

Hospital-Acquired Complication **16**

**NEONATAL BIRTH TRAUMA**

	HOSPITAL-ACQUIRED COMPLICATION	RATE <sup>a</sup>
1	Pressure injury	10
2	Falls resulting in fracture or intracranial injury	4
3	Healthcare-associated infections	135
4	Surgical complications requiring unplanned return to theatre	20
5	Unplanned intensive care unit admission	na <sup>b</sup>
6	Respiratory complications	24
7	Venous thromboembolism	8
8	Renal Failure	2
9	Gastrointestinal bleeding	14
10	Medication complications	30
11	Delirium	51
12	Persistent incontinence	8
13	Malnutrition	12
14	Cardiac complications	69
15	Third and fourth degree perineal laceration during delivery (per 10,000 vaginal births)	358
16	Neonatal birth trauma (per 10,000 births)	49

a per 10,000 hospitalisations except where indicated  
b na = national data not available

The neonatal birth trauma hospital-acquired complication includes a number of diagnosis codes which fit into the following categories\*:

- Subdural and cerebral haemorrhage
- Epicranial subaponeurotic haemorrhage
- Other injuries to skeleton
- Injury to spine and spinal cord
- Facial nerve injury
- Other cranial and peripheral nerve injuries
- Other specified birth trauma.

This does not include: preterm infants younger than 37 completed weeks and with a birth weight less than 2,499g; osteogenesis imperfecta; and brachial plexus injury.

## Avoiding neonatal birth trauma

The health of the mother and baby are central to the clinical decision making during childbirth. Whilst all attempts should be made to avoid neonatal trauma, it must be recognised that sometimes, in order to preserve life, episodes of neonatal trauma may occur. However, rates of neonatal trauma vary significantly across the country and services should monitor their performance. Where neonatal trauma rates are elevated, services should work to reduce them.

To avoid trauma to the neonate, the risks and benefits of any delivery approach need to be weighed up in every case, and clinical practices should be in accordance with best-practice guidelines.<sup>1-3</sup>

In labour, when there are concerns regarding the wellbeing of the fetus, mother, or both, three options are available:

- to allow the labour to proceed aiming for vaginal birth
- to proceed to instrumental vaginal birth, or
- to perform a caesarean section.<sup>1</sup>

The circumstances, benefits and risks for each case will determine the delivery approach, and it is important to note that there are risks to the neonate in both vaginal and caesarean birth.

\* The specifications for the hospital-acquired complications list providing the codes, inclusions and exclusions required to calculate rates is available on the [Commission's website](#).



## Why focus on neonatal birth trauma?

Each year, neonates born in Australian hospitals experience a large number of traumatic birth injuries. There were 1,108 injuries meeting the above definition in Australian public hospitals in 2015–16.<sup>4</sup> The rate of hospital-acquired neonatal birth trauma in Australian public hospitals was 49 per 10,000 births in 2015–16.<sup>4</sup>

The consequences of neonatal birth trauma may be significant and have life-long consequences. Prevention of neonatal birth trauma therefore presents an important challenge.

Significant reductions in neonatal birth trauma rates are being achieved in some hospitals. While the aggregate rate for hospital-acquired birth trauma at Principal Referral Hospitals\* was 54 per 10,000 newborns in 2015–16, the highest rate was 141.3 per 10,000 newborns.<sup>4</sup> If all Principal Referral Hospitals above the aggregate rate reduced their rate of birth trauma to 54 per 10,000 newborns, then potentially 134 neonatal birth traumas in these hospitals could have been prevented, and more when other facilities are considered.

\* Hospitals were classified in the Principal Referral Hospitals peer group for these purposes according to the Australian Institute of Health and Welfare's former definition of major city hospitals with more than 20,000 acute weighted separations and regional hospitals with more than 16,000 acute weighted separations.



## What is considered best practice for preventing neonatal birth trauma?

All hospital-acquired complications can be reduced (but not necessarily eliminated) by the provision of patient care that mitigates avoidable risks to patients.



The **health service organisation** providing birthing services:

- Has systems of care for labour and delivery that are consistent with best-practice guidelines
- Ensures that equipment and devices are available to effectively manage complicated deliveries.



**Clinicians** caring for labouring patients:

- Conduct comprehensive antenatal and perinatal risk assessments in accordance with best-practice guidelines
- Provide care during delivery (whether via vaginal delivery or caesarean section) in accordance with best-practice guidelines.



The National Safety and Quality Health Service (NSQHS) Standards (second edition), in particular the Comprehensive Care Standard<sup>5</sup>, support the delivery of safe patient care.

The advice contained in the hospital-acquired complication fact sheets aligns with the criteria in this standard, which are as follows:

- Clinical governance structures and quality-improvement processes supporting patient care
- Developing the comprehensive care plan
- Delivering the comprehensive care plan
- Minimising specific patient harms.



## Clinical governance structures and quality-improvement processes

### to support best practice in prevention and management of neonatal birth trauma

Health service organisations need to ensure that effective clinical governance and quality improvement systems are in place to support best practice.

