Queensland Clinical Guidelines

Translating evidence into best clinical practice

Maternity and Neonatal **Clinical Guideline**

Guideline Supplement: Antenatal corticosteroids (ACS)



Table of Contents

1	Intro	ductionduction	3
	1.1	Funding	
	1.2	Conflict of interest	
	1.3	Development process	
	1.4	Summary of changes	
2	Meth	odology	
	2.1	Topic identification	
	2.2	Scope	4
	2.3	Clinical questions	
	2.4	Search strategy	5
	2.4.1		
	2.5	Consultation	6
	2.6	Endorsement	6
	2.7	Citation	6
3	Leve	Is of evidence	7
	3.1	Summary recommendations	7
4	Imple	ementation	8
	4.1	Guideline resources	8
	4.2	Suggested resources	8
	4.3	Implementation measures	8
	4.3.1	QCG measures	8
	4.3.2	Hospital and Health Service measures	8
	4.3.3	Implications for implementation	8
	4.4	Quality measures	9
	4.5	Areas for future research	9
	4.6	Safety and quality	.10
		es	
A	cknowle	dgements	.16
Li	st of Ta	ables	
Та	able 1. S	Summary of change	3
Ta	able 2. S	Scope framework	4
		Basic search strategy	
		Major guideline development processes	
		Summary recommendations	
		NSQHS Standard 1	
		Clinical quality measures	
T	able 9 N	NSOHS criteria	10

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1 Introduction

This document is a supplement to the Queensland Clinical Guideline (QCG) *Antenatal corticosteroids* (ACS). It provides supplementary information regarding guideline development, makes summary recommendations, suggests measures to assist implementation and quality activities, and summarises changes (if any) to the guideline since original publication. Refer to the guideline for abbreviations, acronyms, flow charts and acknowledgements.

1.1 Funding

The development of this guideline was funded by Healthcare Improvement Unit, Queensland Health. Consumer representatives were paid a standard fee. Other working party members participated on a voluntary basis.

1.2 Conflict of interest

Declarations of conflict of interest were sought from working party members as per the Queensland Clinical Guidelines *Conflict of Interest* statement. No conflict of interest was identified.

1.3 Development process

This version of the guideline followed the QCG new development process.

1.4 Summary of changes

Queensland clinical guidelines are reviewed every 5 years or earlier if significant new evidence emerges. Table 1 provides a summary of changes made to the guidelines since original publication.

Table 1. Summary of change

Publication date Endorsed by:	Identifier	Summary of major change
August 2021	MN21.64-V1-R26	First publication

2 Methodology

Queensland Clinical Guidelines (QCG) follows a rigorous process of guideline development. This process was endorsed by the Queensland Health Patient Safety and Quality Executive Committee in December 2009. The guidelines are best described as 'evidence informed consensus guidelines' and draw from current literature, the evidence base of existing national and international guidelines and the expert opinion of the working party.

2.1 Topic identification

The topic was identified as a priority by the QCG Steering Committee in 2019 to facilitate consistency of recommendations across QCG guidelines.

2.2 Scope

The scope of the guideline was determined using the following framework.

Table 2. Scope framework

Scope framework		
Population	Which group of people will the guideline be applicable to? Women at increased risk of preterm birth where the baby may benefit from antenatal corticosteroids	
Purpose	How will the guideline support evidence-based decision-making on the topic? Develop an evidence informed clinical shortGuide to support decision making in relation to the use of antenatal corticosteroids in women at risk of preterm birth	
Outcome	 What will be achieved if the guideline is followed? (This is not a statement about measurable changes / not SMART goals) Support: Identification of the indications and rationale for antenatal corticosteroid administration Early identification of pregnant women who may benefit from antenatal corticosteroids Understanding of the risks and benefits to the woman and her baby of antenatal corticosteroid administration Improved health outcomes and adaption to extrauterine life when preterm birth occurs 	
Exclusions	 What is not included/addressed within the guideline Standard care as outlined in Queensland Clinical Guideline Standard care Assessment and management of preterm labour and birth Routine antenatal, intrapartum and postpartum care Assessment and management of neonatal respiratory distress 	

2.3 Clinical questions

The following clinical questions were generated to inform the guideline scope and purpose:

- What is the best practice management of antenatal corticosteroid administration at:
 - o Less than 21+6 weeks gestation
 - o 22+0 to 35+0 weeks gestation
 - o Greater than 35+1 weeks gestation
- What is the recommended administration of corticosteroids?
- When are repeat (or rescue) doses of antenatal corticosteroids indicated?

