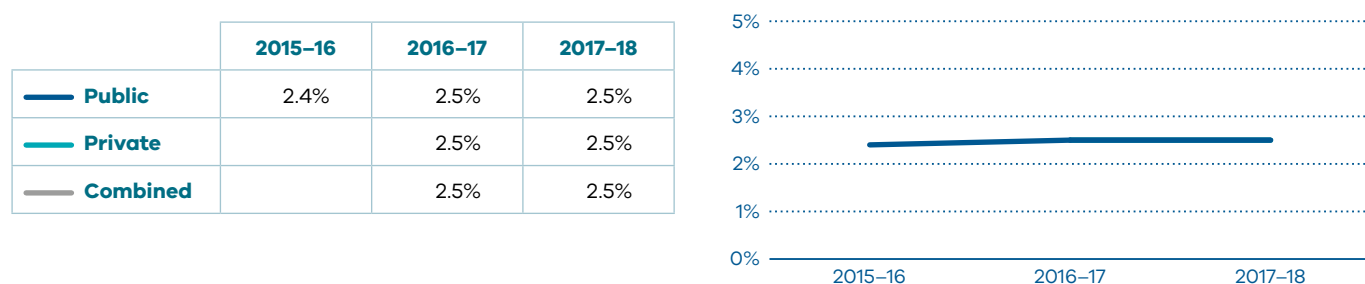
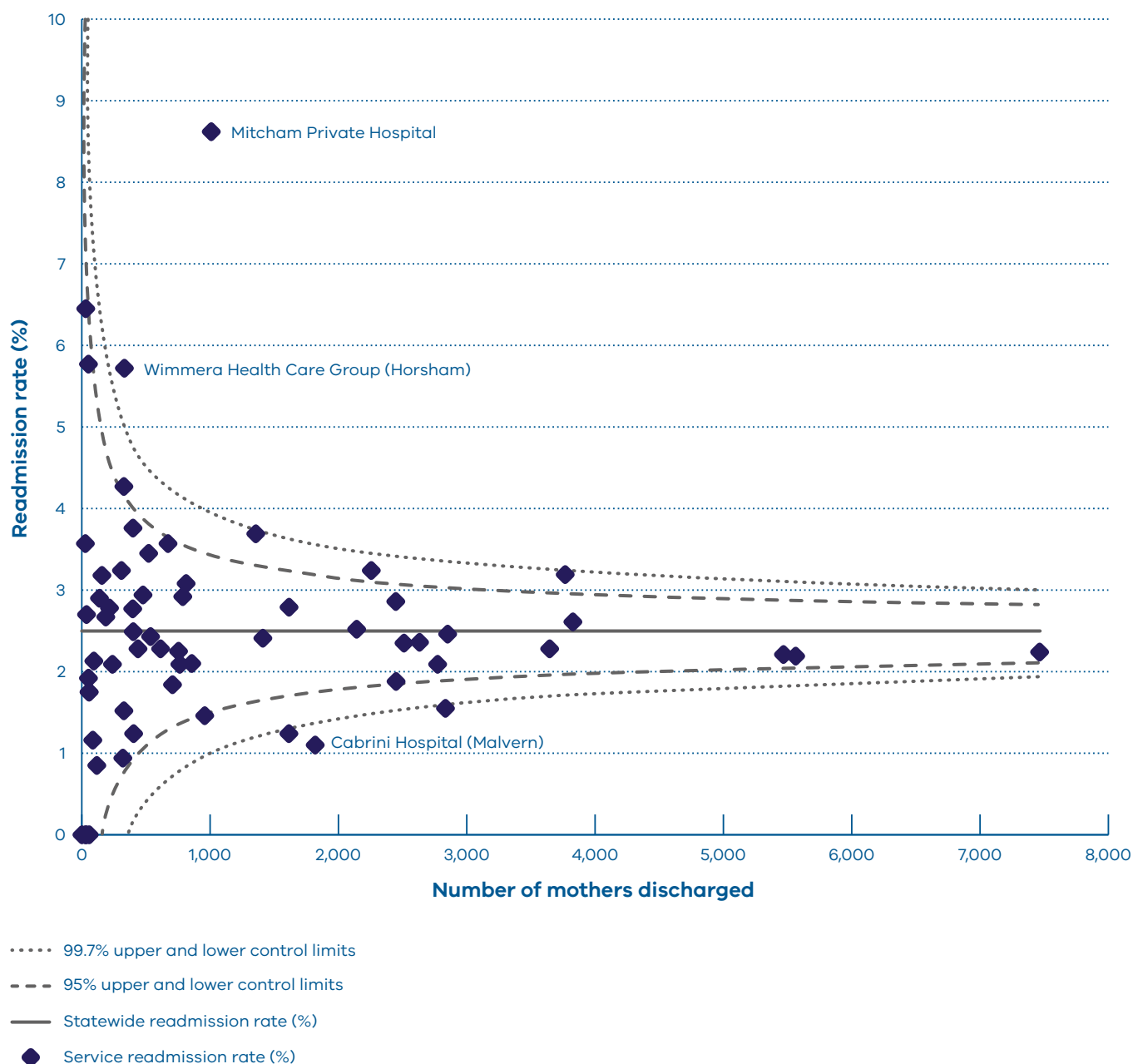


Figure 21. Funnel plot of maternal readmissions during the postnatal period 2017–18



How to read this plot

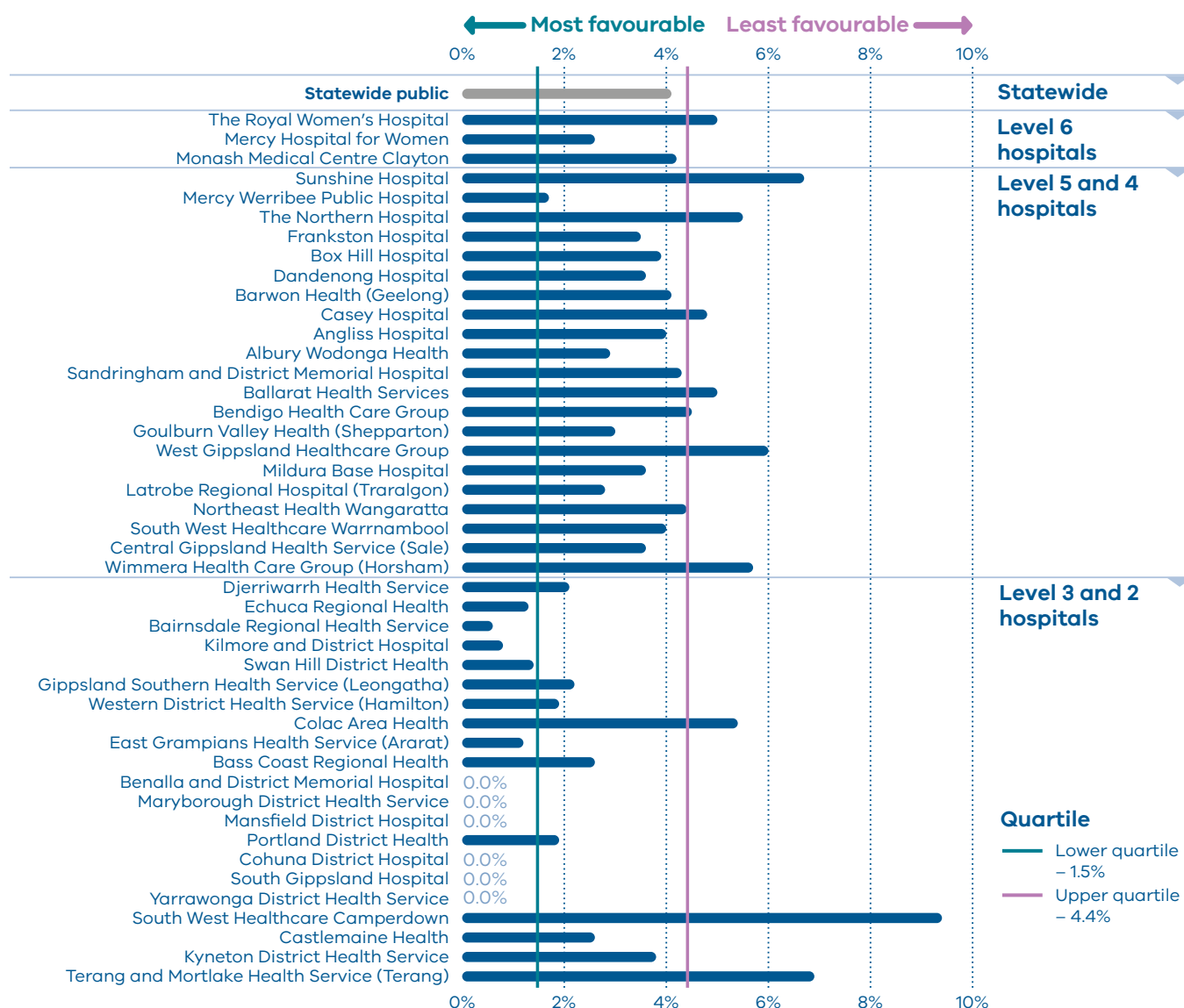
A funnel plot shows variation (differences) and how it compares to an average.

Each dot represents one hospital.

The solid horizontal line represents the average maternity readmission rate of **all** hospitals. Hospitals (dots) that are above this line have a maternal readmission rate that is higher than the statewide average. Hospitals that are below this line have a maternal readmission rate that is lower than the statewide average. It is desirable to have a maternal readmission rate below the solid line.

The dashed and dotted lines represent 95 per cent and 99.7 per cent confidence intervals respectively. Confidence intervals measure how different individual results are from the average, taking the size of the hospital into consideration. If a hospital falls outside of the 99.7 per cent confidence interval of the plot it is considered to be significantly different. Wimmera Health Care Group and Mitcham Private Hospital have maternal readmission rates higher than the statewide average. Cabrini Hospital has a maternal readmission rate that is significantly lower than the statewide average.

Figure 22. Indicator 6b: Rate of newborn readmissions during the postnatal period 2017–18



Note: Reporting of unqualified neonate admissions to the VAED for private hospitals is optional. It is therefore not possible to establish an accurate denominator (that includes public and private hospitals) for this indicator. As such, only public hospitals are included in the results.

Figure 23. Rate of newborn readmissions during the postnatal period

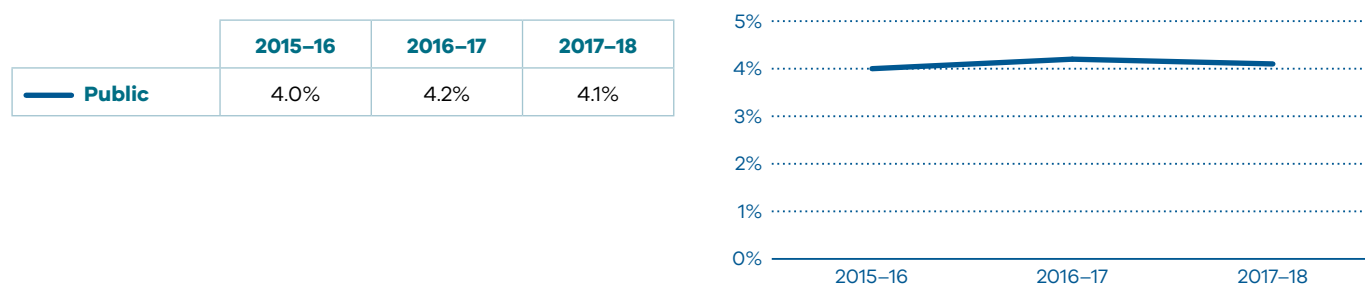
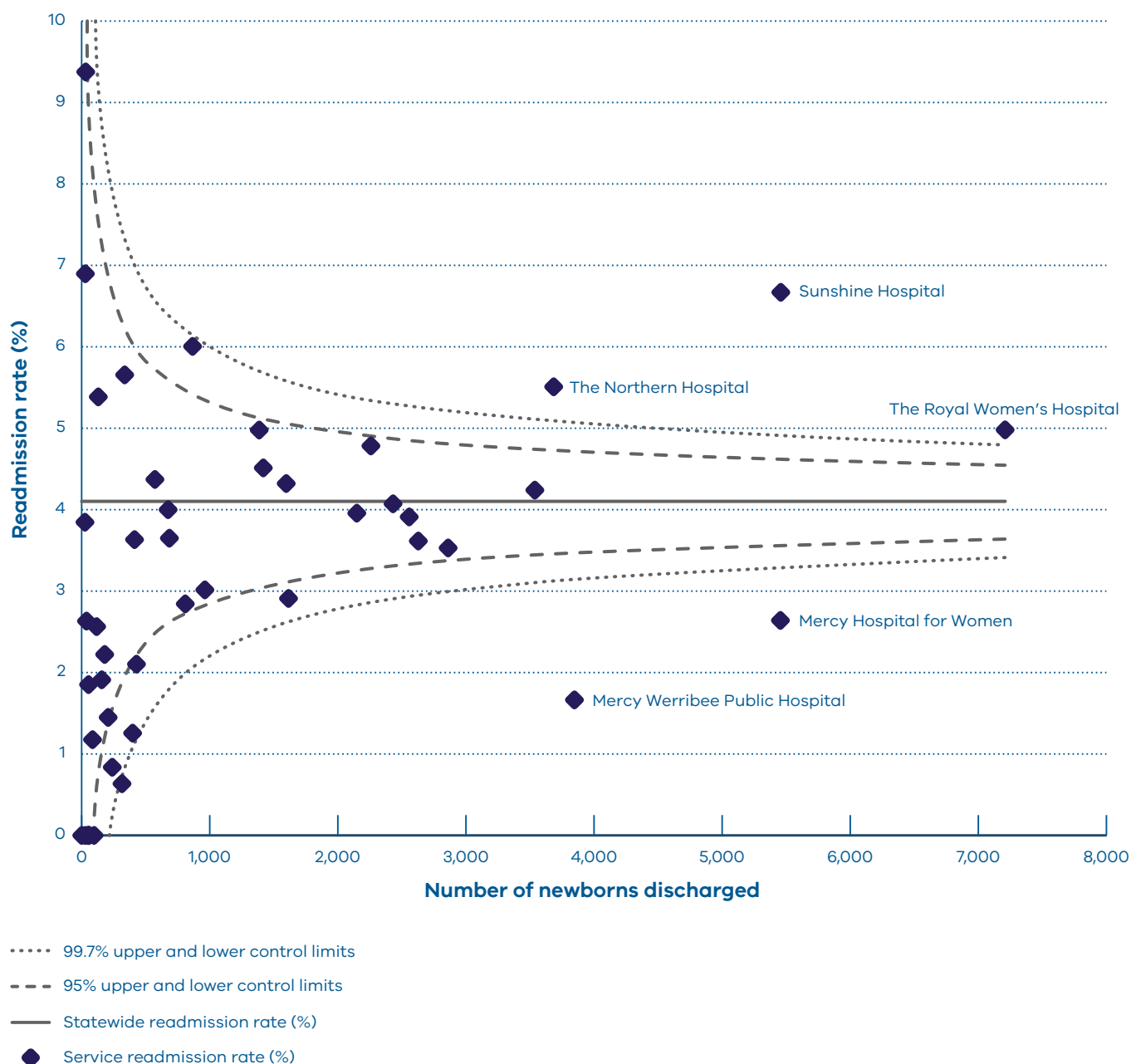


Figure 24. Funnel plot of newborn readmissions during the postnatal period 2017–18



How to read this plot

A funnel plot shows variation (differences) and how it compares to an average. Each dot represents one hospital.

The solid horizontal line represents the average newborn readmission rate of **all** public hospitals. Hospitals (dots) that are above this line have a newborn readmission rate that is higher than the public hospital average. Hospitals that are below this line have a newborn readmission rate that is lower than the public hospital average. It is desirable to have a newborn readmission rate below the solid line.

The dashed and dotted lines represent 95.0 per cent and 99.7 per cent confidence intervals respectively. Confidence intervals measure how different individual results are from the average, taking the size of the hospital into consideration. If a hospital falls outside of the 99.7 per cent confidence interval of the plot it is considered to be significantly different. The Northern Hospital, Mercy Hospital for Women and Royal Women's Hospitals have newborn readmission rates higher than the public hospital average. Sunshine Hospital and Werribee Mercy Hospital have newborn readmission rates that are significantly lower than the public hospital average.

INDICATOR 7: SMOKING CESSATION

Definition

This indicator assesses the effectiveness of health services in providing support for women who smoke in early pregnancy to quit. This includes smoking cessation advice, assistance and follow-up during the antenatal period. The aim is to reduce both the rate of smoking among pregnant women and the risk of smoking-associated adverse health outcomes for women and their babies.

The data presented in this report relates to the percentage of women who were reported as not smoking after 20 weeks' gestation among those who smoked before 20 weeks.

This indicator is limited by its focus on smoking cessation during pregnancy and does not capture data on whether pregnant women continue to not smoke after their pregnancy.

In addition to the smoking cessation rate, we have included the proportion of missing data for the indicator. Missing data affects the accuracy of reporting the smoking cessation rate, particularly for services with much data missing on smoking after 20 weeks' gestation. The amount of missing data in individual services ranges from none to 38.9 per cent.

Clinical significance

Women who smoke while pregnant are at risk of various preventable adverse outcomes and health complications for themselves and their baby.

During pregnancy, women are motivated to protect their baby's health. It is therefore an important time for health professionals to assist women to quit smoking. This indicator can be used by hospitals to measure how effective their interventions are and recognises hospitals making the greatest impact towards smoking cessation.

Desired outcomes

- Rates should be high.
- Services should ensure that data submitted against this indicator is complete and reliable.

Observations on the data

In 2017, 27.1 per cent of women who smoked in the first 20 weeks of their pregnancy did not smoke in the last 20 weeks of their pregnancy (Figure 25). This is a slight increase from 2016, where 26.1 per cent of women ceased smoking (p-value=0.19) (Table 5).

The smoking cessation rate between individual hospitals ranged from zero to 100 per cent. There was wide variation between public and private hospitals, averaging 25.5 and 65.2 per cent respectively.