The NSQHS Standards (2nd ed.) describe actions that are relevant to the prevention and management strategies outlined below. These actions are identified in brackets.

#### Policies, procedures and protocols

Health service organisations ensure policies, procedures and protocols are consistent with national evidence-based guidelines. **(1.27, 5.1a)**

#### Best-practice screening and management

Health service organisations:

- Identify a format for a birth care plan **(5.4)**
- Identify a management plan format for neonatal patients with a neonatal birth trauma. **(5.12, 5.13)**

#### Identification of key individuals/governance groups

Health service organisations identify an individual or a governance group that is responsible for:

- Monitoring compliance with the organisation's birth-related policies, procedures and protocols **(1.7b, 5.2a)**
- Presenting data on birth outcomes including neonatal trauma to the governing body **(1.9, 5.2c)**
- Overseeing the labour and birth system of care. **(5.5b)**

#### Training requirements

Health service organisations:

- Identify workforce training requirements **(1.20a)**
- Train relevant staff in the development and use of birth-related care plans **(1.20b, 1.20c)**
- Ensure workforce proficiency is maintained. **(1.20d, 1.22, 1.28b)**

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## Monitoring the delivery of care

Health service organisations ensure mechanisms are in place to:

- Report neonatal birth trauma **(1.9, 5.2)**
- Identify performance measures and the format and frequency of reporting **(1.8a)**
- Ensure all women are appropriately risk assessed during their pregnancies **(1.8, 5.1b, 5.2)**
- Identify gaps in systems for risk assessment during pregnancy **(5.2)**
- Collect data on incidence, prevalence and severity of neonatal birth trauma **(1.11)**
- Provide timely feedback and outcomes data to staff. **(1.9)**

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## Quality-improvement activities

Health service organisations:

- Implement and evaluate quality-improvement strategies to reduce the frequency and harm from neonatal birth traumas **(5.2)**
- Use audits of patient clinical records and other data to:
  - identify opportunities for improving birth care plans **(5.2)**
  - monitor the overall effectiveness of systems for prevention and management of neonatal birth trauma. **(5.2)**

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## Equipment and devices

Health service organisations facilitate access to equipment and devices for appropriate birth interventions. **(1.29b)**



## Developing the woman's comprehensive care plan to support best practice in pregnancy and birth care

Clinicians should collaborate with consumers in assessing risk, in providing appropriate information to support shared decision making, and in planning care that meets the needs of women and their partners.

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## Implement risk assessment

Develop and implement a robust risk assessment method in accordance with the National Midwifery Guidelines for Consultation and Referral.<sup>6</sup>

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## Clinical assessment

Clinicians comprehensively assess risks identified through screening process. Clinicians undertake routine comprehensive assessments and document outcomes in the clinical notes.

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## Informing mothers with significant identified risk

Clinicians provide information for mothers with significant identified risk.

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**Planning in partnership with women and carers**

Clinicians inform women, family and carers about the purpose and process of developing a pregnancy and birth care plan and invite them to be involved in its development.

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**Collaboration and working as a team**

Medical staff and midwives work collaboratively to perform both risk assessment and clinical assessment.

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**Documenting and communicating the care plan**

Clinicians document in the clinical record and communicate the findings of the:

- Risk assessment process
- Clinical assessment process.



## **Delivering comprehensive care during labour and birth**

Safe care is delivered when the individualised care plan, which has been developed in partnership with women and their partners, is followed.

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**Collaboration and working as a team**

Doctors and midwives collaborate to deliver safe and quality care during labour and birth.

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**Delivering risk management strategies in partnership with women and carers**

Clinicians work in partnership with patients and carers to use the labour and birth care plan to deliver the baby, where risk is identified, for example by:

- Ensuring systems are in place to recognise and respond to maternal, fetal, and neonatal requirements and neonatal birth injury
- Referring on to relevant services according to the National Midwifery Guidelines for Consultation and Referral as clinically indicated<sup>6</sup>
- Consulting with paediatricians/neonatal specialists prior to birth where indicated
- Considering suitability for labour and birth related interventions
- Increased monitoring and clinical oversight of women with identified risk
- Resuscitation and management of neonates affected by birth injury as indicated.<sup>3</sup>

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**Delivering neonatal care in partnership**

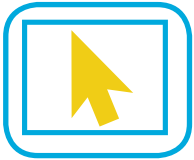
Clinicians work in partnership with women and their partners to ensure babies who have been affected by neonatal birth trauma are managed according to best-practice guidelines specific to the injury sustained.

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**Monitoring and improving care**

Clinicians should:

- Engage in reviewing clinical outcomes, identifying gaps and opportunities for improvement.



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## Additional resources

Australian Resuscitation Council. [ARC Guidelines: Section 13 Neonatal Resuscitation](#). 2016.

Impey LWM, Murphy DJ, Griffiths M, Penna LK, on behalf of the Royal College of Obstetricians and Gynaecologists. [Management of Breech Presentation](#). *BJOG: An International Journal of Obstetrics & Gynaecology*. 2017; 124(7).