2.4 Search strategy

A search of the literature was conducted during June to December 2020. A further search was conducted in 2021. The QCG search strategy is an iterative process that is repeated and amended as guideline development occurs (e.g. if additional areas of interest emerge, areas of contention requiring more extensive review are identified or new evidence is identified). All guidelines are developed using a basic search strategy. This involves both a formal and informal approach.

Table 3. Basic search strategy

Step		Consideration
Review clinical guidelines developed by other reputable groups relevant to the clinical speciality		 This may include national and/or international guideline writers, professional organisations, government organisations, state based groups. This assists the guideline writer to identify: The scope and breadth of what others have found useful for clinicians and informs the scope and clinical question development Identify resources commonly found in guidelines such as flowcharts, audit criteria and levels of evidence Identify common search and key terms Identify common and key references
2.	Undertake a foundation search using key search terms	Construct a search using common search and key terms identified during Step 1 above Search the following databases PubMed CINAHL Medline Cochrane Central Register of Controlled Trials EBSCO Embase Studies published in English less than or equal to 5 years previous are reviewed in the first instance. Other years may be searched as are relevant to the topic Save and document the search Add other databases as relevant to the clinical area
3.	Develop search word list for each clinical question.	 This may require the development of clinical sub-questions beyond those identified in the initial scope. Using the foundation search performed at Step 2 as the baseline search framework, refine the search using the specific terms developed for the clinical question Save and document the search strategy undertaken for each clinical question
4.	Other search strategies	 Search the reference lists of reports and articles for additional studies Access other sources for relevant literature Known resource sites Internet search engines Relevant textbooks

2.4.1 Keywords

The following keywords were used in the basic search strategy: respiratory distress syndrome, preterm labour, corticosteroids, gestation, betamethasone, dexamethasone, administration, rescue dose, fetal lung maturation.

Other keywords may have been used for specific aspects of the guideline.

2.5 Consultation

Major consultative and development processes occurred between February to March 2021 and April to May 2021. These are outlined in Table 4.

Table 4. Major guideline development processes

Process	Activity		
Clinical lead	The nominated co-clinical leads were approved by QCG Steering Committee		
Consumer participation	 Consumer participation was invited from a range of consumer focused organisations who had previously accepted an invitation for on-going involvement with QCG 		
Working party	 An EOI for working party membership was distributed via email to Queensland clinicians and stakeholders in February 2021 The working party was recruited from responses received Working party members who participated in the working party consultation processes are acknowledged in the guideline supplement Working party consultation occurred in a virtual group via email 		
Statewide consultation	 Consultation was invited from Queensland clinicians and stakeholders during February to March 2021 Feedback was received primarily via email All feedback was compiled and provided to the clinical lead and working party members for review and comment 		

2.6 Endorsement

The guideline was endorsed by the:

- Queensland Clinical Guidelines Steering Committee in July 2021
- Statewide Maternity and Neonatal Clinical Network [Queensland] in August 2021

2.7 Citation

The recommended citation of Queensland Clinical Guidelines is in the following format:

Queensland Clinical Guidelines. [Insert Guideline Title]. Guideline No. [Insert Guideline Number]. Queensland Health. [Insert Year of Publication]. Available from: www.health.qld.gov.au/qcg.

EXAMPLE:

Queensland Clinical Guidelines. Normal birth. Guideline No. MN17.25-V3-R22. Queensland Health 2017. Available from: www.health.gld.gov.au/qcq.

3 Levels of evidence

The levels of evidence identified by the New Zealand and Australian clinical practice guidelines (2015)¹ were used to inform the summary recommendations outlined. Levels of evidence are outlined in Table 5. Levels of evidence and Summary recommendations are outlined in Table 6. Summary recommendations.

Table 5. Levels of evidence

Overall grade of recommendation		
Α	A Body of evidence can be trusted to guide practice.	
B Body of evidence can be trusted to guide practice in most situations		
Body of evidence provides some support for recommendation(s), but care should be taken in its application		
D	Body of evidence is weak, and recommendation must be applied with caution	

3.1 Summary recommendations

Summary recommendations and levels of evidence are outlined in Table 5. Levels of evidence .