Strategies for improvement

Health services with low smoking cessation rates should undertake regular multidisciplinary reviews of smoking cessation interventions provided to women. This includes, but is not limited to:

- examining the smoking cessation interventions provided to women during pregnancy and ensuring culturally appropriate information is available
- identifying gaps in their service provision including the success of their interventions/programs
- monitoring and supporting the competency and confidence of clinicians in providing smoking cessation advice and interventions
- developing and reporting on evidence-based strategies to improve rates to the health service executive
- ensuring that data collection systems allow for asking about and recording smoking at each visit.

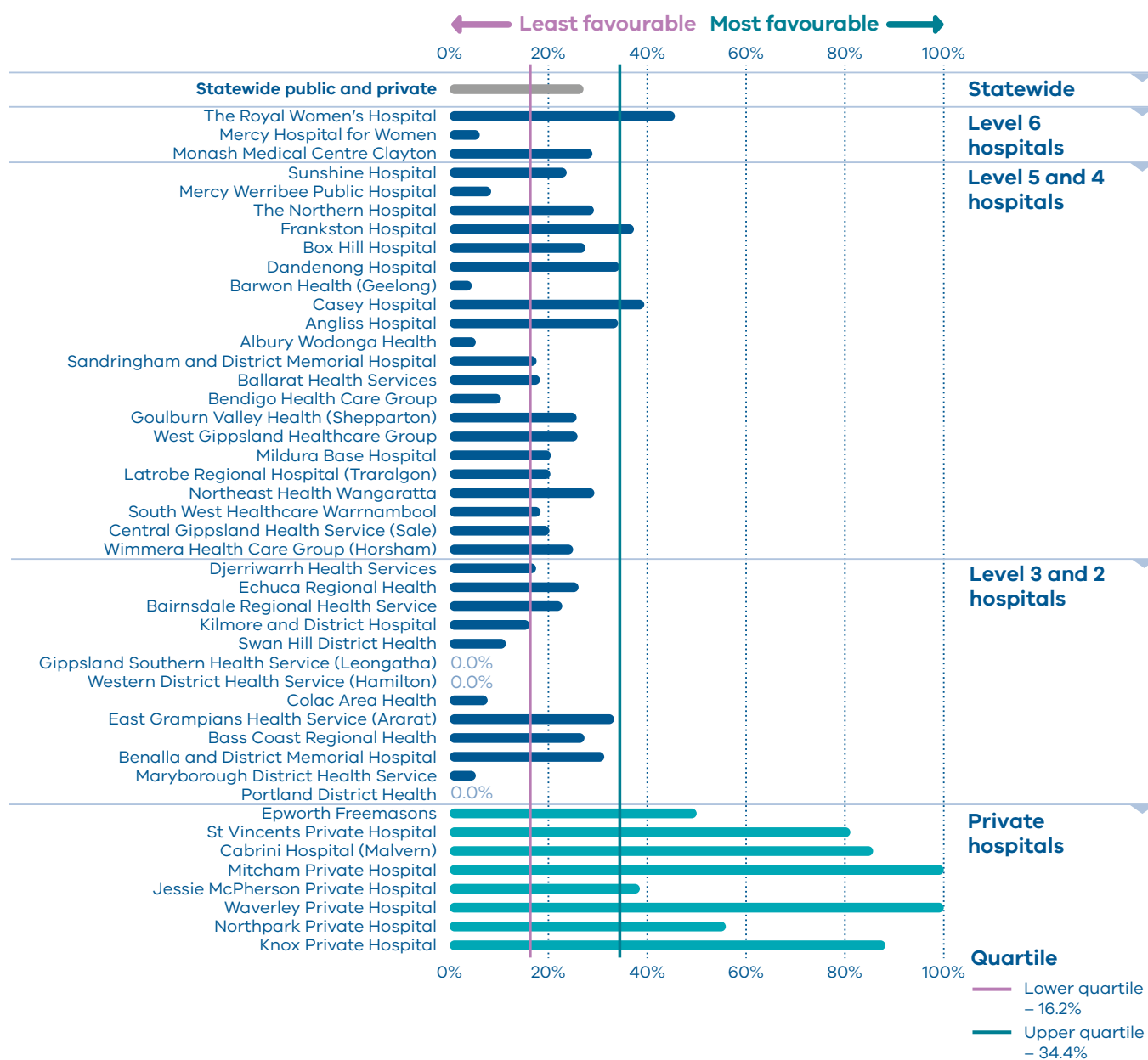


Smoking is bad for your health. If women smoke while they are pregnant then there is a risk that this will harm their baby.

Health services should monitor how many women in antenatal clinics smoke, and should provide advice and support to help women stop smoking while they are pregnant.

We measure how many women stop smoking while they are pregnant, and the results are very different between hospitals. The rate of women who stop smoking is not improving over time. This is concerning.

Figure 25. Indicator 7: Rate of smoking cessation during pregnancy 2017



Note: The following services had greater than 10.0 per cent missing data for smoking in the second half of pregnancy. As such they have been excluded from the publishable range. The statewide rate of missing data for smoking in the second half of pregnancy was 5.1 per cent. Frances Perry Private Hospital (Carlton), Berwick Hospital, St John of God Geelong, St John of God Ballarat and St John of God Bendigo.

Table 5. Rate of smoking cessation during pregnancy

	2016			2017		
	Public	Private	Combined	Public	Private	Combined
Rate of smoking cessation during pregnancy	24.4%	66.1%	26.1%	25.5%	65.2%	27.1%

INDICATORS 8A, 8B AND 8C: BREASTFEEDING IN HOSPITAL

Definition

This suite of measures assesses the initiation of breastfeeding in Victorian hospitals during the birthing episode, namely:

- **Indicator 8a:** rate of breastfeeding initiation in mothers of term babies
- **Indicator 8b:** rate of use of infant formula in hospital in term breastfed babies
- **Indicator 8c:** rate of final feed before discharge taken exclusively from the breast for term breastfed babies.

These indicators focus on breastfeeding rates during the hospital admission and do not capture data on whether breastfeeding is maintained longer term.

Clinical significance

There are short- and long-term health benefits for women and their babies associated with breastfeeding. Breastfeeding provides optimal nourishment for a growing baby's physical, cognitive and immunological development. It improves the bond between mother and baby and lowers the risk of various long-term health issues for both mothers and babies.

Health services are responsible for promoting, protecting and supporting breastfeeding. Clinicians should encourage women to recognise when their babies need feeding and offer help if required. Providing women with accurate information about the importance of breastfeeding to their health and their babies' health can influence infant feeding decisions.

Desired outcomes

- **Indicators 8a and 8c** – rates should be high and consistent among peer-group hospitals.
- **Indicator 8b** – rates should be low and consistent among peer-group hospitals.

Observations on the data

The statewide rate of women with term babies who initiated breastfeeding (**Indicator 8a**) in 2017 was 95.4 per cent (Figures 26 and 27). This rate has been relatively consistent over time.

Figure 36 shows that 28.2 per cent of term breastfed babies were given infant formula in hospital (**Indicator 8b**). The rate varied between hospitals including those providing a similar level of care (Figure 28). Overall, private hospitals had a higher rate of use of infant formula compared with public hospitals (38.2 and 25.2 per cent respectively, $p\text{-value} < 0.001$).

The statewide rate of final feed exclusively from the breast for term breastfed babies (**Indicator 8c**) was 75.1 per cent, down from 76.8 per cent in 2016 ($p\text{-value} < 0.001$) (Figure 30). This rate varied from 45.6 per cent to 100 per cent.

Strategies for improvement

- Examine where policies and practices do not align with the Promoting breastfeeding – Victorian breastfeeding guidelines.
- Ensure referral pathways to specialist lactation services are clear and accessible.
- Consider achieving and maintaining Baby Friendly Health Initiative (BFHI) Accreditation.
- Analyse the factors associated with reduced rates of breastfeeding in hospital.
- Ensure formula use for breastfed babies is limited to those who have a clear medical indication and educate women on the reasons for this.
- Assess, monitor and support the competency and confidence of clinicians in providing breastfeeding support and education.
- Provide women, including those of culturally diverse backgrounds, with additional support. This may include providing accurate and appropriately translated (verbal and written) information about the importance of breastfeeding in the box below.



Breastfeeding is the best type of feeding for newborn babies.

Hospitals should encourage new mothers to breastfeed by providing the right environment, and the right support from midwives and lactation specialists.

We measure three things:

- (a) how many women start feeding their babies with breast milk
- (b) how many also give formula to their breastfed babies while they are still in hospital
- (c) how many women give their baby's last feed completely from the breast before they go home from hospital.

We're pleased to see most babies are fed first with breast milk, and this rate is high across nearly all hospitals. However, some hospitals have a high rate of breastfed babies who are supplemented with formula while in hospital. This might mean that hospitals can't provide enough support for new mothers to breastfeed.

By the time new mothers and babies are going from hospital many are not fully breastfeeding. This could also be improved.

Figure 26. Indicator 8a: Rate of breastfeeding initiation for babies born at ≥ 37 weeks' gestation 2017

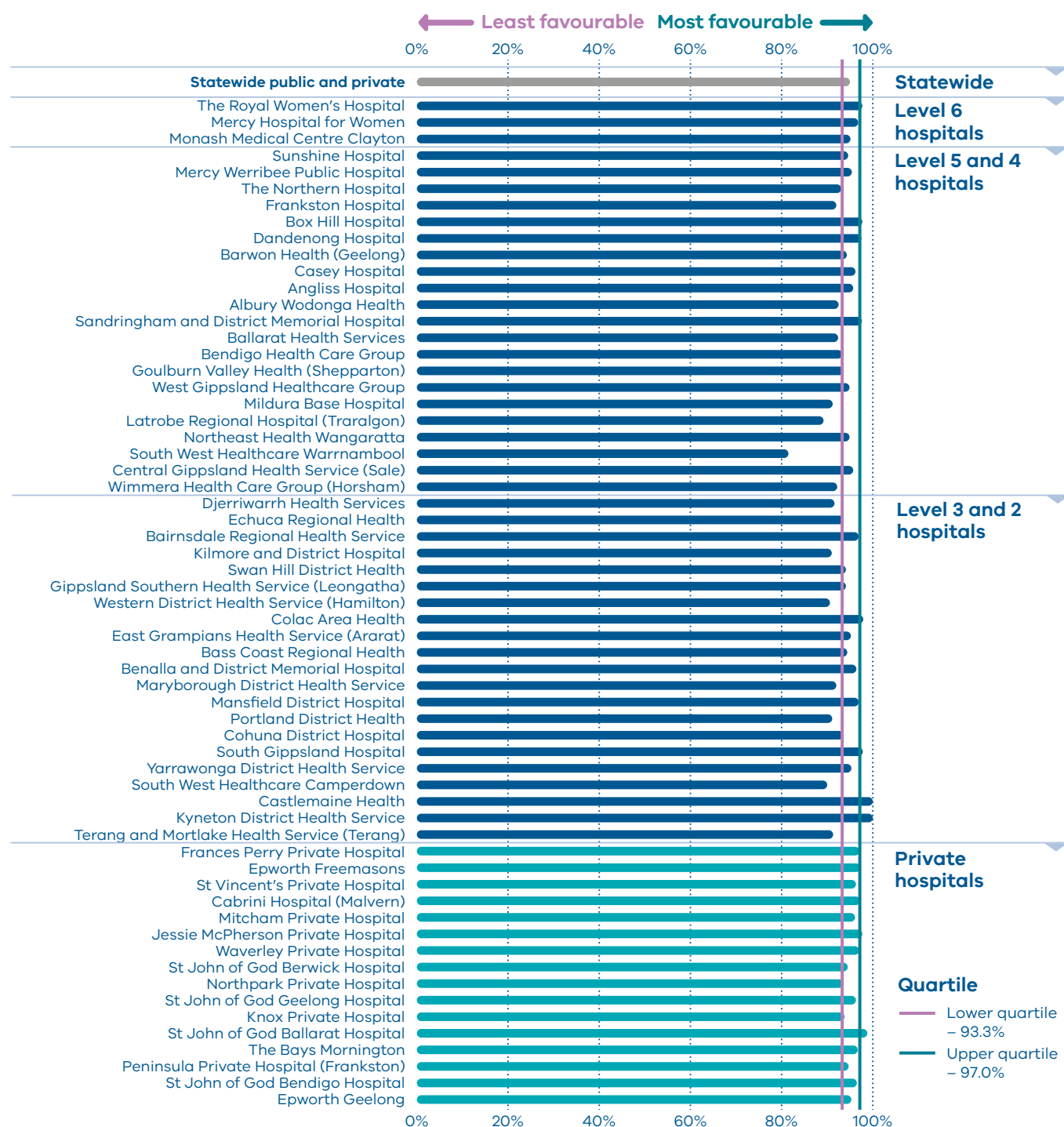


Figure 27. Rate of breastfeeding initiation for babies born at ≥ 37 weeks' gestation

	2013	2014	2015	2016	2017
Public	94.2%	94.7%	94.8%	95.1%	95.0%
Private	96.3%	96.7%	96.7%	96.4%	96.5%
Combined			95.2%	95.4%	95.4%

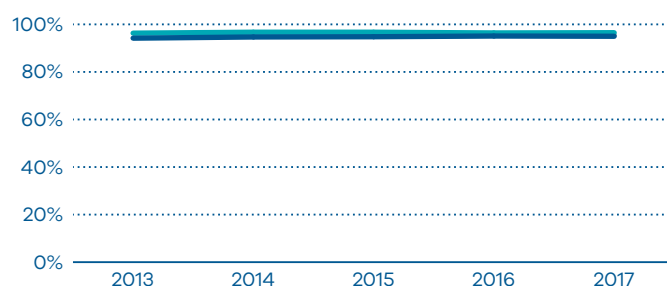


Figure 28. Indicator 8b: Rate of use of infant formula in hospital by breastfed babies born at ≥ 37 weeks' gestation 2017

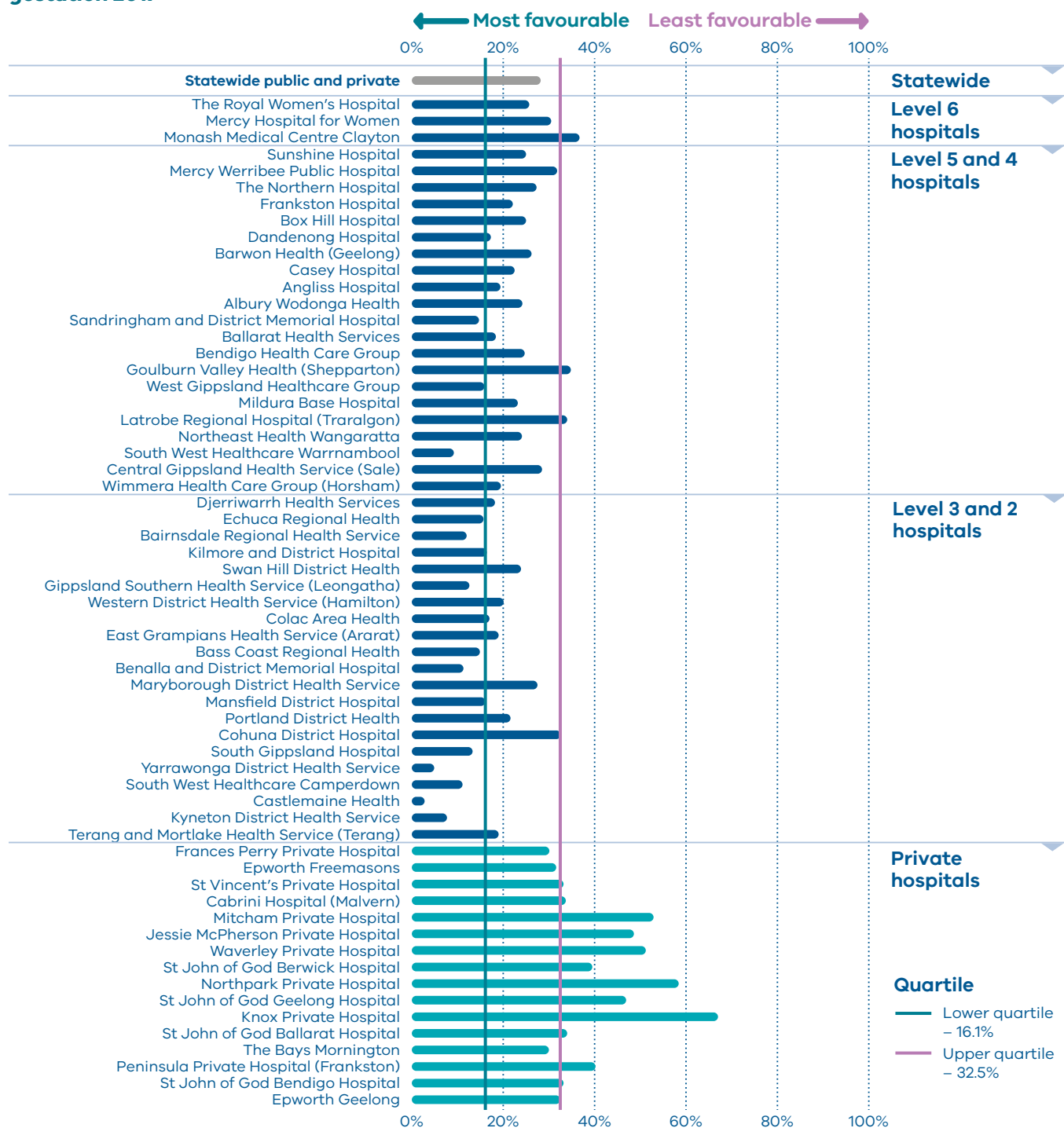


Figure 29. Rate of use of infant formula in hospital by breastfed babies born at ≥ 37 weeks' gestation