National Institute for Health and Care Excellence. [Clinical Guideline 132 – Caesarean section](#). UK 2012 [CG 132].

National Institute for Health and Care Excellence. [Clinical Guideline – Intrapartum care for healthy women and babies](#). UK 2014 [CG 190]; Available from: <https://www.nice.org.uk/guidance/cg190>.

NSW Health. [Maternity – Supporting Women Planning a Vaginal Breech Birth](#). Sydney, (AU) 2017 [GL2017\_008].

Perlman JM, Wyllie J, Kattwinkel J, Wyckoff MH, Aziz K, Guinsburg R, et al. [International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science with Treatment Recommendations. Part 7 Neonatal Resuscitation](#). *Circulation*. 2015 14 October 2015; 132.

Queensland Clinical Guidelines. [Maternity and Neonatal Clinical Guideline: Routine newborn assessment](#). Brisbane, (AU): Queensland Health; 2014.

Royal Australian and New Zealand College of Obstetricians and Gynaecologists. [Delivery of the fetus at caesarean section](#). 2016.

Royal College of Obstetricians and Gynaecologists. [Operative Vaginal Delivery Green Top Guideline No 26](#). 2011.

The Royal Australian and New Zealand College of Obstetricians and Gynaecologists. [Prevention, detection, and management of subgaleal haemorrhage in the newborn](#) 2015 November 2015.

The Royal Australian and New Zealand College of Obstetricians and Gynaecologists. [Instrumental Vaginal Birth](#) 2016.

The Royal Australian and New Zealand College of Obstetricians and Gynaecologists. [Standards of Maternity Care in Australia and New Zealand](#). 2016.

Waterfall H, Grivell RM, Dodd JM. [Techniques for assisting difficult delivery at caesarean section](#). *Cochrane Database of Systematic Reviews*. 2016; (1).

World Health Organisation. [Guidelines on Maternal, Newborn, Child and Adolescent Health](#).

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## Note on data

The data used in this sheet are for hospital-acquired complications recorded during episodes of care in Australian public hospitals in 2015–16. Figures reported by Independent Hospitals Pricing Authority (IHPA) may differ due to the IHPA's methodology, which applies different inclusion/exclusion criteria.

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## References

1. The Royal Australian and New Zealand College of Obstetricians and Gynaecologists. Instrumental Vaginal Birth 2016. Available from: [https://www.ranzcog.edu.au/RANZCOG\\_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical-Obstetrics/Instrumental-Vaginal-Birth-\(C-Obs-16\)-Review-March-2016.pdf?ext=.pdf](https://www.ranzcog.edu.au/RANZCOG_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical-Obstetrics/Instrumental-Vaginal-Birth-(C-Obs-16)-Review-March-2016.pdf?ext=.pdf)
2. Royal Australian and New Zealand College of Obstetricians and Gynaecologists. Delivery of the fetus at caesarean section 2016. Available from: [https://www.ranzcog.edu.au/RANZCOG\\_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical-Obstetrics/Delivery-of-fetus-at-caesarean-section-\(C-Obs-37\)-Review-November-2016\\_1.pdf?ext=.pdf](https://www.ranzcog.edu.au/RANZCOG_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical-Obstetrics/Delivery-of-fetus-at-caesarean-section-(C-Obs-37)-Review-November-2016_1.pdf?ext=.pdf)
3. The Royal Australian and New Zealand College of Obstetricians and Gynaecologists. Prevention, detection, and management of subgaleal haemorrhage in the newborn November 2015. Available from: [https://www.ranzcog.edu.au/RANZCOG\\_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical-Obstetrics/Prevention-detection-and-management-of-Subgaleal-Haemorrhage-\(C-Obs-28\)-Review-November-2015.pdf?ext=.pdf](https://www.ranzcog.edu.au/RANZCOG_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical-Obstetrics/Prevention-detection-and-management-of-Subgaleal-Haemorrhage-(C-Obs-28)-Review-November-2015.pdf?ext=.pdf)
4. Independent Hospital Pricing Authority (AU). Activity Based Funding Admitted Patient Care 2015–16, acute admitted episodes, excluding same day.
5. Australian Commission on Safety and Quality in Health Care. National Safety and Quality Health Service Standards (second edition). Available from: <https://www.safetyandquality.gov.au/our-work/assessment-to-the-nsqhs-standards/nsqhs-standards-second-edition/>
6. Australian College of Midwives. National Midwifery Guidelines for Consultation and Referral (third edition) 2013. Available from: [https://www.ranzcog.edu.au/RANZCOG\\_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Referral-Guidelines-3rd\\_edition\\_issue\\_2\\_20150211\\_final\\_0.pdf?ext=.pdf](https://www.ranzcog.edu.au/RANZCOG_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Referral-Guidelines-3rd_edition_issue_2_20150211_final_0.pdf?ext=.pdf)

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