Table 6. Summary recommendations

Recon	nmendations¹	Overall grade of recommendation ¹
1.	 In a woman at risk of early preterm, imminent birth use a single course of antenatal corticosteroids: When gestational age is 34 weeks and 6 days, or less When preterm birth is planned or expected within the next seven days, even if birth is likely within 24 hours Regardless of the reason the woman is considered at risk of preterm birth 	A
2.	 (Single course) As corticosteroid use: Either: betamethasone 24 mg in divided doses, completed between 12 and 36 hours Or: dexamethasone 24 mg in divided doses completed between 24 and 40 hours. 	А
3.	Use repeat antenatal corticosteroids in women at risk of early preterm, imminent birth following a single course of antenatal corticosteroids: • When gestational age is 32 weeks and 6 days or less • When preterm birth is planned or expected within the next seven days, even if birth is likely within 24 hours • Not less than seven days following a single course of antenatal corticosteroids • Regardless of the reason the woman is considered at risk of preterm birth	А
4.	 (Repeat course) As corticosteroid use: Either: betamethasone 12 mg as a single repeat dose After this dose, if the woman has not given birth seven or more days, and less than 14 days from administration of a previous repeat dose, and is still considered to be at risk of preterm birth within the next seven days a further, single, repeat dose of Celestone® Chronodose®** 11.4 mg can be administered Use up to a maximum of three, single, repeat doses only Or: A single repeat course of betamethasone 24 mg in divided doses completed within 24 hours Do not give any further repeat courses 	A

4 Implementation

This guideline is applicable to all Queensland public and private maternity facilities. It can be downloaded in Portable Document Format (PDF) from www.health.qld.gov.au/qcg

4.1 Guideline resources

The following guideline components are provided on the website as separate resources:

- Flowchart: Administration of ACS
- Education resource: Antenatal corticosteroids (ACS)
- Knowledge assessment: Antenatal corticosteroids (ACS)
- Auditing resources: Antenatal corticosteroids (ACS)
- Parent information: Antenatal corticosteroids (ACS)

4.2 Suggested resources

During the development process stakeholders identified additional resources with potential to complement and enhance guideline implementation and application. The following resources have not been sourced or developed by QCG but are suggested as complimentary to the guideline:

- Parent information targeted at culturally and linguistically diverse populations and Aboriginal and/or Torres Strait Islander people
- Corticosteroid drug protocols for local use and administration

4.3 Implementation measures

Suggested activities to assist implementation of the guideline are outlined below.

4.3.1 QCG measures

- Notify Chief Executive Officer and relevant stakeholders
- Monitor emerging new evidence to ensure guideline reflects contemporaneous practice
- Capture user feedback
- Record and manage change requests

4.3.2 Hospital and Health Service measures

Initiate, promote and support local systems and processes to integrate the guideline into clinical practice, including:

- Hospital and Health Service (HHS) Executive endorse the guidelines and their use in the HHS and communicate this to staff
- Promote the introduction of the guideline to relevant health care professionals
- Support education and training opportunities relevant to the guideline and service capabilities
- Align clinical care with guideline recommendations
- Undertake relevant implementation activities as outlined in the Guideline implementation checklist available at www.health.qld.gov.au/qcg

4.3.3 Implications for implementation

The following areas may have implications for local implementation of the guideline recommendations. It is suggested they be considered for successful guideline implementation.

- Economic considerations including opportunity costs
- Human resource requirements including clinician skill mix and scope of practice
- Clinician education and training
- Equipment and consumables purchase and maintenance
- Consumer acceptance
- Model of care and service delivery

4.4 Quality measures

Auditing of guideline recommendations and content assists with identifying quality of care issues and provides evidence of compliance with the National Safety and Quality Health Service (NSQHS) Standards² [Refer to Table 7. NSQHS Standard 1]. Suggested audit and quality measures are identified in Table 8. Clinical quality measures.