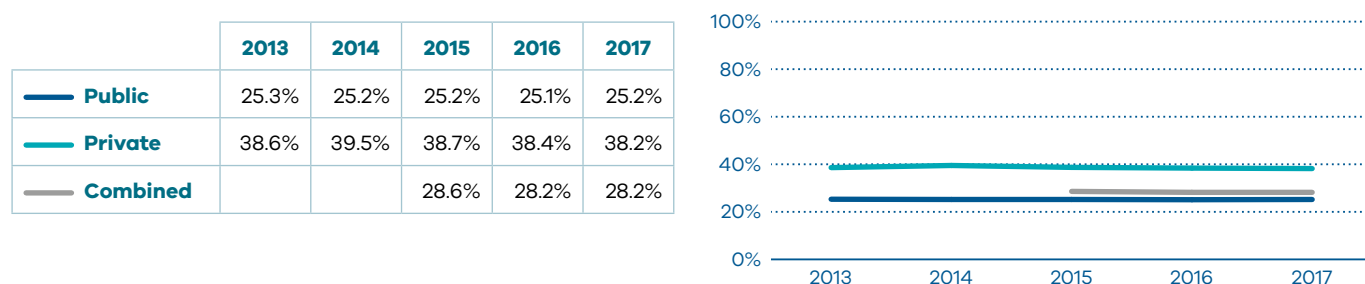


Figure 30. Indicator 8c: Rate of final feed being taken directly from the breast by breastfed babies born at ≥ 37 weeks' gestation 2017

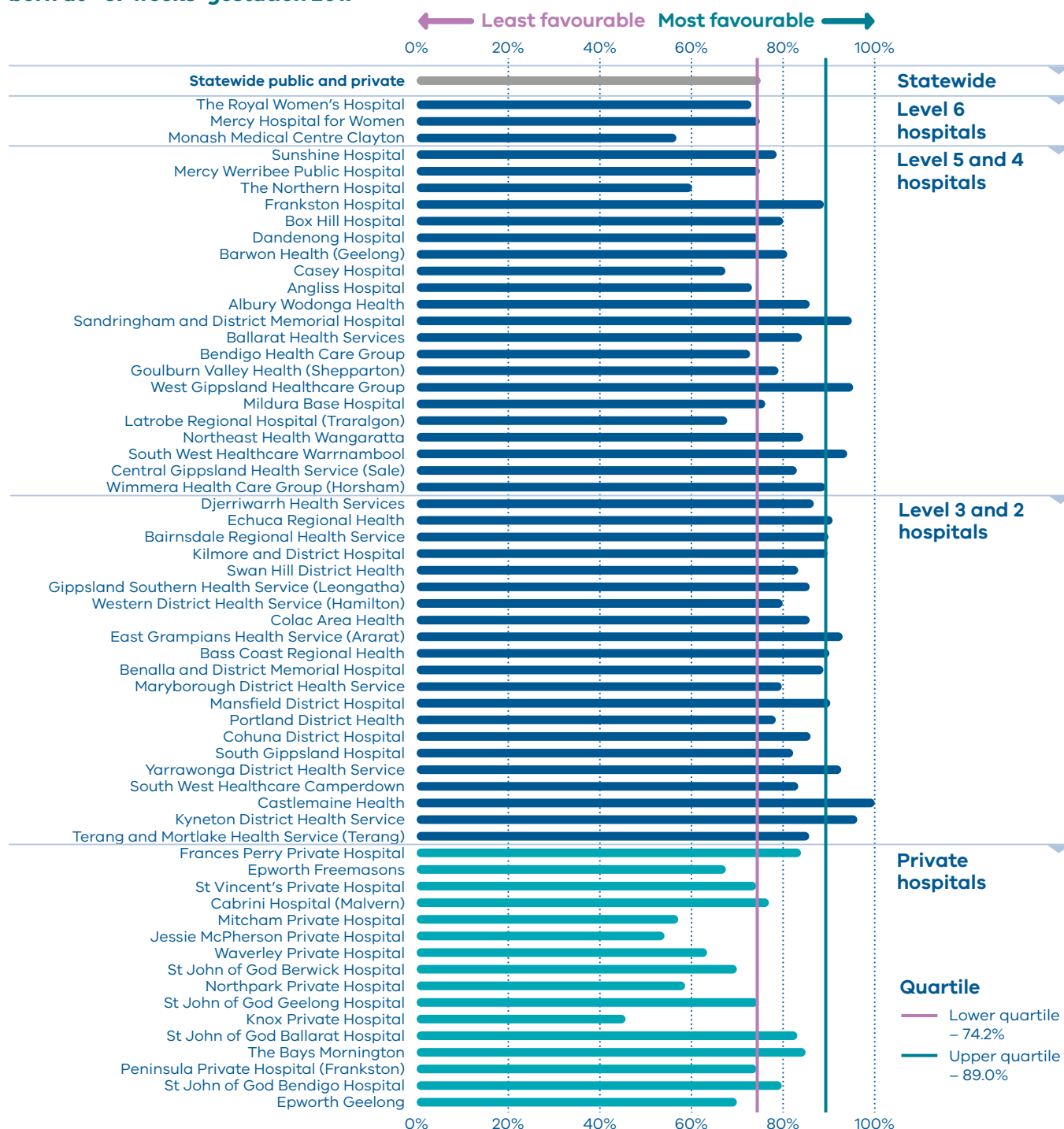
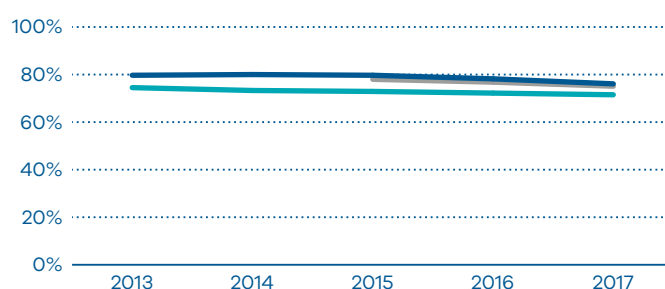


Figure 31. Rate of final feed being taken directly from the breast by breastfed babies born at ≥ 37 weeks' gestation

	2013	2014	2015	2016	2017
Public	79.7%	80.0%	79.7%	78.2%	76.1%
Private	74.5%	73.3%	72.9%	72.2%	71.5%
Combined			78.0%	76.8%	75.1%



INDICATOR 9: FIRST ANTENATAL VISIT

Definition

This indicator reports the rate of women who had their first antenatal visit with a maternity care provider prior to 12 weeks' gestation.

The first antenatal visit is defined as the first visit to a midwife or doctor arranged specifically for providing pregnancy care.

This first antenatal visit may occur in the community or at a public hospital by a range of health professional groups. This diversity is important because it allows different approaches to care and choices for women.

Clinical significance

It is recommended that women attend their first antenatal care visit within the first 10 weeks of pregnancy. Timely access to care allows for early detection of certain conditions and appropriate management.

Late access to antenatal care is associated with less favourable outcomes for women and their babies.

Desired outcomes

- Rates should be high.
- Services should ensure data submitted against this indicator is reliable and complies with the VPDC business rules.

Observations on the data

In 2017 the overall proportion of women who gave birth in a hospital who had their first antenatal visit recorded as occurring before 12 weeks' gestation increased from 45.4 per cent in 2016 to 54.1 per cent (p-value=<0.001) (Figures 32 and 33). The rate varied significantly between public and private hospitals (44.5 and 86.9 per cent respectively, p-value=<0.001).

The data reported to the VPDC for this measure has limitations. Data may wrongly exclude early antenatal visits to a general practitioner that include referral for antenatal investigations or may wrongly include visits that are for reasons other than pregnancy care. Given this, hospitals should review their data collection processes. This will ensure accurate capture of care provided in the community.

Strategies for improvement

- Develop strategies to address the factors impeding access to early antenatal care and report on this to the health service executive.
- Identify high-risk women who may require a more focused approach to ensure early and ongoing access to antenatal care.
- Improve education of maternity staff about accurate data collection by asking about antenatal care by a general practitioner.
- Agree on local targets to guide incremental improvement and monitor progress.
- Explore links between the access to and quality of antenatal care to outcomes on other indicators of performance.



During pregnancy there are some very specific health issues that can arise, and it is important that women who are pregnant see their midwife or doctor early in the pregnancy.

This indicator measures how many women see their midwifery or medical carers within 12 weeks of falling pregnant so that any special needs can be met.

We aim for all pregnant women to attend an antenatal visit within 12 weeks of falling pregnant, but the graph below shows that in some areas the rate is quite low.

Figure 32. Indicator 9: Rate of women attending their first antenatal visit prior to 12 weeks' gestation 2017

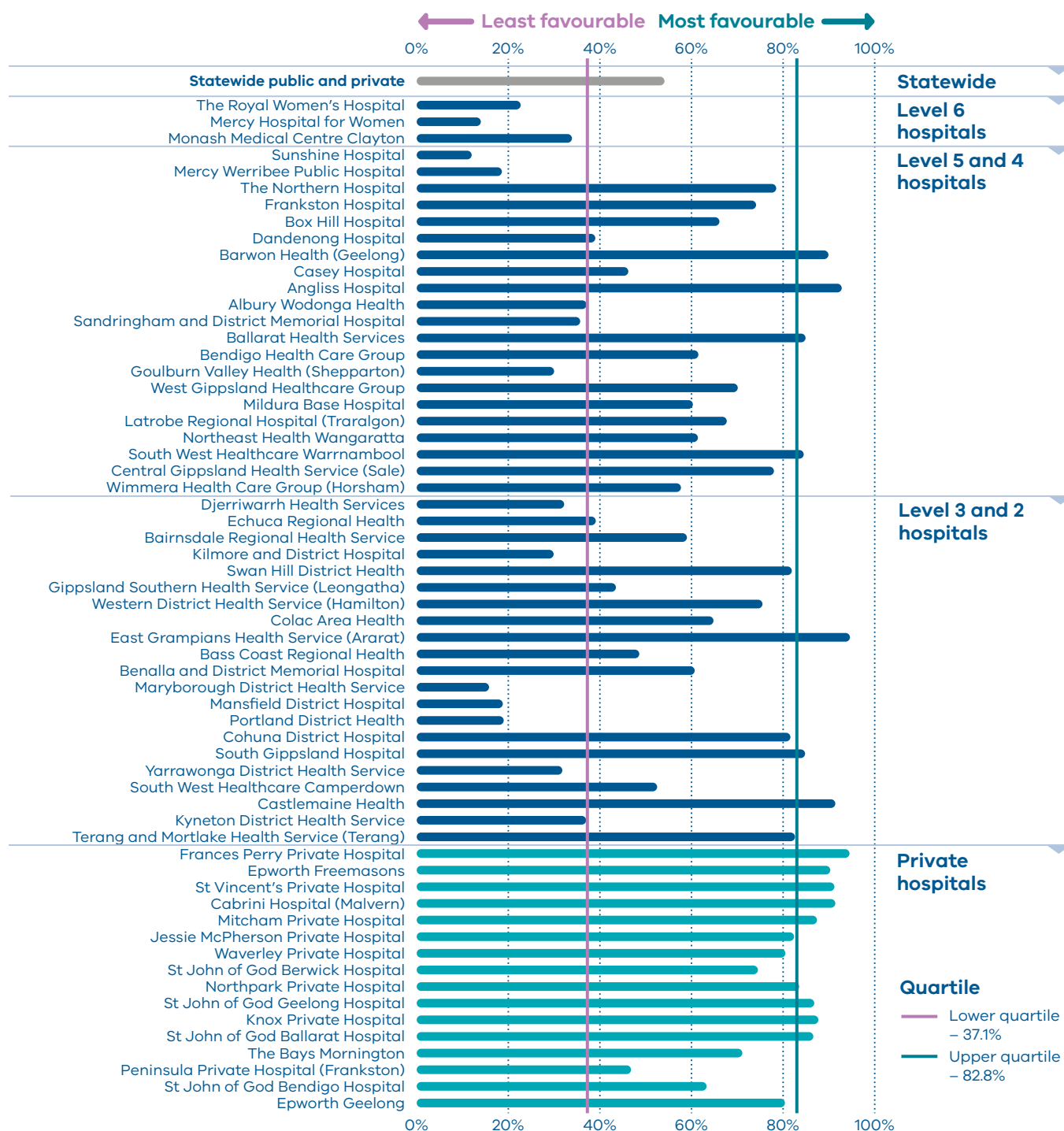
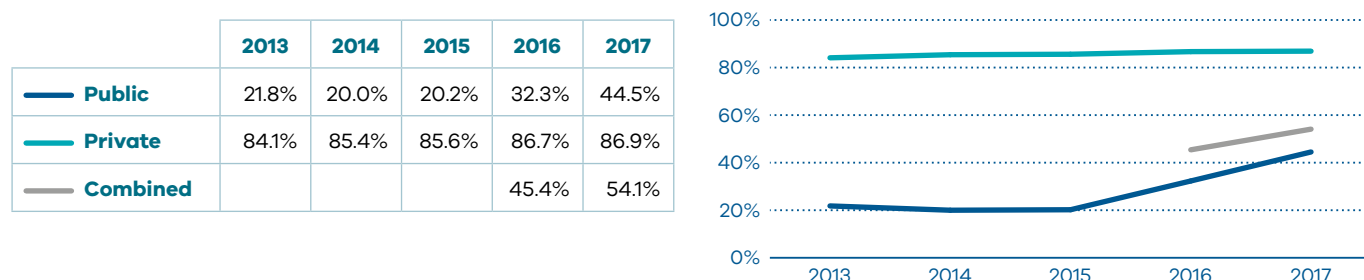


Figure 33. Rate of women attending their first antenatal visit prior to 12 weeks' gestation



INDICATOR 10: LOW APGAR SCORE

Definition

This indicator measures the wellbeing of babies who are born at 37 or more weeks' gestation and without congenital anomalies at birth. It is used as a proxy for the quality of care during labour and birth and neonatal resuscitation, where necessary, following birth. The Apgar score is a validated measure of adverse long-term outcomes. This is potentially an important indicator for longer term infant outcomes.

Clinical significance

We expect singleton babies who are born at 37 or more weeks' gestation and without congenital anomalies to be born in good condition. They are also expected to show healthy physiological adaption to birth and not require significant resuscitation measures.

The Apgar score is an assessment of a newborn's wellbeing at birth based on five physiological attributes. This is recorded at one and five minutes (and longer if applicable). The five attributes are colour (circulation), breathing, heart rate, muscle tone and reflexes.

Each attribute is given a score of 0, 1 or 2, with a total minimum score of 0 (indicating no or greatly diminished signs of life) and a maximum score of 10 (indicating optimal outcome). An Apgar score below 7 at five minutes indicates a baby who requires ongoing resuscitation measures or additional care. This may be due to avoidable factors during labour, birth or resuscitation.

Desired outcome

Rates should be low and consistent among peer-group hospitals, reflecting differing casemix.

Observations on the data

In 2017 a five-minute Apgar score less than 7 was reported for 1.3 per cent of singleton, term babies across public and private hospitals combined. The rate varied between individual hospitals, from 0 per cent to 5.9 per cent; however, overall rates have remained stable since reporting of this indicator began in 2012 (Figures 34 and 35).

Strategies for improvement

- Undertake a multidisciplinary review of care of all women whose baby was born with a five-minute Apgar score under 7 to identify areas for clinical practice or system improvement.
- Monitor and support the competency and confidence of clinicians in neonatal resuscitation and fetal surveillance during labour.
- Review the availability and use of senior clinicians to both supervise junior clinicians when care is escalated both during and after hours.
- Refer women with a higher risk of complications to appropriate specialist services during pregnancy.
- Ensure clinicians are correctly and consistently identifying and reporting Apgar scores to the VPDC.
- Ensure there are adequate mechanisms to capture, review and report on adverse labour and birth and neonatal resuscitation events and outcomes.



The Apgar score is a score out of 10 used to measure how well a baby is soon after birth. It is usually measured twice – at one minute of age, and five minutes of age. If the score at five minutes is less than 7, babies may need extra attention.

The rate of babies born with a five-minute Apgar score of less than 7 should be very low.

The graph below shows that there is lots of variation between different hospitals.

Figure 34. Indicator 10: Rate of term babies without congenital anomalies with an Apgar score < 7 at five minutes 2017

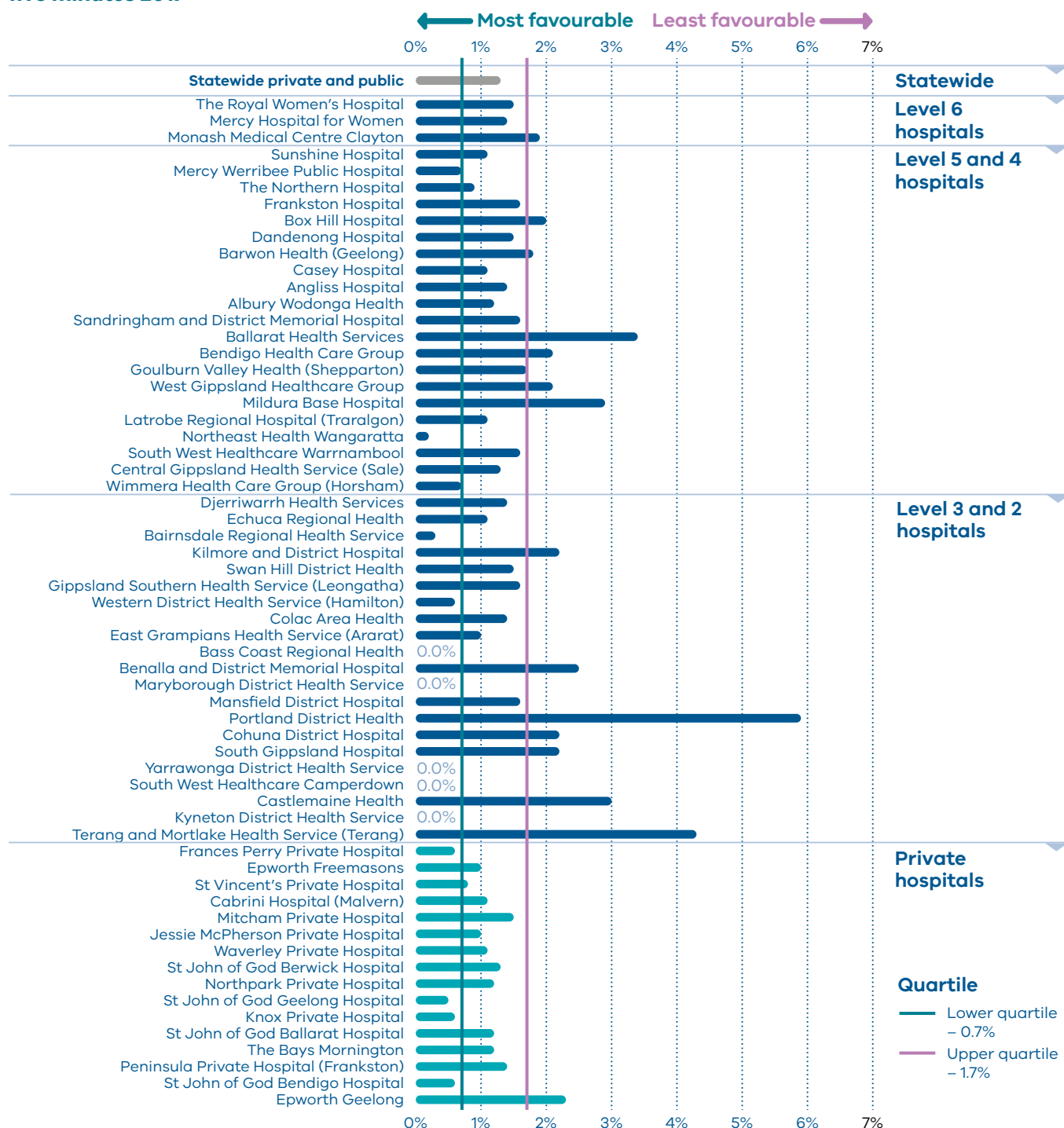
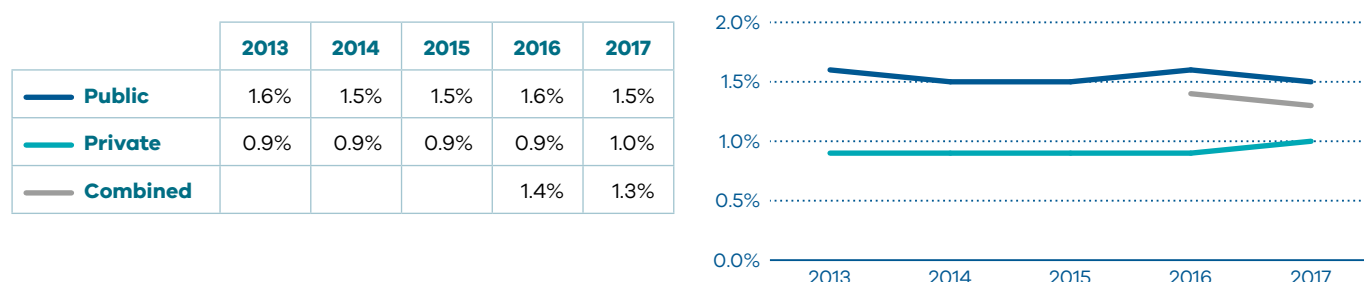