Table 7. NSQHS Standard 1

NSQHS Standard 1: Clinical governance		
Clinical performance and effectiveness		
Criterion 1.27:	Actions required:	
Evidence based care	a. Provide clinicians with ready access to best-practice guidelines, integrated care pathways, clinical pathways and decision support tools relevant to their clinical practice	
	b. Support clinicians to use the best available evidence, including relevant clinical care standards developed by the Australian Commission on Safety and Quality in Health Care	

The following clinical quality measures are suggested:

Table 8. Clinical quality measures

No	Audit criteria	Guideline Section
1.	Proportion of women at high risk of imminent preterm birth between 22+0 to 34+6 weeks gestation who were offered antenatal corticosteroids	General considerations
2.	Proportion of women who are counselled regarding the risks and uncertainties surrounding the evidence of antenatal corticosteroid administration	Benefits and risks
3.	Proportion of women with indications for antenatal corticosteroids, who receive a full course of corticosteroids within 7 days prior to birth	Dosing and administration
4.	Proportion of women who receive a full antenatal assessment to determine risk of imminent preterm birth prior to administration of corticosteroids	Assessment, administration timing and transfer

4.5 Areas for future research

During development the following areas were identified as having limited or poor quality evidence to inform clinical decision making. Further research in these areas may be useful.

- Does the administration of antenatal betamethasone/dexamethasone for women at high risk of imminent birth adequately reduce respiratory distress syndrome in the baby?
- Following administration of antenatal corticosteroids, what are the longer term effects on the baby as they develop into adulthood?
- What are the neonatal outcomes related to the administration of antenatal corticosteroids between 37 and 39 week gestations (special care nursery/intensive care unit admission)

4.6 Safety and quality

Implementation of this guideline provides evidence of compliance with the National Safety and Quality Health Service Standards and Australian Council on Healthcare Standards (ACHS).^{2,}

Table 9. NSQHS criteria

NSQHS criteria	Actions required	☑ Evidence of compliance
NSQHS Standard 1: Clinical governance	ce	
Patient safety and quality systems Safety and quality systems are integrated with governance processes to enable organisations to actively manage and improve the safety and quality of health care for patients.	Diversity and high risk groups 1.15 The health service organisation: a. Identifies the diversity of the consumers using its services b. Identifies groups of patients using its services who are at higher risk of harm c. Incorporates information on the diversity of its consumers and higher-risk groups into the planning and delivery of care	 ✓ Assessment and care appropriate to the cohort of patients is identified in the guideline ✓ High risk groups are identified in the guideline ✓ The guideline is based on the best available evidence
Clinical performance and effectiveness The workforce has the right qualifications, skills and supervision to	Evidence based care 1.27 The health service organisation has processes that: a. Provide clinicians with ready access to best-practice guidelines, integrated care pathways, clinical pathways and decision support tools relevant to their clinical practice b. Support clinicians to use the best available evidence, including relevant clinical care standards developed by the Australian Commission on Safety and Quality in Health Care	 ☑ Queensland Clinical Guidelines is funded by Queensland Health to develop clinical guidelines relevant to the service line to guide safe patient care across Queensland ☑ The guideline provides evidence-based and best practice recommendations for care ☑ The guideline is endorsed for use in Queensland Health facilities. ☑ A desktop icon is available on every Queensland Health computer desktop to provide quick and easy access to the guideline
provide safe, high-quality health care to patients.	Performance management 1.22 The health service organisation has valid and reliable performance review processes that: a. Require members of the workforce to regularly take part in a review of their performance b. Identify needs for training and development in safety and quality c. Incorporate information on training requirements into the organisation's training system	☑ The guideline has accompanying educational resources to support ongoing safety and quality education for identified professional and personal development. The resources are freely available on the internet http://www.health.qld.gov.au/qcg
Patient safety and quality systems Safety and quality systems are integrated with governance processes to enable organisations to actively manage and improve the safety and quality of health care for patients.	Policies and procedures 1.7 The health service organisation uses a risk management approach to: a. Set out, review, and maintain the currency and effectiveness of, policies, procedures and protocols b. Monitor and take action to improve adherence to policies, procedures and protocols c. Review compliance with legislation, regulation and jurisdictional requirements	 ☑ QCG has established processes to review and maintain all guidelines and associated resources ☑ Change requests are managed to ensure currency of published guidelines ☑ Implementation tools and checklist are provided to assist with adherence to guidelines ☑ Suggested audit criteria are provided in guideline supplement ☑ The guidelines comply with legislation, regulation and jurisdictional requirements

NSQHS criteria	Actions required	☑ Evidence of compliance		
NSQHS Standard 2: Partnering with Consumers				
Health literacy Health service organisations communicate with consumers in a way that supports effective partnerships.	Communication that supports effective partnerships 2.8 The health service organisation uses communication mechanisms that are tailored to the diversity of the consumers who use its services and, where relevant, the diversity of the local community 2.9 Where information for patients, carers, families and consumers about health and health services is developed internally, the organisation involves consumers in its development and review 2.10 The health service organisation supports clinicians to communicate with patients, carers, families and consumers about health and health care so that: a. Information is provided in a way that meets the needs of patients, carers, families and consumers b. Information provided is easy to understand and use c. The clinical needs of patients are addressed while they are in the health service organisation d. Information needs for ongoing care are provided on discharge	 ☑ Consumer consultation was sought and obtained during the development of the guideline. Refer to the acknowledgement section of the guideline for details ☑ Consumer information is developed to align with the guideline and included consumer involvement during development and review ☑ The consumer information was developed using plain English and with attention to literacy and ease of reading needs of the consumer 		
Partnering with consumers in organisational design and governance Consumers are partners in the design and governance of the organisation.	Partnerships in healthcare governance planning, design, measurement and evaluation 2.11 The health service organisation: a. Involves consumers in partnerships in the governance of, and to design, measure and evaluate, health care b. Has processes so that the consumers involved in these partnerships reflect the diversity of consumers who use the service or, where relevant, the diversity of the local community 2.14 The health service organisation works in partnership with consumers to incorporate their views and experiences into training and education for the workforce	 ☑ Consumers are members of guideline working parties ☑ The guideline is based on the best available evidence ☑ The guidelines and consumer information are endorsed by the QCG and Queensland Statewide Maternity and Neonatal Clinical Network Steering Committees which includes consumer membership 		
NSQHS Standard 4: Medication safety				
Clinical governance and quality improvement to support medication management Organisation-wide systems are used to support and promote safety for procuring, supplying, storing, compounding, manufacturing, prescribing, dispensing, administering and monitoring the effects of medicines	Integrating clinical governance 4.1 Clinicians use the safety and quality systems from the Clinical Governance Standard when: a. Implementing policies and procedures for medication management b. Managing risks associated with medication management c. Identifying training requirements for medication management	☑ The guideline provides current evidence based recommendations about medication		

NSQHS criteria	Actions required	☑ Evidence of compliance
NSQHS Standard 5: Comprehensive ca	are	
Clinical governance and quality improvement to support comprehensive care Systems are in place to support clinicians to deliver comprehensive care	Integrating clinical governance 5.1 Clinicians use the safety and quality systems from the Clinical Governance Standard when: a. Implementing policies and procedures for comprehensive care b. Managing risks associated with comprehensive care c. Identifying training requirements to deliver comprehensive care Partnering with consumers 5.3 Clinicians use organisational processes from the Partnering with Consumers Standard when providing comprehensive care to: a. Actively involve patients in their own care b. Meet the patient's information needs c. Share decision-making	 ☑ The guideline has accompanying educational resources to support ongoing safety and quality education for identified professional and personal development. The resources are freely available on the internet http://www.health.qld.gov.au/qcg ☑ The guideline provides evidence-based and best practice recommendations for care ☑ Consumer information is developed for the guideline
NSQHS Standard 6: Communicating fo		
Clinical governance and quality improvement to support effective communication Systems are in place for effective and coordinated communication that supports the delivery of continuous and safe care for patients.	Integrating clinical governance 6.1 Clinicians use the safety and quality systems from the Clinical Governance Standard when: a. Implementing policies and procedures to support effective clinical communication b. Managing risks associated with clinical communication c. Identifying training requirements for effective and coordinated clinical communication Partnering with consumers 6.3 Clinicians use organisational processes from the Partnering with Consumers Standard to effectively communicate with patients, carers and families during high-risk situations to: a. Actively involve patients in their own care b. Meet the patient's information needs c. Share decision-making Organisational processes to support effective communication 6.4 The health service organisation has clinical communications processes to support effective communication when: a. Identification and procedure matching should occur b. All or part of a patient's care is transferred within the organisation, between multidisciplinary teams, between clinicians or between organisations; and on discharge c. Critical information about a patient's care, including information on risks, emerges or changes	 ☑ Requirements for effective clinical communication by clinicians are identified ☑ The guideline provides evidence-based and best practice recommendations for communication between clinicians ☑ The guideline provides evidence-based and best practice recommendations for communication with patients, carers and families ☑ The guideline provides evidence-based and best practice recommendations for discharge planning and follow –up care