Figure 35. Rate of term babies without congenital anomalies with an Apgar score < 7 at five minutes



INDICATORS 11A AND 11B: WOMEN'S EXPERIENCES OF CARE

Definition

This pair of measures assesses the experience of women who received care from Victorian public hospital services during their labour and birth episode. The indicators are derived from two questions in the maternity questionnaire of the VHES, namely:

- **Indicator 11a:** Question 36: Thinking about your care during labour and birth, were you involved, as much as you wanted to be, in decisions about your care?
- **Indicator 11b:** Question 51: Did you feel that midwives and other health professionals gave you consistent advice about feeding your baby?

Note: The VHES only collects data from public hospitals and reports only on services with more than 42 responses in a year. As such, this indicator is only reported for public health services.

Clinical significance

Any report on maternity and newborn outcomes cannot be complete without women's voices being present, guiding plans for future improvement. Women are uniquely positioned to provide insightful comments about their care. Acknowledging that health outcomes and perceptions are not only influenced by the nature and quality of the clinical care provided but how that care is delivered, patient experience is critical to providing and improving health care.

Through monitoring indicators of experience, it is possible to improve our understanding of women's experience of care and identify areas for quality improvements and service redesign.

Desired outcome

Rates should be high and consistent among hospitals.

Observations on the data

In 2017, 78.9 per cent of women responded that they felt involved, as much as they wanted to be, in decisions about their care (**Indicator 11a**). This rate was relatively consistent between hospitals (Figure 36). The proportion of women who felt they received consistent advice about feeding their baby from midwives and other health professionals (**Indicator 11b**) was lower, at 49.5 per cent. There was variation across hospitals, from 39.5 per cent to 70.4 per cent (Figure 37). The results of **Indicators 11a** and **11b** were similar in 2016 (Tables 6 and 7).

Strategies for improvement

- Work in partnership with women to deliver women-centred, coordinated care.
- Ensure there are adequate mechanisms to capture, review and report on feedback.
- Monitor and track feedback.
- Engage with women, carers and families to hear firsthand about their experiences.

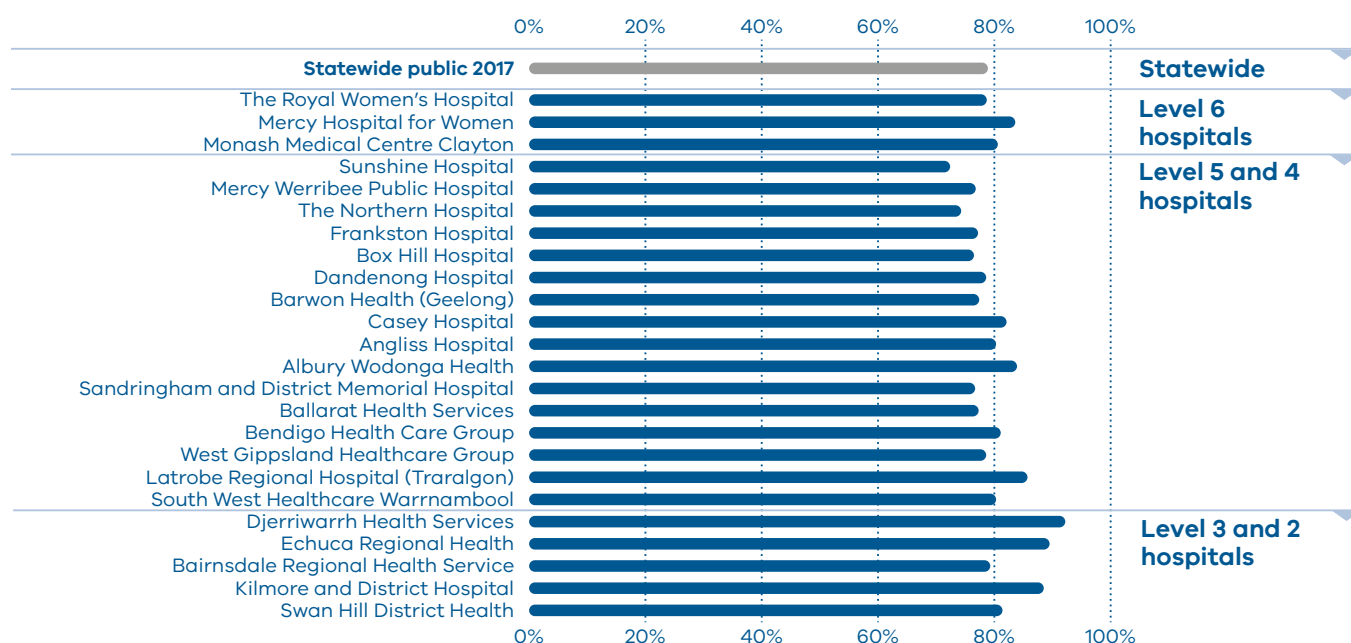


We care what women think about the care they receive during pregnancy and birth.

We specifically measure what women think about how much their carers listened to their wishes, and the information they received about feeding their babies.

Most women seem reasonably satisfied with the care they received. We hope to see women's satisfaction with their birthing experience improve further.

Figure 36. Indicator 11a: Rate of women who felt involved, as much as they wanted to be, in decisions about their care during labour and birth 2017

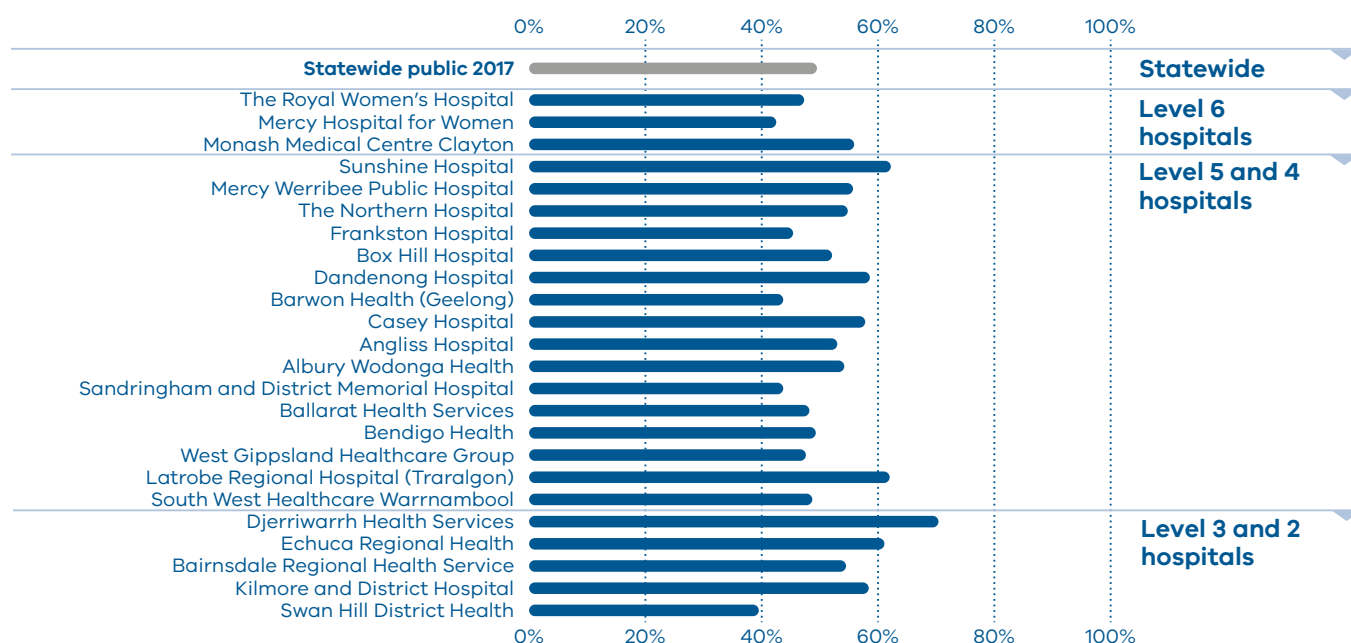


Note: No quartiles are presented with **Indicator 11** as it is a new indicator and there is minimal variation.

Table 6. Rate of women who felt involved, as much as they wanted to be, in decisions about their care during labour and birth

	2016	2017
Public services	80.0%	78.9%

Figure 37. Indicator 11b: Rate of women who felt that midwives and other health professionals gave them consistent advice about feeding their baby 2017



Note: No quartiles are presented with **Indicator 11** as it is a new indicator and there is minimal variation

Table 7. Rate of women who felt that midwives and other health professionals gave them consistent advice about feeding their baby

	2016	2017
Public services	51.0%	49.5%

TRIAL INDICATORS 12A AND 12B: MATERNAL IMMUNISATION

Desired outcomes

- Rates should be high and consistent among hospitals.
- All women should be offered immunisation against pertussis and influenza.

Definition

These indicators present the proportion of women who were immunised against pertussis and influenza at any time during their pregnancy. Specifically:

- 12a: the rate of women vaccinated for pertussis.
- 12b: the rate of women vaccinated for influenza.

Clinical significance

Influenza and pertussis vaccines protect pregnant women and babies from infections.

The vaccines included in the indicators are available free to all pregnant women in Victoria. Influenza immunisation is recommended for all pregnant women during any trimester, while pertussis immunisation is recommended during third trimester; however, the indicator includes women vaccinated at any point during their pregnancy.

Observations on the data

In 2017, 77.5 per cent of women were vaccinated for pertussis during pregnancy (**Trial Indicator 12a**). The rate varied between public and private hospitals, with 83.0 per cent and 59.9 per cent respectively (p-value=<0.001). There was variation between individual hospitals, ranging from 1.0 to 97.8 per cent (Figure 38).

The rate for influenza was lower, with only 53.7 per cent of women receiving immunisation for influenza during their pregnancy (**Trial Indicator 12b**). The rate was similar between public and private hospitals, with 53.9 and 53.4 per cent respectively (p-value=<0.001). There was variation between individual hospitals, ranging from 1.3 to 89.7 per cent (Figure 39).

For both immunisation indicators, there were significant amounts of missing data in individual hospitals. This affects the accuracy of the data and reduces the extent to which it can be used. It is important for hospitals to minimise missing data to increase the validity of the data.

Strategy for improvement

Offer all women immunisation against pertussis and influenza.



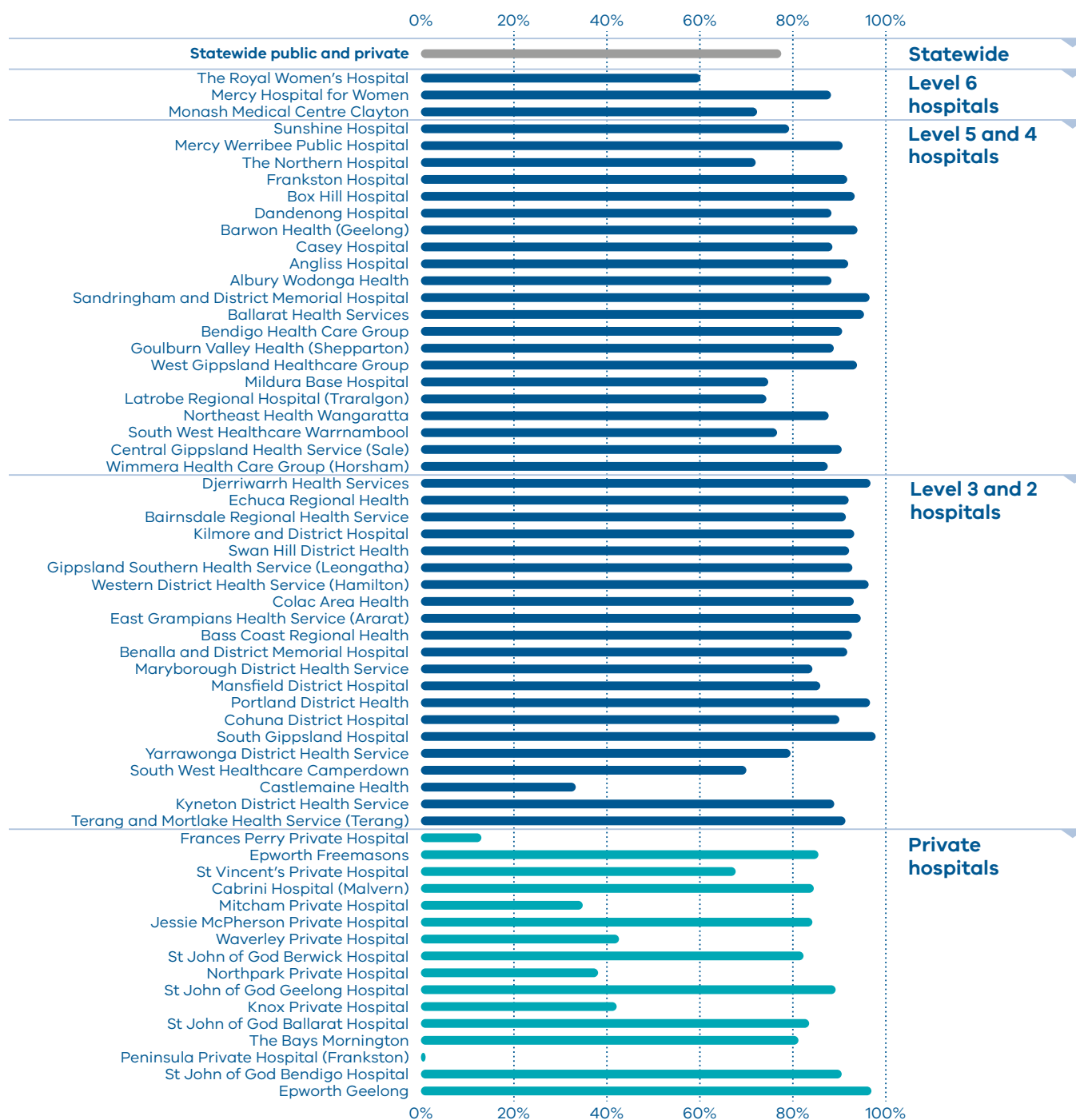
Whooping cough (pertussis) and flu (influenza) are dangerous infections for pregnant women and newborn babies.

Whooping cough and flu vaccines are free for all pregnant women in Victoria.

Getting immunised reduces the chance of women or babies suffering any bad effects from these infections. Health services should offer immunisation for whooping cough and flu to all pregnant women. This is the only way we currently have to protect mothers and babies from these infections.