NSQHS criteria	Actions required	☑ Evidence of compliance	
NSQHS Standard 6: Communicating for safety (continued)			
Communication of critical information Systems to effectively communicate critical information and risks when they emerge or change are used to ensure safe patient care.	Communicating critical information 6.9 Clinicians and multidisciplinary teams use clinical communication processes to effectively communicate critical information, alerts and risks, in a timely way, when they emerge or change to: a. Clinicians who can make decisions about care b. Patients, carers and families, in accordance with the wishes of the patient 6.10 The health service organisation ensures that there are communication processes for patients, carers and families to directly communicate critical information and risks about care to clinicians	 ☑ Requirements for effective clinical communication of critical information are identified ☑ Requirements for escalation of care are identified 	
Correct identification and procedure matching Systems to maintain the identity of the patient are used to ensure that the patient receives the care intended for them.	Correct identification and procedure matching 6.5 The health service organisation: a. Defines approved identifiers for patients according to best- practice guidelines b. Requires at least three approved identifiers on registration and admission; when care, medication, therapy and other services are provided; and when clinical handover, transfer or discharge documentation is generated	☑ Requirements for safe and for correct patient identification are identified	
Communicating at clinical handover Processes for structured clinical handover are used to effectively communicate about the health care of patients.	Clinical handover 6.7 The health service organisation, in collaboration with clinicians, defines the: a. Minimum information content to be communicated at clinical handover, based on best-practice guidelines b. Risks relevant to the service context and the particular needs of patients, carers and families c. Clinicians who are involved in the clinical handover 6.8 Clinicians use structured clinical handover processes that include: a. Preparing and scheduling clinical handover b. Having the relevant information at clinical handover c. Organising relevant clinicians and others to participate in clinical handover d. Being aware of the patient's goals and preferences e. Supporting patients, carers and families to be involved in clinical handover, in accordance with the wishes of the patient f. Ensuring that clinical handover results in the transfer of responsibility and accountability for care	☑ The guideline acknowledges the need for local protocols to support transfer of information, professional responsibility and accountability for some or all aspects of care	

NSQHS criteria	Actions required	☑ Evidence of compliance	
NSQHS Standard 8: Recognising and responding to acute deterioration			
Clinical governance and quality improvement to support recognition and response systems Organisation-wide systems are used to support and promote detection and recognition of acute deterioration, and the response to patients whose condition acutely deteriorates.	Integrating clinical governance 8.1 Clinicians use the safety and quality systems from the Clinical Governance Standard when: a. Implementing policies and procedures for recognising and responding to acute deterioration b. Managing risks associated with recognising and responding to acute deterioration c. Identifying training requirements for recognising and responding to acute deterioration Partnering with consumers 8.3 Clinicians use organisational processes from the Partnering with Consumers Standard when recognising and responding to acute deterioration to: a. Actively involve patients in their own care b. Meet the patient's information needs c. Share decision-making Recognising acute deterioration 8.4 The health service organisation has processes for clinicians to detect acute physiological deterioration that require clinicians to: a. Document individualised vital sign monitoring plans b. Monitor patients as required by their individualised monitoring plan c. Graphically document and track changes in agreed observations to detect acute deterioration over time, as appropriate for the patient	 ☑ The guideline is consistent with National Consensus statements recommendations ☑ The guideline recommends use of tools consistent with the principles of recognising and responding to clinical deterioration ☑ Consumer information is developed for the guideline 	

References

- 1. Antenatal corticosteroid clinical practice guidelines panel. Antenatal corticosteroids given to women prior to birth to improve fetal, infant, child and adult health: clinical practice guidelines. [Internet]. 2015 [cited 2020 July 07]. Available from: https://www.ranzcog.edu.au/.
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