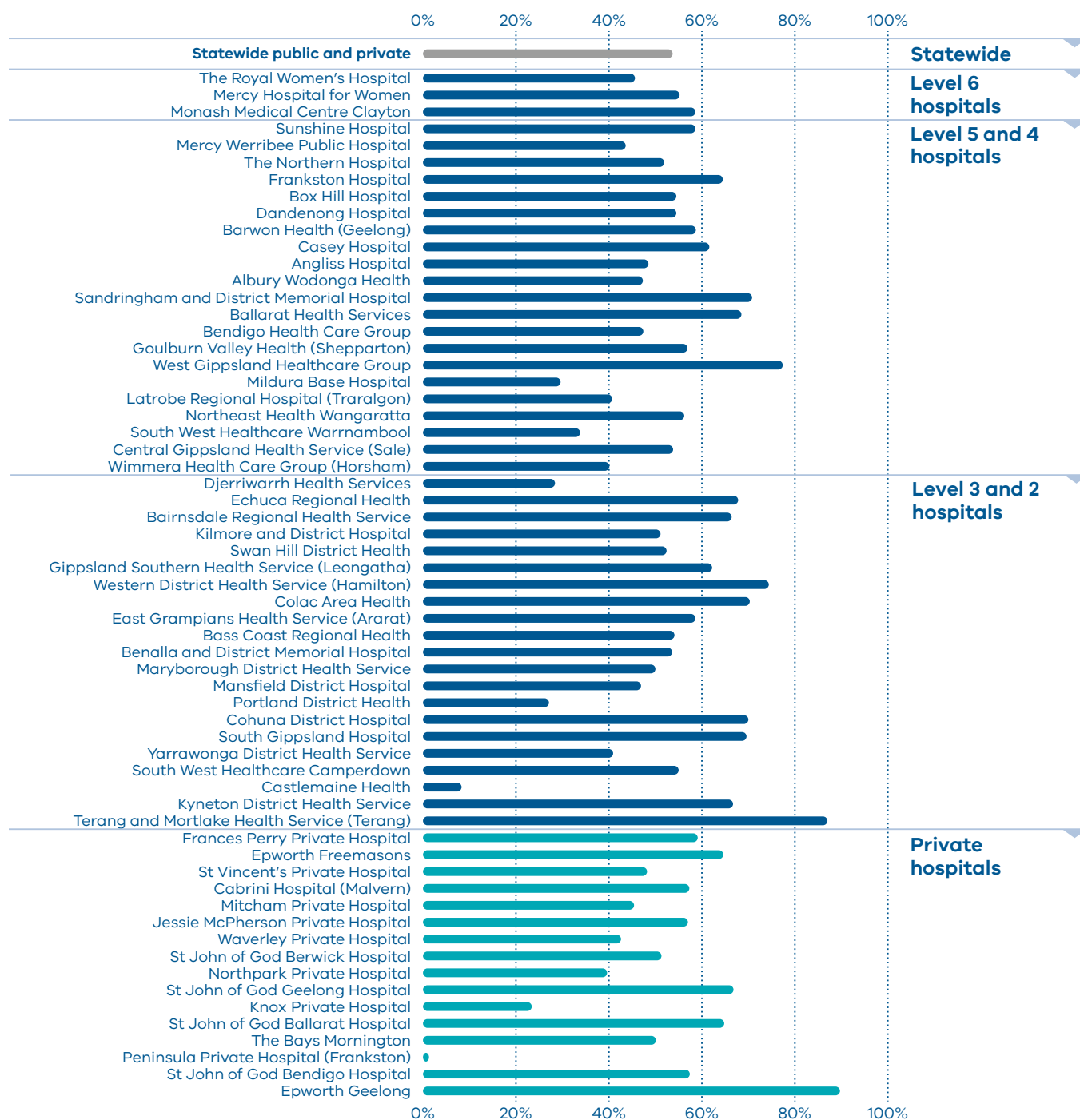
The rates of vaccination are very different between hospitals. We hope more hospitals have higher rates in the future.

Figure 38. Indicator 12a: Rate of women vaccinated for pertussis during pregnancy



Note: As this is the first time we are reporting this indicator, quartiles have been omitted.

Figure 39. Indicator 12b: Rate of women vaccinated for influenza during pregnancy



Note: As this is the first time we are reporting this indicator, quartiles have been omitted

Appendix 1: Data sources and reporting rules

SCV and the department manage the health data collections used for this report:

- **Victorian Perinatal Data Collection (VPDC)** Victorian public and private health services are required to submit specific data to the Consultative Council on Obstetric and Paediatric Mortality and Morbidity (CCOPMM).
- **Victorian Healthcare Experience Survey (VHES)** collects data on public services only.
- **Victorian Admitted Episodes Dataset (VAED)** Victorian public and private health services are required to submit specific data.

Further information on the data sources and the business rules for each indicator can be found in Appendix 2.

There is an unavoidable time lag between data submission by health services and performance reporting. SCV's Maternity and Newborn Clinical Network, in collaboration with the Victorian Managed Insurance Authority, has implemented the Maternity dashboard within all public birthing maternity services to address this time lag and allow services to regularly monitor their own performance. This report should be used to supplement performance evaluation.

When interpreting the data in this report, it is important to note the following:

- Apart from **Indicators 5, 11a and 11b**, data are only reported when a health service has had a **minimum** of 10 occasions for an event (denominator). For example, a hospital that has not had 10 standard primiparae give birth in 2017 (denominator) will not be included in the results for **Indicator 1a**.
- Due to small numbers, data from smaller health services are subject to wide variation and should be interpreted with caution.
- Private patients admitted to a public health service are reported in the results for the relevant public health service.
- Outcomes for public health services are presented in order of clustered maternity service capability and then by the number of women who gave birth at each health service in 2017 (in descending order so hospitals with more births in each capability level appear first).
- Outcomes for private health services are presented in descending order according to the number of women who gave birth at each health service in 2017.
- Although the statewide rates provided for each indicator are a suitable measure for comparing health services, they do not necessarily represent the optimal rate.
- The indicators in this report do not adjust for maternal characteristics such as obesity, mental health conditions, chronic illnesses, socioeconomic status or IVF pregnancies. Health services should consider individual patient profiles when reviewing their data.
- Some of the variation between hospitals may reflect incomplete reporting. To ensure the accuracy of indicators, health services should make sure they have accurate capture and reporting of diagnostic and treatment codes.

Appendix 2: Definitions and data sources

INDICATOR 1A: RATE OF INDUCTION OF LABOUR IN STANDARD PRIMIPARAE

Definition

The standard primipara is defined as a woman, 20–39 years of age, free of obstetric and specified medical complications (pre-existing hypertension, diabetes, cardiac disease or serious psychiatric conditions), giving birth for the first time with a singleton pregnancy between 37 and 40 weeks completed gestation (259–286 days), with a non-small for gestational age (greater than tenth centile) infant and a cephalic presentation.

Data source: Victorian Perinatal Data Collection

Data from the VPDC is reported by calendar year from 1 January 2017 to 31 December 2017.

This data is routinely submitted by each health service on each birth.

The indicators are derived using the following VPDC variables: 'Parity', 'Maternal age', 'Plurality', 'Estimated gestational age', 'Birth presentation', 'Obstetric complications-ICD-10-AM code', 'Maternal medical conditions-ICD-10-AM code', 'Indication for induction-ICD-10-AM code', 'Indications for operative delivery-ICD-10-AM code', 'Birthweight', 'Labour type'.

The inclusion criteria for the standard primipara have been reviewed. The upper age limit has been increased to 39 years. The medical conditions that exclude women are now limited to pre-existing hypertension, diabetes, cardiac disease or serious psychiatric conditions (schizophrenia, other psychotic disorders and bipolar disorder). Women are excluded if they have any obstetric conditions recorded in the 'Complications of pregnancy' or 'Indication for induction' field (any condition listed in the 'O' chapter of ICD-10 that occurs before the onset of labour, but not those related to gestation or spurious labour).

Numerator/denominator

Indicator	Numerator	Denominator
Indicator 1a: Rate of induction of labour in standard primiparae	The number of standard primiparae who give birth undergoing induction of labour	The number of standard primiparae

INDICATORS 1BI AND 1BII: CAESAREAN SECTIONS IN PRIMIPARAE

Definition

Indicator 1 measures outcomes for women having their first birth. **Indicators 1bi and 1bii** report the proportion of caesarean births for women pregnant for the first-time, who give birth to singleton, cephalic-presenting, term baby. The definitions are based on the Ten Group Classification System⁴ but use the modified classification proposed by Zhang⁵ so as to exclude women having a planned caesarean section.

- **Indicator 1bi** considers women whose labour commenced spontaneously.
- **Indicator 1bii** considers women whose labour was induced (excluding pre-labour caesarean).

Data source: Victorian Perinatal Data Collection

Data from the VPDC is reported by calendar year from 1 January 2017 to 31 December 2017.

This data is routinely submitted by each health service on each birth.

The indicators are derived using the following VPDC variables: 'Parity', 'Plurality', 'Birth presentation', 'Estimated gestational age', 'Onset of labour' and 'Method of birth'.

Numerator/denominator

Indicator	Numerator	Denominator
Indicator 1bi: Rate of caesarean section in Robson group 1	The number of women giving birth for the first time, with spontaneous onset of labour and a singleton, cephalic-presenting baby born at 37 or more weeks by caesarean section	The number of women giving birth for the first time, with spontaneous onset of labour and a singleton, cephalic-presenting baby born at 37 or more weeks
Indicator 1bii: Rate of caesarean section in modified Robson group 2	The number of women giving birth for the first time, with induced labour (excluding pre-labour caesarean) and a singleton, cephalic-presenting baby born at 37 or more weeks by caesarean section	The number of women giving birth for the first time, with induced labour (excluding pre-labour caesarean) and a singleton, cephalic-presenting baby born at 37 or more weeks

4 Robson MS 2001, *Classification of caesarean sections*, *Fetal and Maternal Medicine Review*, <<https://www.cambridge.org/core/journals/fetal-and-maternal-medicine-review/article/classification-of-caesarean-sections/1489F66B41725CF7719525EC11655D4C>>.

5 Zhang J, Geerts C, Hukkelhoven C, Offerhaus P, Zwart J, de Jonge A 2016, *Caesarean section rates in subgroups of women and perinatal outcomes*, *British Journal of Obstetrics and Gynaecology*, <<https://obgyn.onlinelibrary.wiley.com/doi/full/10.1111/1471-0528.13520>>.

INDICATORS 1CI AND 1CII: PERINEAL TEARS IN PRIMIPARAE

Definition

For all primiparae, (i) the proportion who have a third- or fourth-degree perineal tear during an unassisted vaginal birth, and (ii) the proportion who had a third- or fourth-degree perineal tear during an assisted vaginal birth.

Assisted (or operative/instrumental) vaginal birth refers to a forceps- or vacuum-assisted birth. Operative intervention in the second stage of labour may be indicated by conditions of the fetus or the mother. Maternal indication includes inadequate progress in labour, congestive heart failure and cerebral vascular malformations.

Included are those women who gave birth for the first time and had a vaginal birth, with or without instruments. Women who had a multiple birth are included if this was the first time they had given birth.

Excluded are those women who did not give birth for the first time or gave birth by caesarean section.

Third-degree perineal tear means a perineal laceration, rupture or tear also involving anal sphincter, rectovaginal septum and/or sphincter not otherwise specified. Excludes lacerations involving the anal or rectal mucosa.

Fourth-degree perineal tear means a perineal laceration, rupture or tear occurring during delivery, also involving anal mucosa and/or rectal mucosa.

The rates for third- and fourth-degree tears includes episiotomies extended by a laceration of a third- and fourth-degree type.

Data source: Victorian Perinatal Data Collection

Data from the VPDC is reported by calendar year from 1 January 2017 to 31 December 2017.

This data is routinely submitted by each health service on each birth.

Numerator/denominator

Indicator	Numerator	Denominator
Indicator 1ci: Rate of third- or fourth-degree perineal tears during unassisted vaginal births to primiparae	The number of primiparae who had a third- or fourth-degree perineal laceration during an unassisted vaginal birth	The number of primiparae who had an unassisted vaginal birth
Indicator 1cii: Rate of third- or fourth-degree perineal tears during assisted vaginal births to primiparae	The number of primiparae who had a third- or fourth-degree perineal laceration during an assisted (instrumental) vaginal birth	The number of primiparae who had an assisted vaginal birth

INDICATORS 1DI AND DII: EPISIOTOMIES IN PRIMIPARAE

Definition

For all primiparae, (1di) the proportion who received an episiotomy during an unassisted vaginal birth, and (1dii) the proportion who received an episiotomy during an assisted vaginal birth.

Episiotomy is defined as an incision of the perineum and vagina made during vaginal birth.

Included are those women who gave birth for the first time and had a vaginal birth, with or without instruments. Women who had a multiple birth are included if this was the first time they had given birth.

Excluded are those women who did not give birth for the first time or gave birth by caesarean section.

Assisted (or operative/instrumental) vaginal birth refers to a forceps- or vacuum-assisted birth. Operative intervention in the second stage of labour may be indicated by conditions of the fetus or the mother. Maternal indication includes inadequate progress in labour, congestive heart failure and cerebral vascular malformations.

Data source: Victorian Perinatal Data Collection

Data from the VPDC is reported by calendar year from 1 January 2017 to 31 December 2017.

This data is routinely submitted by each health service on each birth.

Numerator/denominator

Indicator	Numerator	Denominator
Indicator 1di: Rate of primiparae who received an episiotomy during unassisted vaginal births	The number of primiparae who had an episiotomy during an unassisted vaginal birth	The number of primiparae who had an unassisted vaginal birth
Indicator 1dii: Rate of primiparae who received an episiotomy during assisted vaginal births	The number of primiparae who had an episiotomy during an assisted vaginal birth	The number of primiparae who had an assisted (instrumental) vaginal birth

INDICATOR 2: TERM BABIES WITHOUT CONGENITAL ANOMALIES WHO REQUIRED ADDITIONAL CARE

Definition

This indicator includes inborn term babies. An inborn term baby is an infant born at the reporting hospital at a gestational age of 37 weeks or more. Term babies without congenital anomalies who require additional care are defined as newborns who:

- are not less than 37 weeks 0 days' gestation
- weigh not less than 2,500 grams
- are without congenital anomalies
- are grouped to Victorian diagnostic-related groups (VIC-DRGs) representing the need for more than normal care (see list of VIC-DRGs provided below).

Excluded are:

- babies born at another hospital
- pre-term newborn babies
- infants with congenital anomalies
- birthweight less than 2,500 grams
- stillborn babies
- readmission (separation not related to the birth episode).

The denominator for the 2017–18 reporting period is episodes grouped to the Version 7.0 VIC-DRGs:

- P68A (v7): Neonate, AdmWt >=2500g W/O Sig OR Proc >=37 Comp Wks Gest W Mult Major Probs
- P68B (v7): Neonate, AdmWt >=2500g W/O Sig OR Proc >=37 Comp Wks Gest W Major Problem
- P68C (v7) Neonate, AdmWt >=2500g W/O Sig OR Proc >=37 Comp Wks Gest W Other Problem
- P68D (v7) Neonate, AdmWt >=2500g W/O Sig OR Proc >=37 Comp Wks Gest W/O Problem
- P06A Neonate, Admission weight > 2499g with Significant Operating Room Procedure with Multi Major Problems
- P06B Neonate, Admission weight > 2499g with Significant Operating Room Procedure without Multi Major Problems
- P60A Neonate, Died or Transferred < 5 days of admission, without Significant Operating Room Procedure, Newborn
- P60B Neonate, Neonate W/O Sig OR Proc, Died or Transferred to Acute Facility Same Day.

Data source: Victorian Admitted Episodes Dataset

Data from the VAED is reported by financial year from 1 July 2017 to 30 June 2018.

Numerator/denominator

Indicator	Numerator	Denominator
Indicator 2: Rate of term babies without congenital anomalies who required additional care	The number of inborn term babies without birth defects grouped to VIC-DRG P68A, P68B, P68C, P06A, P06B, P60A [#] and P60B [#]	The number of inborn term babies without congenital anomalies grouped to VIC-DRG P68A, P68B, P68C, P68D, P06A, P06B, P60A [#] and P60B [#]

[#] All newborns initially grouped to P60A and P60B were regrouped to the next logical VIC-DRG following removal of the separation mode 'Died or Transferred' and replaced with the separation mode of 'Home'. This was done so that only those babies in P60A and P60B who require additional care are counted in the numerator. To include the whole of P60A and P60B in the numerator would overestimate the rate of newborns requiring additional care because some healthy newborns are transferred for other reasons.

INDICATOR 3: SEVERE FETAL GROWTH RESTRICTION

Definition

Severe FGR is defined as a birthweight less than the third centile for gestation and sex whether liveborn or stillborn.

Excluded are:

- babies without severe FGR
- multiple births
- births at earlier gestations (less than 32 weeks).

Data source: Victorian Perinatal Data Collection

Data from the VPDC is reported by calendar year from 1 January 2017 to 31 December 2017.

The indicator is derived using the following VPDC variables: 'Baby sex', 'Gestation', 'Birth weight' and 'Plurality'.

Numerator/denominator

Indicator	Numerator	Denominator
Indicator 3: Rate of severe FGR in a singleton pregnancy undelivered by 40 weeks	Birth at 40 or more weeks' gestation of a singleton baby with severe FGR	Singleton births (live and stillborn) with severe FGR born at and beyond 32 weeks' gestation

For this indicator, a baby is considered to be severely growth-restricted when their birthweight is below the third centile for gestation, sex and plurality. It is calculated based on the study by Dobbins et al.⁶, which gives the tables for birthweight centiles according to the gestational week for live singleton male and female babies in Australia. If a male singleton baby weighing 1,700 grams is born at 35 weeks, it falls below the third centile for gestation, sex and plurality. The baby is then considered severely growth restricted (refer to Appendix 2, **Indicator 3**). *The Australian national birthweight percentiles by sex and gestational age, 1998–2007* (Dobbins et al. 2012) is used to calculate the birthweight centiles for this indicator (see Tables 9 and 10).

6 Dobbins T, Sullivan E, Roberts C, Simpson J 2012, 'Australian national birthweight percentiles by sex and gestational age, 1998–2007', *The Medical Journal of Australia*, viewed 15 November 2016, <<https://www.mja.com.au/journal/2012/197/5/australian-national-birthweight-percentiles-sex-and-gestational-age-1998-2007>>.

Table 9. Birthweight centiles for live singleton male infants, Australia, 1998–2007

Gestational age (weeks)	Number of births	Mean (SD) birthweight (g)	Birthweight percentile (g)										
			1st	3rd	5th	10th	25th	50th	75th	90th	95th	97th	99th
20	230	349 (60)	210	248	254	273	310	340	390	430	450	470	500
21	335	418 (66)	270	290	300	335	375	420	460	500	540	542	575
22	401	505 (76)	350	370	390	410	460	500	554	600	630	650	690
23	395	595 (82)	390	450	470	500	540	588	650	700	730	756	800
24	640	681 (105)	426	470	500	550	618	684	750	810	850	875	970
25	715	783 (131)	440	505	530	620	700	785	865	944	995	1030	1100
26	937	894 (152)	500	576	621	680	802	900	996	1078	1130	1155	1210
27	1 069	1016 (194)	510	605	660	752	904	1030	1138	1250	1320	1352	1440
28	1 345	1146 (217)	591	680	735	844	1030	1165	1295	1395	1470	1522	1640
29	1 524	1301 (252)	662	782	860	964	1150	1311	1463	1620	1700	1757	1860
30	2 105	1474 (283)	774	900	984	1091	1300	1498	1650	1800	1920	1980	2182
31	2 576	1666 (304)	915	1055	1126	1270	1480	1680	1855	2028	2142	2230	2435
32	3 895	1867 (331)	1 075	1214	1294	1430	1659	1880	2080	2270	2405	2503	2710
33	5 599	2106 (371)	1 200	1381	1473	1638	1880	2106	2340	2560	2710	2845	3070
34	9 824	2340 (385)	1 400	1580	1690	1860	2100	2340	2580	2810	2990	3120	3343
35	16 054	2585 (408)	1 600	1795	1920	2080	2330	2578	2835	3095	3275	3410	3665
36	32 747	2826 (428)	1 805	2015	2120	2295	2550	2820	3095	3360	3550	3690	3930
37	73 986	3093 (449)	2 050	2265	2372	2540	2800	3080	3378	3670	3865	3990	4235
38	230 003	3344 (439)	2 340	2540	2640	2800	3050	3330	3625	3910	4090	4215	4445
39	293 109	3486 (430)	2 510	2700	2800	2950	3195	3470	3765	4040	4220	4335	4560
40	409 976	3632 (434)	2 650	2840	2940	3090	3340	3620	3915	4195	4370	4490	4708
41	192 154	3769 (438)	2 780	2970	3070	3220	3470	3755	4060	4340	4515	4630	4850
42	19 804	3832 (462)	2 760	2980	3095	3250	3520	3820	4130	4430	4615	4740	4970
43	797	3761 (540)	2 615	2785	2935	3085	3380	3750	4100	4470	4670	4825	5180
44	53	3715 (563)	—	—	—	3110	3300	3620	4070	4415	—	—	—

Source: Dobbins et al. 2012

Table 10. Birthweight centiles for live singleton female infants, Australia, 1998–2007

Gestational age (weeks)	Number of births	Mean (SD) birthweight (g)	Birthweight percentile (g)										
			1st	3rd	5th	10th	25th	50th	75th	90th	95th	97th	99th
20	197	333 (65)	190	210	230	265	290	320	374	410	450	490	525
21	256	386 (69)	210	250	270	300	340	390	433	470	510	515	530
22	333	474 (72)	260	325	355	400	425	480	520	560	589	610	620
23	376	558 (89)	320	375	400	445	506	560	615	660	700	725	800
24	528	637 (95)	380	430	480	520	580	641	700	754	793	815	860
25	599	730 (128)	410	470	498	559	645	740	817	884	940	975	992
26	809	825 (166)	428	490	520	594	717	840	940	1026	1072	1106	1186
27	879	949 (188)	500	568	598	675	840	965	1077	1175	1240	1280	1390
28	1136	1073 (230)	495	622	675	764	928	1090	1230	1347	1410	1470	1610
29	1188	1215 (252)	572	712	790	870	1055	1240	1380	1494	1595	1680	1840
30	1656	1394 (277)	725	870	918	1030	1220	1400	1571	1715	1840	1920	2130
31	2052	1582 (302)	880	1000	1060	1190	1385	1590	1780	1948	2065	2146	2338
32	3119	1772 (322)	970	1140	1230	1348	1570	1780	1970	2170	2290	2400	2620
33	4421	2014 (356)	1180	1330	1424	1560	1790	2011	2235	2450	2616	2746	2970
34	8108	2242 (375)	1331	1525	1615	1764	2005	2240	2470	2705	2870	2995	3220
35	13104	2486 (403)	1525	1710	1820	1980	2230	2480	2735	2995	3175	3300	3516
36	28386	2720 (420)	1750	1940	2040	2198	2445	2710	2980	3250	3450	3575	3810
37	66928	2979 (439)	1970	2175	2275	2430	2690	2965	3255	3545	3735	3865	4100
38	214002	3215 (425)	2256	2440	2540	2690	2930	3200	3490	3770	3945	4062	4290
39	282046	3351 (415)	2420	2600	2690	2830	3070	3340	3620	3890	4060	4175	4390
40	398257	3493 (416)	2566	2740	2830	2975	3210	3480	3765	4030	4200	4316	4525
41	181434	3619 (424)	2680	2855	2945	3090	3330	3605	3900	4170	4340	4455	4670
42	17701	3665 (445)	2670	2850	2950	3110	3360	3650	3955	4240	4420	4545	4760
43	801	3579 (463)	2660	2800	2865	3010	3240	3560	3880	4210	4385	4560	4760
44	52	3705 (523)	—	—	—	3070	3403	3695	3965	4230	—	—	—

Source: Dobbins et al. 2012

INDICATOR 4: VAGINAL BIRTH AFTER PRIMARY CAESAREAN SECTION

Definition

Definitions for this indicator may differ from vaginal birth after caesarean (VBAC) indicators reported by other organisations. Primary caesarean is often defined as the first ever caesarean regardless of parity, whereas this indicator selects women having a singleton second birth at term, whose only prior birth was by caesarean.

The VPDC collects outcomes for women at term whose only previous birth was a caesarean section; any of these women who entered labour and did not have a subsequent planned caesarean is assumed to have planned a VBAC.

Excluded are:

- some hospitals – not all hospitals in Victoria offer VBAC, and those that do not have been excluded from the indicator
- women who had a pre-labour unplanned caesarean
- multiple births
- women who had a vaginal birth for their previous birth
- women not having their second birth.

Data source: Victorian Perinatal Data Collection

Data from the VPDC is reported by calendar year from 1 January 2017 to 31 December 2017.

The indicators are derived using the following VPDC variables: 'Parity', 'Total number of previous caesareans', 'Last birth by CS indicator', 'Plurality', 'Estimated gestational age', 'Labour type' and 'Method of birth'.

Numerator/denominator

Indicator	Numerator	Denominator
Indicator 4a: Rate of women who planned a vaginal birth after a primary caesarean section	The number of women (second-time mothers and at term with a singleton pregnancy) whose previous birth was a caesarean section and who enter labour with a plan for a vaginal birth	The number of women (second-time mothers and at term with a singleton pregnancy) whose previous birth was a caesarean section
Indicator 4b: Rate of women who achieved a planned vaginal birth after a primary caesarean section	The number of women (second-time mothers at term with a singleton pregnancy) whose previous birth was a caesarean and who enter labour with a plan for a vaginal birth and who achieve a vaginal birth	The number of women (second-time mothers at term with a singleton pregnancy) whose previous birth was a caesarean and who enter labour with a plan for a vaginal birth

INDICATOR 5: FIVE-YEAR GESTATION STANDARDISED PERINATAL MORTALITY RATIO

Definition

The GSPMR is standardised according to the gestational age-specific perinatal mortality rates of the total population in Victorian public hospitals. The standardisation does not adjust for inter-hospital transfers, and deaths are ascribed to the birth hospital regardless of the timing of the death in relation to the transfer.⁷

The data in this report:

- is calculated from five years of pooled data between 2013 and 2017
- is standardised using gestational age
- excludes births earlier than 32 weeks 0 days
- excludes birthweights less than 150 grams regardless of gestation
- excludes all deaths due to congenital anomalies and all terminations of pregnancy.

These exclusions provide a more sensitive indicator to reflect the quality of care.

The GSPMR is presented with data for individual public and private hospitals being shown in relation to the statewide public hospital perinatal mortality rate for each week of gestation as the standard or reference population. The GSPMR of the individual health service is published in this report only if there are five or more perinatal deaths (stillbirths and neonatal deaths) in at least one year of the five pooled years (2013–2017).

A GSPMR of 1 indicates that the observed number of perinatal deaths at that hospital is exactly what would be expected, considering the number of births and the gestation of babies born there. The statewide rate (1) does not necessarily represent the optimal or clinically appropriate rate for perinatal mortality. A rate greater than 1 indicates more deaths occurred than were expected, and a rate less than 1 indicates fewer deaths occurred than were expected.

Data source: Victorian Perinatal Data Collection

Data from the VPDC is reported by calendar year from 1 January 2013 to 31 December 2017.

⁷ Adjusting for transfers has been tested and has been found to not to affect the results significantly.

Observed/expected

Indicator	Observed	Expected
Indicator 5: Perinatal mortality ratio for babies born at 32 or more weeks (gestation standardised, excluding all terminations of pregnancy and deaths due to congenital anomalies) using five years' pooled data in Victorian public and private hospitals (32 weeks or more GSMPR)	Observed perinatal deaths from 32 weeks 0 days (by weeks' gestation at birth)	Expected perinatal deaths from 32 weeks 0 days (by weeks' gestation at birth)

INDICATOR 6A: MATERNAL READMISSIONS DURING THE POSTNATAL PERIOD

Definition

The readmission rate is calculated for the hospital that discharged the mother from the birth episode. The rate includes admissions to any Victorian health service after the birth episode, not just a readmission to the birthing service.

Women transferred to another health service following a birth separation are excluded from the numerator total. Women who present to an emergency department or urgent care centre, but who are not admitted, are excluded from the numerator total. Women who are readmitted and have a primary diagnosis related to their pregnancy and/or birth are included in the numerator total. However, diagnosis codes that are associated with a complexity that cannot be prevented (or managed) through postnatal care and/or that are associated with a condition(s) that manifests after discharge from hospital without any indication of its presence prior to this time are excluded (see list below).

The denominator is the total number of birth episodes at a health service. The only exclusion is maternal death.

Potentially preventable readmission primary diagnosis codes are limited to the following:

- O722 – Delayed and secondary postpartum haemorrhage
- O860 – Infection of obstetric surgical wound
- O85 – Puerperal sepsis
- O9120 – Non-purulent mastitis without attachment difficulties
- Z466 – Fitting and adjustment of urinary device
- O894 – Spinal epidural headache during puerperium
- O901 – Disruption of perineal obstetric wound
- O149 – Pre-eclampsia (unspecified)
- O16 – Unspecified maternal hypertension
- O9903 – Anaemia complicating childbirth and the puerperium
- O731 – Retained portion placenta and membranes without haemorrhage
- O721 – Other immediate postpartum haemorrhage
- O902 – Haematoma of obstetric wound
- O862 – Urinary tract infection following delivery
- O900 – Disruption of caesarean section wound
- Z391 – Care and examination of lactating mother
- O13 – Gestational hypertension
- N390 – Urinary tract infection (site not specified)
- O9121 – Non-purulent mastitis with attachment difficulty
- F531 – Severe mental and behavioural disorder associated with puerperium (not elsewhere classified)
- F530 – Mild mental and behavioural disorder associated with puerperium (not elsewhere classified)
- G971 – Other reaction to spinal and lumbar puncture
- R509 – Fever (unspecified)
- R33 – Retention of urine
- O152 – Eclampsia in the puerperium
- O720 – Third-stage haemorrhage.

Data source: Victorian Admitted Episodes Dataset

Data from the VAED is reported by financial year 1 July 2017 to 30 June 2018.

Numerator/denominator

Indicator	Numerator	Denominator
Indicator 6a: Readmission of a mother within 28 days of discharge from a birthing episode admission in a Victorian public or private hospital.	The number of women readmitted to any health service within 28 days with a potentially preventable readmission diagnosis code	The total number of birth episodes at a health service

INDICATOR 6B: NEWBORN READMISSIONS DURING THE POSTNATAL PERIOD

Definition

Readmissions that meet the criteria for inclusion are attributed to the health service that provided postnatal care as part of the birthing episode.

The readmission rate is calculated for the hospital that discharged the neonate from the birth episode. The rate includes admissions to any Victorian health service after birth, not just a readmission to the birthing service. Babies transferred to another health services following a birth separation are excluded from the numerator total.

Neonates who are readmitted on the same day of discharge are also excluded. This is because it is not possible to determine from the dataset whether these are genuine readmissions or a new separation following a planned transfer of care.

Neonates who present to an emergency department or urgent care centre, but who are not admitted, are excluded from the numerator total.

Neonates who are readmitted and have a primary diagnosis related to their pregnancy and/or birth are included in the numerator total. However, diagnosis codes that are associated with a complexity that cannot be prevented (or managed) through postnatal care and/or that are associated with a condition(s) that manifests after discharge from hospital without any indication of its presence prior to this time are excluded (see list below).

The denominator includes the total number of neonates discharged from a health service. Stillbirths and neonatal deaths prior to discharge are excluded. Qualified and unqualified neonates are included – irrespective of their accommodation type during the birth episode (if they spent time in neonatal intensive care or in a special care nursery).

Potentially preventable readmissions are limited to the following list of primary diagnoses:

- P599 – Neonatal jaundice (unspecified)
- P929 – Feeding problem of newborn (unspecified)
- R628 – Other lack of expected normal physiological deviation
- P369 – Bacterial sepsis of newborn (unspecified)
- P928 – Other feeding problems of newborn
- P590 – Neonatal jaundice with pre-term delivery
- P598 – Neonatal jaundice from other specific causes
- P0732 – Other pre-term infant \geq 32 weeks' gestation but $<$ 37 completed weeks
- P551 – ABO isoimmunisation of fetus and newborn
- Z0371 – Observation of newborn for suspected infectious condition
- P2840 – Apnoea of newborn, unspecified
- P282 – Cyanotic attacks of newborn
- A870 – Enteroviral meningitis
- P38 – Omphalitis newborn with or without mild haemorrhage
- P741 – Dehydration of newborn
- P809 – Hypothermia of newborn unspecified
- P90 – Convulsions of newborn
- R634 – Abnormal weight loss.

Data source: Victorian Admitted Episodes Dataset

Data from the VAED is reported by financial year 1 July 2017 to 30 June 2018.

Numerator/denominator

Indicator	Numerator	Denominator
Indicator 6b: Readmission of a newborn within 28 days of discharge from a birthing episode admission in a Victorian public hospital	The number of neonates readmitted to any health service with a potentially preventable readmissions diagnosis code within 28 days of birth	The number of neonates provided with admitted postnatal care prior to discharge

INDICATOR 7: SMOKING CESSATION

Definition

The percentage of women who were reported as having stopped smoking after 20 weeks' gestation among those who were reported as having smoked before 20 weeks. Women who were reported as not smoking before 20 weeks and women whose smoking status before 20 weeks was missing are excluded from the denominator. Women whose smoking status at 20 or more weeks was not reported are included in the denominator. Services with 10 per cent or more missing data in smoking after 20 weeks are excluded from the publishing range.

Data source: Victorian Perinatal Data Collection

Data from the VPDC is reported by calendar year from 1 January 2017 to 31 December 2017.

The indicators are derived using the following VPDC variables: 'Maternal smoking at less than 20 weeks' and 'Maternal smoking at more than or equal to 20 weeks'.

Numerator/denominator

Indicator	Numerator	Denominator
Indicator 7: Rate of smoking cessation during pregnancy	The number of women who were reported as having stopped smoking after 20 weeks' gestation among those who smoked before 20 weeks	The number of women who smoked before 20 weeks' gestation

INDICATOR 8: BREASTFEEDING IN HOSPITAL

Definition

This group of measures assesses aspects of breastfeeding in Victorian hospitals during the birthing episode, namely:

- **Indicator 8a:** rate of breastfeeding initiation for babies born at ≥ 37 weeks' gestation
- **Indicator 8b:** rate of use of infant formula in hospital by breastfed babies born at ≥ 37 weeks' gestation
- **Indicator 8c:** rate of final feed being taken directly from the breast by breastfed babies born at ≥ 37 weeks' gestation.

Data source: Victorian Perinatal Data Collection

Data from the VPDC is reported by calendar year from 1 January 2017 to 31 December 2017.

This data is routinely submitted by each health service on each birth.

The indicators are derived using the following VPDC variables: 'Breastfeeding attempted', 'Formula given in hospital', 'Last feed before discharge taken exclusively from the breast', 'Estimated gestational age', 'Birth status' and 'Birth order'.

Numerator/denominator

Indicator	Numerator	Denominator
Indicator 8a: Rate of breastfeeding initiation for babies born at ≥ 37 weeks' gestation	The number of women giving birth at 37 or more weeks' gestation attempting to breastfeed at least once (regardless of the success of the attempt)	The number of women giving birth at 37 or more weeks' gestation
Indicator 8b: Rate of use of infant formula in hospital by breastfed babies born at ≥ 37 weeks' gestation	The number of babies born at 37 or more weeks' gestation whose mother initiated breastfeeding and was given infant formula in hospital	The number of babies born at 37 or more weeks' gestation whose mother initiated breastfeeding
Indicator 8c: Rate of final feed being taken directly from the breast by breastfed babies born at ≥ 37 weeks' gestation	The number of babies born at 37 or more weeks' gestation whose mother initiated breastfeeding and who fed directly and entirely from the breast at the last feed before discharge	The number of babies born at 37 or more weeks' gestation whose mother initiated breastfeeding

INDICATOR 9: FIRST ANTENATAL VISIT

Definition

The first antenatal visit is the first visit to a midwife or doctor arranged specifically for the purpose of providing maternity care. It excludes visits for confirmation of pregnancy unless some maternity care is provided (for example, referral for first-trimester screening) and medical visits for incidental problems while pregnant.

A maternity or antenatal care provider is defined as a clinician who provides care to pregnant women and includes a midwife, a general practitioner or an obstetrician.

This includes antenatal visits that may occur in the community (general practitioners, midwives or obstetricians practising privately or at a community health centre) and is not therefore necessarily the date of the first antenatal visit at the hospital.

Data source: Victorian Perinatal Data Collection

Data from the VPDC is reported by calendar year from 1 January 2017 to 31 December 2017.

The indicator is derived using the VPDC variables: 'Gestational age at first antenatal visit' and 'Birth order'.

Numerator/denominator

Indicator	Numerator	Denominator
Indicator 9: Rate of women attending their first antenatal visit prior to 12 weeks' gestation	The number of women who had antenatal care prior to 12 weeks' gestation with a maternity care provider (including care in the community by GPs) and who birthed at the health service	The number of women who gave birth

INDICATOR 10: LOW APGAR SCORE

Definition

The rate of term babies without congenital anomalies with an Apgar score of less than 7 at five minutes in Victorian public hospitals.

Excludes babies born at less than 37 weeks' gestation, infants born with congenital anomalies, stillbirths and babies born before arrival at hospital.

The Apgar score is used to evaluate the fitness of a newborn infant based on heart rate, respiration, muscle tone, reflexes and colour. The maximum or best score is 10. The Apgar score should be determined consistently and reliably according to best practice guidelines. Rates for this indicator should show little variation among peer-group services, and inter-rater reliability should be high within health services. This supports quality reporting of neonatal outcomes for meaningful comparisons.

Inborn is defined as a baby born at the reporting hospital.

Data source: Victorian Perinatal Data Collection

Data from the VPDC is reported by calendar year from 1 January 2017 to 31 December 2017.

This data is routinely collected for every birth at each health service.

The indicator is derived using the following VPDC variables: 'Apgar score at 5 minutes', 'Estimated gestational age', 'Birth status', 'Setting of birth actual' and 'Congenital anomalies indicator'.

Numerator/denominator

Indicator	Numerator	Denominator
Indicator 10: Rate of term babies without congenital anomalies with an Apgar score < 7 at five minutes	The number of inborn, liveborn, term babies without congenital anomalies with an Apgar score less than 7 at five minutes	The number of inborn, liveborn, term babies without congenital anomalies

INDICATOR 11: WOMEN'S EXPERIENCES OF CARE

Definition

This pair of measures assesses the experience of maternity consumers who received care from a Victorian public hospital during the *labour and birth episode*:

- **Indicator 11a:** Question 36: Thinking about your care during labour and birth, were you involved, as much as you wanted to be, in decisions about your care?
- **Indicator 11b:** Question 51: Did you feel that midwives and other health professionals gave you consistent advice about feeding your baby?

Data source: IPSOS Social Research Institute analysis of the Victorian Healthcare Experience Survey

VHES data is reported by calendar year from 1 January 2017 to 31 December 2017.

Results are not reported when there are fewer than 42 responses for a health service over a year, or when data were not provided by the health service.

Note: The VHES maternity questionnaire is distributed to a random sample of consumers following a hospital admission for pregnancy and birth.

Numerator/denominator

Indicator	Numerator	Denominator
Indicator 11a: Rate of women who felt involved, as much as they wanted to be, in decisions about their care during labour and birth	The number of women who answered 'yes, always' to question 36 of the VHES maternity questionnaire	The number of women who answered question 36 of the VHES maternity questionnaire
Indicator 11b: Rate of women who felt that midwives and other health professionals gave them consistent advice about feeding their baby	The number of women who answered 'yes, always' to question 51 of the VHES maternity questionnaire	The number of women who answered question 51 of the VHES maternity questionnaire

TRIAL INDICATORS 12A AND 12B: MATERNAL IMMUNISATION

Definition

The proportion of women who were vaccinated for specific infections at any time during their pregnancy:

- **Indicator 12a:** The rate of women vaccinated for pertussis
- **Indicator 12b:** The rate of women vaccinated for influenza.

This excludes babies born at less than 37 weeks' gestation, infants born with congenital anomalies, multiple births, stillbirths and babies born before arrival at hospital.

Influenza and pertussis vaccines protect pregnant women from viral and bacterial infections, complications while pregnant and serious complications in their babies.

The vaccines included in the indicators are available free to all pregnant women in Victoria. Influenza vaccination is recommended for all pregnant women during any trimester, while pertussis vaccination is recommended during third trimester; however, the indicator includes women vaccinated at any point during their pregnancy.

Data source: Victorian Perinatal Data Collection

Data from the VPDC is reported by calendar year from 1 January 2017 to 31 December 2017.

This data is routinely collected for every birth at each health service.

The indicator is derived using the following VPDC variables: 'Influenza vaccination status', 'Pertussis (whooping cough) vaccination status', 'Estimated gestation', 'Congenital anomalies indicator', 'Plurality', 'Birth status' and 'Place of birth actual'.

Numerator/denominator

Indicator	Numerator	Denominator
Indicator 12a: The rate of women vaccinated for pertussis during pregnancy	The number of women who received a pertussis vaccine at any point during pregnancy	The number of women who gave birth in Victoria
Indicator 12b: The rate of women vaccinated for influenza during pregnancy	The number of women who received an influenza vaccine at any point during pregnancy	The number of women who gave birth in Victoria

Appendix 3: Total women and babies in Victorian maternity services 2017

Table 11. Total number of women and babies, by maternity service of birth

Health service	Maternal capability level of service*	Number of women	Number of babies
The Royal Women's Hospital	6	7,464	7,631
Mercy Hospital for Women	6	5,711	5,841
Monash Medical Centre Clayton	6	4,036	4,190
Sunshine Hospital	5	5,489	5,544
The Northern Hospital	5	3,690	3,737
Frankston Hospital	5	2,890	2,910
Box Hill Hospital	5	2,664	2,706
Barwon Health (Geelong)	5	2,450	2,483
Albury Wodonga Health	5	1,635	1,660
Ballarat Health Services	5	1,474	1,501
Bendigo Health Care Group	5	1,451	1,467
Goulburn Valley Health (Shepparton)	5	1,094	1,105
Latrobe Regional Hospital (Traralgon)	5	851	860
Mercy Werribee Public Hospital	4	3,804	3,831
Dandenong Hospital	4	2,676	2,676
Casey Hospital	4	2,291	2,295
Angliss Hospital	4	2,205	2,221
Sandringham and District Memorial Hospital	4	1,606	1,608
West Gippsland Healthcare Group	4	890	903
Mildura Base Hospital	4	881	890
Northeast Health Wangaratta	4	665	679
South West Healthcare Warrnambool	4	640	649
Central Gippsland Health Service (Sale)	4	433	440
Wimmera Health Care Group (Horsham)	4	329	333
Djerriwarrh Health Services	3	454	454

Health service	Maternal capability level of service*	Number of women	Number of babies
Echuca Regional Health	3	363	367
Bairnsdale Regional Health Service	3	324	324
Kilmore and District Hospital	3	235	235
Swan Hill District Health	3	227	227
Gippsland Southern Health Service (Leongatha)	3	209	209
Western District Health Service (Hamilton)	3	164	164
Colac Area Health	3	145	145
East Grampians Health Service (Ararat)	3	111	111
Bass Coast Regional Health	3	109	109
Benalla and District Memorial Hospital	3	84	84
Mansfield District Hospital	3	64	64
South Gippsland Hospital	3	46	46
South West Healthcare Camperdown	3	40	40
Maryborough District Health Service	2	76	76
Portland District Health	2	59	59
Cohuna District Hospital	2	50	50
Yarrawonga District Health Service	2	44	44
Castlemaine Health	2	36	36
Kyneton District Health Service	2	27	27
Terang and Mortlake Health Service (Terang)	2	23	23
Other public hospitals	N/A	9	9

Health service	Maternal capability level of service*	Number of women	Number of babies
Frances Perry Private Hospital	Private	3,090	3,186
Epworth Freemasons		2,967	3,015
St Vincent's Private Hospital		2,470	2,517
Cabrini Hospital (Malvern)		1,904	1,922
Mitcham Private Hospital		1,040	1,052
Jessie McPherson Private Hospital		849	894
Waverley Private Hospital		883	889
St John of God Berwick Hospital		793	803
Northpark Private Hospital		776	787
St John of God Geelong Hospital		733	748
Knox Private Hospital		556	562
St John of God Ballarat Hospital		466	472
The Bays Mornington		451	455
Peninsula Private Hospital (Frankston)		396	400
St John of God Bendigo Hospital		336	342
Epworth Geelong		97	99
Total public		60,218	61,063
Total private		17,807	18,143
Total known		78,025	79,206
Unknown (may include private home birth)		204	204
Statewide total		78,229	79,410

Notes: Excludes babies born ≤ 20 weeks' gestation, all terminations of pregnancy and birthweight ≤ 150 g. Babies born before arrival are counted at the hospital the mother and baby are subsequently transported to. Public hospitals with \leq five births are included in 'Other public hospitals'. Non-maternity public hospitals with occasional births are also included in 'Other public hospitals'.

* Capability service as at 2017–18.

Appendix 4: Overview of results

Table 12. Overview of indicator results, 2017–18

Maternity capability level	Health service	Number of births (babies)	Indicator 1a	Indicator 1bi	Indicator 1bii	Indicator 1ci	Indicator 1cii	Indicator 1di	Indicator 1dii	Indicator 2	Indicator 3	Indicator 4a	Indicator 4b	Indicator 5	Indicator 6a
NA	Statewide (public and private)	79410	11.3	16.7	30.1	3.2	4.7	26.2	81.9	NA	28.1	23.7	52.4	1	2.5
NA	Public	61063	7.4	15.0	29.6	3.6	5.5	25.4	85.7	8.7	28.0	27.8	54.4	1	2.5
NA	Private	18143	18.1	22.5	32.3	1.0	2.5	31.1	71.7	NA	28.8	14.3	42.8	0.75	2.5
NA	Lower quartile	NA	5.8	12.8	26.8	0.0	0.0	NA	NA	2.1	19.7	13.3	33.3	0.85	1.8
NA	Upper quartile	NA	19.3	25.0	36.6	3.8	6.8	NA	NA	8.2	32.5	30.5	60.0	1.19	3.0
6	The Royal Women's Hospital	7631	8.0	10.4	23.7	5.4	6.0	24.5	92.2	7.4	32.2	26.7	61.8	0.92	2.2
6	Mercy Hospital for Women	5841	7.4	16.7	31.6	3.8	6.6	38.5	88.8	7.5	26.7	20.0	50.5	0.55	2.2
6	Monash Medical Centre Clayton	4190	9.9	10.7	24.2	1.1	3.4	41.2	89.5	17.6	25.0	30.4	62.8	1.03	3.2
5	Sunshine Hospital	5544	8.0	12.1	24.0	8.3	9.5	21.8	86.5	8.4	26.0	35.5	52.4	0.97	2.2
5	The Northern Hospital	3737	10.0	14.1	28.4	3.2	5.5	29.6	75.4	8.2	26.9	30.7	45.8	1.18	2.3
5	Frankston Hospital	2910	10.0	14.6	31.5	0.0	0.0	13.0	79.2	10.8	19.4	21.2	60.0	1.06	2.5
5	Box Hill Hospital	2706	7.1	19.1	37.1	4.2	8.5	33.3	86.4	10.2	32.7	19.0	66.0	1.20	2.3
5	Barwon Health (Geelong)	2483	3.0	18.1	36.3	3.5	6.8	17.1	86.3	13.8	25.5	33.7	60.0	1.26	2.9
5	Albury Wodonga Health	1660	8.9	11.0	35.0	1.3	2.7	18.7	90.4	5.0	29.6	22.1	63.3	0.78	1.2
5	Ballarat Health Services	1501	13.9	13.7	36.0	5.1	3.9	7.9	75.3	13.4	35.3	30.5	63.9	1.29	3.7
5	Bendigo Health Care Group	1467	5.0	20.1	34.7	4.0	7.9	21.3	87.4	8.4	25.0	27.8	51.4	0.82	2.4
5	Goulburn Valley Health (Shepparton)	1105	2.8	19.2	40.0	1.2	9.6	21.9	84.3	15.0	15.0	28.2	60.0	0.87	1.5
5	Latrobe Regional Hospital (Traralgon)	860	9.6	18.2	36.5	0.0	1.3	16.1	67.1	8.0	20.0	22.9	43.8	1.33	3.1

Maternity capability level	Health service	Indicator 6b	Indicator 7	Indicator 8a	Indicator 8b	Indicator 8c	Indicator 9	Indicator 10	Indicator 11a	Indicator 11b	Indicator 12a	Indicator 12b	Indicators in least favourable quartile	Indicators in most favourable quartile
NA	Statewide (public and private)	4.1	27.1	95.4	28.2	75.1	54.1	1.3	NA	NA	77.5	53.7		
NA	Public	4.1	25.5	95.0	25.2	76.1	44.5	1.5	78.9	49.5	83.0	53.9		
NA	Private	NA	65.2	96.5	38.2	71.5	86.9	1.0	NA	NA	59.9	53.4		
NA	Lower quartile	1.5	16.5	93.3	16.1	74.2	37.1	0.7	NA	NA	NA	NA		
NA	Upper quartile	4.4	36.6	97.0	32.5	89.0	82.8	1.7	NA	NA	NA	NA		
6	The Royal Women's Hospital	5.0	45.6	97.7	25.7	73.1	22.7	1.5	78.7	47	60.1	45.6	4	5
6	Mercy Hospital for Women	2.6	6.1	96.8	30.5	74.9	14.0	1.4	83.6	43	88.2	55.2	3	1
6	Monash Medical Centre Clayton	4.2	28.9	95.1	36.7	56.7	33.9	1.9	80.6	56	72.3	58.6	5	3
5	Sunshine Hospital	6.7	23.7	94.6	25.0	78.6	12.0	1.1	72.4	62	79.2	58.6	5	3
5	The Northern Hospital	5.5	29.2	93.1	27.3	60.1	78.5	0.9	74.3	55	72.0	51.9	4	1
5	Frankston Hospital	3.5	37.3	92.0	22.1	88.9	74.1	1.6	77.2	45	91.7	64.5	2	5
5	Box Hill Hospital	3.9	27.5	97.7	25.0	80.0	66.1	2.0	76.5	52	93.3	54.5	7	2
5	Barwon Health (Geelong)	4.1	4.5	94.3	26.2	80.9	89.9	1.8	77.4	44	93.9	58.7	5	4
5	Albury Wodonga Health	2.9	5.3	92.5	24.2	85.8	37.1	1.2	83.9	54	88.3	47.3	2	4
5	Ballarat Health Services	5.0	18.3	92.4	18.4	84.1	84.9	3.4	77.3	48	95.3	68.5	8	3
5	Bendigo Health Care Group	4.5	10.4	93.3	24.7	72.8	61.5	2.1	81.1	49	90.6	47.4	8	2
5	Goulburn Valley Health (Shepparton)	3.0	25.7	93.6	34.8	79.0	30.0	1.7	NA	NA	88.8	56.9	6	4
5	Latrobe Regional Hospital (Traralgon)	2.8	20.4	89.2	34.0	67.8	67.7	1.1	85.7	62	74.3	40.7	5	1

Maternity capability level	Health service	Number of births (babies)	Indicator 1a	Indicator 1bi	Indicator 1bii	Indicator 1ci	Indicator 1cii	Indicator 1di	Indicator 1dii	Indicator 2	Indicator 3	Indicator 4a	Indicator 4b	Indicator 5	Indicator 6a
4	Mercy Werribee Public Hospital	3831	4.1	17.0	34.3	6.8	7.5	28.4	89.0	8.1	26.3	34.4	47.1	1.01	2.6
4	Dandenong Hospital	2676	1.4	10.7	24.8	0.2	2.3	33.7	91.8	11.7	28.1	34.8	58.7	1.37	2.4
4	Casey Hospital	2295	3.9	16.6	29.9	0.5	2.3	20.0	91.9	9.7	23.8	32.2	42.9	0.89	3.2
4	Angliss Hospital	2221	8.6	15.3	32.8	3.8	6.5	19.3	78.6	5.8	34.6	16.4	72.2	1.05	2.5
4	Sandringham and District Memorial Hospital	1608	5.8	13.3	32.4	4.7	4.3	26.8	86.0	3.5	53.6	14.6	40.0	0.7	2.8
4	West Gippsland Healthcare Group	903	8.7	13.1	23.6	3.8	3.3	29.5	82.2	8.4	NA	52.9	69.4	1.03	2.1
4	Mildura Base Hospital	890	7.1	19.0	36.1	5.3	8.6	21.8	65.4	4.9	26.1	31.3	50.0	1.19	2.3
4	Northeast Health Wangaratta	679	7.1	21.6	31.3	1.7	0.0	21.5	76.7	5.1	40.0	43.8	43.8	0.63	2.4
4	South West Healthcare Warrnambool	649	12.7	6.8	18.8	5.0	5.8	12.6	73.9	7.5	9.1	27.7	30.8	1.14	3.6
4	Central Gippsland Health Service (Sale)	440	5.9	19.7	30.9	2.9	4.3	17.4	69.6	7.4	10.0	27.8	40.0	0.79	1.2
4	Wimmera Health Care Group (Horsham)	333	3.2	31.4	29.7	0.0	11.1	25.0	63.0	5.4	NA	23.5	NA	1.25	5.7
3	Djerriwarrh Health Services	454	21.4	32.8	37.3	1.5	10.0	20.6	75.0	2.9	NA	30.6	53.3	1.66	2.3
3	Echuca Regional Health	367	4.7	26.3	50.0	1.9	8.7	5.8	60.9	2.1	NA	17.9	NA	1.04	2.8
3	Bairnsdale Regional Health Service	324	0.0	32.8	31.6	7.0	7.4	9.3	70.4	4.1	NA	37.0	60.0	1.53	0.9
3	Kilmore and District Hospital	235	21.4	30.0	24.1	2.9	6.7	8.6	46.7	0.8	NA	13.3	NA	1.21	2.1
3	Swan Hill District Health	227	6.5	13.0	45.8	2.4	0.0	14.6	100.0	4.4	NA	5.6	NA	2.0	2.8
3	Gippsland Southern Health Service (Leongatha)	209	6.9	25.6	36.0	0.0	0.0	33.3	55.6	0.6	NA	31.8	NA	0.67	2.7

Maternity capability level	Health service	Indicator 6b	Indicator 7	Indicator 8a	Indicator 8b	Indicator 8c	Indicator 9	Indicator 10	Indicator 11a	Indicator 11b	Indicator 12a	Indicator 12b	Indicators in least favourable quartile	Indicators in most favourable quartile
4	Mercy Werribee Public Hospital	1.7	8.4	95.4	31.8	74.9	18.6	0.7	76.8	56	90.7	43.6	3	3
4	Dandenong Hospital	3.6	34.4	97.5	17.3	74.6	39.0	1.5	78.6	59	88.3	54.5	2	5
4	Casey Hospital	4.8	39.4	96.2	22.5	67.4	46.2	1.1	82.1	58	88.5	61.6	4	3
4	Angliss Hospital	4.0	34.1	95.7	19.4	73.2	92.8	1.4	80.3	53	91.9	48.5	3	2
4	Sandringham and District Memorial Hospital	4.3	17.6	97.6	14.7	95.0	35.7	1.6	76.7	44	96.5	70.8	3	4
4	West Gippsland Healthcare Group	6.0	25.9	94.9	15.9	95.3	70.1	2.1	78.6	48	93.8	77.4	4	5
4	Mildura Base Hospital	3.6	20.5	91.2	23.2	76.1	60.3	2.9	NA	NA	74.7	29.6	4	1
4	Northeast Health Wangaratta	4.4	29.3	94.9	24.1	84.4	61.4	0.2	NA	NA	87.7	56.2	2	3
4	South West Healthcare Warrnambool	4.0	18.4	81.5	9.2	94.0	84.5	1.6	80.3	49	76.6	33.8	4	6
4	Central Gippsland Health Service (Sale)	3.6	20.2	95.7	28.5	83.0	78.0	1.3	NA	NA	90.5	53.8	0	2
4	Wimmera Health Care Group (Horsham)	5.7	25.0	92.2	19.5	89.2	57.7	0.7	NA	NA	87.5	40.1	5	4
3	Djerriwarrh Health Services	2.1	17.5	91.6	18.2	86.7	32.2	1.4	92.2	70	96.7	28.4	7	1
3	Echuca Regional Health	1.3	26.1	93.6	15.7	90.8	39.1	1.1	89.5	61	92.0	67.8	3	5
3	Bairnsdale Regional Health Service	0.6	22.8	96.9	12.0	89.9	59.0	0.3	79.3	55	91.4	66.4	3	8
3	Kilmore and District Hospital	0.8	16.2	91.0	16.4	89.7	29.9	2.2	88.5	58	93.2	51.1	7	4
3	Swan Hill District Health	1.4	11.4	94.1	23.9	83.3	81.9	1.5	81.4	39	92.1	52.4	3	2
3	Gippsland Southern Health Service (Leongatha)	2.2	0.0	94.1	12.6	85.8	43.5	1.6	NA	NA	92.8	62.2	2	5

Maternity capability level	Health service	Number of births (babies)	Indicator 1a	Indicator 1bi	Indicator 1bii	Indicator 1ci	Indicator 1cii	Indicator 1di	Indicator 1dii	Indicator 2	Indicator 3	Indicator 4a	Indicator 4b	Indicator 5	Indicator 6a
3	Western District Health Service (Hamilton)	164	0.0	26.9	50.0	4.5	0.0	59.1	70.0	2.5	NA	18.8	NA	0.66	3.2
3	Colac Area Health	145	18.2	31.8	31.6	0.0	NA	9.1	NA	1.6	NA	35.3	NA	0.81	2.9
3	East Grampians Health Service (Ararat)	111	18.2	23.1	33.3	6.3	NA	18.8	NA	4.8	NA	NA	NA	0.0	1.2
3	Bass Coast Regional Health	109	0.0	17.4	28.6	0.0	NA	4.8	NA	6.2	NA	NA	NA	2.07	0.9
3	Benalla and District Memorial Hospital	84	11.8	40.9	30.0	0.0	NA	7.1	NA	5.0	NA	NA	NA	2.96	2.1
3	Mansfield District Hospital	64	9.1	38.5	12.5	18.2	NA	0.0	NA	0.0	NA	10.0	NA	1.86	1.9
3	South Gippsland Hospital	46	NA	14.3	44.4	0.0	NA	50.0	NA	0.0	NA	NA	NA	1.96	5.8
3	South West Healthcare Camperdown	40	NA	0.0	NA	NA	NA	NA	NA	0.0	NA	NA	NA	0.0	6.5
2	Maryborough District Health Service	76	NA	7.1	50.0	NA	NA	NA	NA	0.0	NA	30.0	NA	0.0	0.0
2	Portland District Health	59	NA	14.3	33.3	NA	NA	NA	NA	3.5	NA	NA	NA	0.0	1.8
2	Cohuna District Hospital	50	36.4	0.0	0.0	0.0	NA	18.2	NA	1.9	NA	NA	NA	1.94	1.8
2	Yarrawonga District Health Service	44	NA	NA	NA	NA	NA	NA	NA	0.0	NA	NA	NA	0.0	0.0
2	Castlemaine Health	36	NA	0.0	NA	20.0	NA	0.0	NA	0.0	NA	NA	NA	0.0	2.7
2	Kyneton District Health Service	27	NA	NA	NA	NA	NA	NA	NA	7.1	NA	NA	NA	2.92	0.0
2	Terang and Mortlake Health Service (Terang)	23	NA	0.0	NA	NA	NA	NA	NA	0.0	NA	NA	NA	0.0	3.6
Private	Frances Perry Private Hospital	3186	11.9	28.7	37.7	0.3	2.6	42.3	79.4	NA	16.7	18.8	25.3	0.68	2.1
Private	Epworth Freemasons	3015	22.1	21.0	27.9	0.0	0.2	33.1	63.8	NA	26.7	10.9	21.4	0.69	1.6

Maternity capability level	Health service	Indicator 6b	Indicator 7	Indicator 8a	Indicator 8b	Indicator 8c	Indicator 9	Indicator 10	Indicator 11a	Indicator 11b	Indicator 12a	Indicator 12b	Indicators in least favourable quartile	Indicators in most favourable quartile
3	Western District Health Service (Hamilton)	1.9	0.0	90.6	20.1	79.9	75.5	0.6	NA	NA	96.3	74.4	6	3
3	Colac Area Health	5.4	7.7	97.9	17.0	85.8	64.8	1.4	NA	NA	93.1	70.3	3	4
3	East Grampians Health Service (Ararat)	1.2	33.3	95.2	19.0	93.0	94.6	1.0	NA	NA	94.6	58.6	1	4
3	Bass Coast Regional Health	2.6	27.3	94.4	14.9	90.1	48.6	0.0	NA	NA	92.7	54.1	0	6
3	Benalla and District Memorial Hospital	0.0	31.3	96.4	11.3	88.8	60.7	2.5	NA	NA	91.7	53.6	2	3
3	Mansfield District Hospital	0.0	NA	96.9	16.1	90.3	18.8	1.6	NA	NA	85.9	46.9	4	4
3	South Gippsland Hospital	0.0	NA	97.8	13.3	82.2	84.8	2.2	NA	NA	97.8	69.6	3	6
3	South West Healthcare Camperdown	9.4	NA	90.0	11.1	83.3	52.5	0.0	NA	NA	70.0	55.0	3	4
2	Maryborough District Health Service	0.0	5.3	92.0	27.5	79.7	15.8	0.0	NA	NA	84.2	50.0	4	5
2	Portland District Health	1.9	0.0	91.1	21.6	78.4	19.0	5.9	NA	NA	96.6	27.1	4	1
2	Cohuna District Hospital	0.0	NA	93.5	32.6	86.0	81.6	2.2	NA	NA	90.0	70.0	3	6
2	Yarrawonga District Health Service	0.0	NA	95.3	4.9	92.7	31.8	0.0	NA	NA	79.5	40.9	1	6
2	Castlemaine Health	2.6	NA	100.0	2.8	100.0	91.4	3.0	NA	NA	33.3	8.3	2	6
2	Kyneton District Health Service	3.8	NA	100.0	7.7	96.2	37.0	0.0	NA	NA	88.9	66.7	1	5
2	Terang and Mortlake Health Service (Terang)	6.9	NA	91.3	19.0	85.7	82.6	4.3	NA	NA	91.3	87.0	4	2
Private	Frances Perry Private Hospital (Carlton)	NA	NA	97.1	30.1	83.9	94.5	0.6	NA	NA	13.0	59.1	3	5
Private	Epworth Freemasons	NA	50.0	97.3	31.6	67.5	90.3	1.0	NA	NA	85.5	64.6	4	6

Maternity capability level	Health service	Number of births (babies)	Indicator 1a	Indicator 1bi	Indicator 1bii	Indicator 1ci	Indicator 1cii	Indicator 1di	Indicator 1dii	Indicator 2	Indicator 3	Indicator 4a	Indicator 4b	Indicator 5	Indicator 6a
Private	St Vincent's Private Hospital	2517	15.7	17.4	26.7	1.6	1.4	28.3	63.8	NA	34.4	11.2	75.7	0.44	1.9
Private	Cabrini Hospital (Malvern)	1922	14.2	18.9	26.2	2.7	4.8	22.3	71.9	NA	43.6	14.8	53.1	1.15	1.1
Private	Mitcham Private Hospital	1052	21.7	24.2	39.8	1.8	0.7	33.6	84.7	NA	10.0	18.9	54.8	0.65	8.6
Private	Jessie McPherson Private Hospital	894	24.7	13.4	36.6	0.8	4.0	25.0	59.2	NA	10.5	22.2	59.1	0.41	2.9
Private	Waverley Private Hospital	889	13.8	24.0	27.2	1.1	3.4	32.6	73.3	NA	54.5	14.2	31.6	0.77	2.3
Private	St John of God Berwick Hospital	803	26.3	36.0	40.3	0.0	1.2	36.4	69.5	NA	15.4	13.5	28.6	0.59	2.1
Private	Northpark Private Hospital	787	23.7	6.9	30.6	2.0	4.9	33.7	72.8	NA	20.0	9.9	60	0.52	1.8
Private	St John of God Geelong Hospital	748	32.0	39.0	34.9	0.0	1.0	36.4	76.0	NA	NA	12.0	66.7	1.1	3.5
Private	Knox Private Hospital	562	19.3	25.0	46.7	0.0	5.1	39.3	89.8	NA	NA	12.3	NA	0.99	2.9
Private	St John of God Ballarat Hospital	472	30.4	12.8	37.3	0.0	10.0	17.6	91.7	NA	NA	9.1	NA	0.66	2.5
Private	The Bays Mornington	455	20.5	9.6	30.3	1.7	1.4	19.0	70.0	NA	NA	22.4	30.8	1.31	3.8
Private	Peninsula Private Hospital (Frankston)	400	25.0	25.0	23.4	0.0	0.0	26.9	82.6	NA	NA	6.9	NA	0.26	1.5
Private	St John of God Bendigo Hospital	342	13.6	36.7	40.8	0.0	10.3	14.3	71.8	NA	NA	9.3	NA	0.0	3.2
Private	Epworth Geelong	99	46.2	28.6	20.0	NA	0.0	NA	81.0	NA	NA	NA	NA	0.0	4.3

Most favourable quartiles are shown in blue; least favourable quartiles are shown in purple.

NA means either the service didn't meet the threshold for reporting or no data was available.

Maternity capability level	Health service	Indicator 6b	Indicator 7	Indicator 8a	Indicator 8b	Indicator 8c	Indicator 9	Indicator 10	Indicator 11a	Indicator 11b	Indicator 12a	Indicator 12b	Indicators in least favourable quartile	Indicators in most favourable quartile
Private	St Vincent's Private Hospital	NA	81.1	96.3	33.2	74.1	91.2	0.8	NA	NA	67.7	48.2	4	5
Private	Cabrini Hospital (Malvern)	NA	85.7	97.2	33.7	76.9	91.4	1.1	NA	NA	84.5	57.3	2	5
Private	Mitcham Private Hospital	NA	100.0	96.1	52.9	57.1	87.4	1.5	NA	NA	34.8	45.4	5	3
Private	Jessie McPherson Private Hospital	NA	38.5	97.7	48.6	54.1	82.4	1.0	NA	NA	84.2	57.0	4	3
Private	Waverley Private Hospital	NA	100.0	97.0	51.2	63.4	80.5	1.1	NA	NA	42.6	42.6	4	2
Private	St John of God Berwick Hospital	NA	NA	94.5	39.5	69.9	74.5	1.3	NA	NA	82.3	51.3	6	2
Private	Northpark Private Hospital	NA	55.9	93.5	58.4	58.6	83.5	1.2	NA	NA	38.1	39.6	4	5
Private	St John of God Geelong Hospital	NA	NA	96.3	46.9	74.5	86.8	0.5	NA	NA	89.2	66.8	5	4
Private	Knox Private Hospital	NA	88.2	93.8	67.0	45.6	87.7	0.6	NA	NA	42.1	23.4	6	4
Private	St John of God Ballarat Hospital	NA	NA	98.8	34.0	83.1	86.6	1.2	NA	NA	83.5	64.8	5	4
Private	The Bays Mornington	NA	NA	96.7	30.0	84.9	71.1	1.2	NA	NA	81.2	50.1	3	1
Private	Peninsula Private Hospital (Frankston)	NA	NA	94.7	40.2	74.2	46.8	1.4	NA	NA	1.0	1.3	4	4
Private	St John of God Bendigo Hospital	NA	NA	96.5	33.2	79.7	63.3	0.6	NA	NA	90.5	57.4	6	2
Private	Epworth Geelong	NA	NA	95.3	32.5	69.9	80.4	2.3	NA	NA	96.9	89.7	5	2

Terminology

Term	Definition
Antenatal	Before birth – the period between conception and birth. Also called prenatal.
Apgar score	A measure of the physical condition of a newborn based on several factors including baby's colour, pulse rate, tone, reflex, irritability and respiration at 1, 5 and 10 minutes after birth. Scores range from 0 to 10, with 10 representing the best possible condition.
Assisted vaginal birth	A method that may be used to speed up birth by either using forceps or vacuum extraction (gentle suction applied following placement of a large suction cap on the baby's head)
Caesarean section	A surgical operation by which the baby is extracted through an incision in the abdominal and uterine walls.
Centile	A measure used in statistics indicating the value below which a given percentage of observations fall. For example, the 10th centile is the value (or score) below which 10 per cent of the observations may be found.
CCOPMM	Consultative Council on Obstetric and Paediatric Mortality and Morbidity
Congenital anomaly	An anomaly occurring before birth including structural, functional, genetic, chromosomal and biochemical abnormalities. Also called birth defect, congenital malformation or 'congenital disorder'.
Cephalic	A baby presenting head-first.
Cervix	The part of the uterus that protrudes into the vagina, often referred to as the 'neck of the uterus'.
Episiotomy	A surgical incision of the perineum and the posterior vaginal wall usually performed to quickly enlarge the opening for the baby to pass through.
FGR	Fetal growth restriction
Forceps	Special large curved tongs placed around the baby's head to assist movement through the birth canal; sometimes used in an assisted vaginal birth.
Fourth-degree tear	A tear of the perineum into the anal sphincter, extending into the lining of the anus.
Gestation	The number of weeks pregnancy is calculated from the first day of the mother's last normal menstrual period.
Gestation standardised perinatal mortality rate (GSPMR)	The GSPMR is a measure of perinatal mortality that compares the observed perinatal mortality rate for babies born at individual hospitals with what would be expected, accounting for the gestation at birth.
ICU	Intensive care unit
Inborn	Baby born at the reporting hospital.
Induction of labour	Use of interventions (medications, rupture of membranes or mechanical means) to assist the process of labour to begin.
Intrapartum	During labour.
Live birth	The birth of a baby, at any stage of maturity, who has breathed or shown other signs of life after being born.
Maternity care provider	A clinician who provides maternity care.

Term	Definition
Morbidity	Having a disease, a symptom of disease, or ill health, including medical problems caused by a treatment.
Mortality	Term used to describe death, including death rates or the number of deaths in a certain group of people during a certain time.
Neonatal	Newborn; from birth until the 28th day.
Nullipara/nulliparae	A woman who has not given birth previously.
Perinatal	The period before, during and after birth – antenatal, intrapartum and postnatal periods.
Perinatal mortality	Stillbirths and neonatal deaths. Deaths between 20 weeks' gestation and birth are referred to as stillbirths, and deaths in the first 28 days after birth are referred to as neonatal deaths.
Perineal tear	A tear or rupture of the pelvic floor and associated structures.
Perineum	The area between the anus and the vagina.
Postnatal	The period after birth (and generally accepted to last for six weeks).
Prenatal	Before birth – the period between conception and birth. Also called antenatal.
Pre-term	Prior to 37 weeks' gestation.
Primipara/primiparae	A woman who has given or is giving birth for the first time.
Puerperium	The period of about six weeks after childbirth during which the mother's reproductive organs return to their original (non-pregnant) condition.
Qualified neonate	An infant who is the second or subsequent live born infant of a multiple birth, whose mother is currently an admitted patient or who is admitted to an intensive care facility in a hospital, or who is admitted to, or remains in, hospital without their mother.
Robson classification system	The Robson classification system (also known as the 10-group classification) categorises all women into one of 10 groups that are mutually exclusive and exhaustive based on basic obstetric characteristics.
Robson group 1	Robson group 1 includes women pregnant for the first-time, with a singleton cephalic pregnancy, at greater than or equal to 37 weeks' gestation in spontaneous labour.
Robson group 2 (modified)	Modified Robson group 2 includes women pregnant for the first-time, with a singleton cephalic pregnancy, at greater than or equal to 37 weeks' gestation who had labour induced. Modified Robson group 2 excludes pre-labour caesareans, which are included in the standard Robson group 2.
Severe fetal growth restriction	Birthweight below the third centile for gestational age, plurality and sex.
Singleton pregnancy	The birth of only one child during a single delivery, as opposed to twins, triplets, etc.
Standard primipara	A woman, 20–39 years of age, free of obstetric and specified medical complications (pre-existing hypertension, diabetes, cardiac disease or serious psychiatric conditions), giving birth for the first time with a singleton pregnancy between 37 and 40 weeks' completed gestation (259–286 days), with a non-small for gestational age (greater than tenth centile) infant and a cephalic presentation.
Stillbirth	The birth of an infant at least 20 weeks' gestation, or if gestation is unknown, weighing at least 400 grams, who shows no signs of life at birth.

Term	Definition
Term infant/term baby	An infant born between 37 and 42 weeks' gestation (259–283 days).
Third-degree tear	A tear of the perineum into the anal sphincter that does not extend to the lining of the anus.
Unqualified neonate	A neonate who does not meet at least one of the criteria of a qualified neonate.
Uterus	The hollow, pear-shaped muscular organ in which the baby grows throughout pregnancy. Also referred to as 'the womb'.
Vacuum extraction	Gentle suction applied following placement of a large suction cap on the baby's head; sometimes used in an assisted vaginal birth.
VAED	Victorian Admitted Episodes Dataset
Vaginal birth	A birth of a baby via the vagina whether or not it was assisted.
Vaginal birth after caesarean (VBAC)	A woman who has a normal vaginal birth, forceps birth or vacuum birth following a previous caesarean section birth.
VBAC	Vaginal birth after caesarean
VHES	Victorian Healthcare Experience Survey
VPDC	Victorian Perinatal Data Collection

Acknowledgements

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To provide feedback or share your improvements, please email info@safercare.vic.gov.au.

For specific support to help improve the quality and safety of maternity services, please contact our Maternity and Newborn Clinical Network at maternityclinicalnetwork@safercare.vic.gov.au.

