

Antenatal corticosteroids

Clinical Guideline Presentation v1.0



45 minutes

Towards CPD Hours

References:

Queensland Clinical Guideline: *Antenatal corticosteroids* is the primary reference for this package.

Recommended citation:

Queensland Clinical Guidelines. Antenatal corticosteroids clinical guideline education presentation MN21.64-V1-R26. Queensland Health. 2021.

Disclaimer:

This presentation is an implementation tool and should be used in conjunction with the published guideline. This information does not supersede or replace the guideline. Consult the guideline for further information and references.

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Objectives

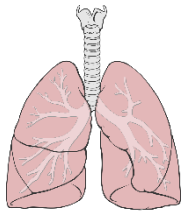


- Identify women who may benefit from administration of antenatal corticosteroids (ACS)
- Identify at which gestational ages ACS are indicated
- Identify treatment options (single course vs repeat course)
- Identify the risks and benefits of ACS

Clinical significance

- ACS before preterm birth (PTB) is one of the most important antenatal interventions to improve outcomes for the preterm newborn baby
- ACS effectively reduces the need for respiratory support at birth
- In Queensland in 2017, PTB occurred in 9.4% of all pregnancies





Mode of action

- ACS prescribed for fetal lung maturation pass readily across the placenta
- Mechanisms underlying the benefits of ACS include:
 - Maturation of the developing fetal lungs and increased surfactant production
 - Improving pulmonary blood flow and adaptation at birth
 - Increased fluid clearance from the alveolar lumen to the interstitium

Considerations

Less than 21+6 weeks

- Limited clinical evidence to support a recommendation
- Consider individual circumstances



Considerations

22+0 to 23+6 weeks

- Recommend ACS if:
 - PTB is highly likely within seven days, and life sustaining interventions are planned or may be a possibility (noting that administration of ACS does not indicate definitive plans/possibility for resuscitation at birth)
 - In-utero transfer planned
 - Maternal request



Considerations

24+0 to 34+6 weeks

- Recommend—ACS in this gestational group is associated with:
 - Reduction in rates of neonatal death, respiratory distress syndrome (RDS) and intraventricular haemorrhage (IVH)
 - Reduction in necrotising enterocolitis, intensive care admissions and systemic infections in the first 48 hours of life
 - Beneficial effect demonstrated regardless of whether membranes are ruptured or intact

Considerations

Greater than 35+0 weeks

- ACS decreases the rate of transient respiratory complications in the first 72 hours following birth
- May increase neonatal hypoglycaemia
- Carefully assess women at risk of late PTB and consider ACS if:
 - Late PTB is very likely
 - Elective or planned caesarean section
 - Fetal lung immaturity suspected

Special circumstances

Last preterm caesarean section (CS) elective/planned	<ul style="list-style-type: none"> • Routine CS before 39+0 weeks not recommended • If necessary, for clinical reasons, consider a single course of ACS
Pre-existing diabetes or gestational diabetes mellitus (GDM)	<ul style="list-style-type: none"> • Diabetes mellitus is not a contraindication to ACS • Closely monitor and manage women with impaired glucose tolerance or diabetes • Consider ACS based on risk of PTB
Chorioamnionitis	<ul style="list-style-type: none"> • ACS not associated with increased risk of maternal infection—do not delay birth to administer ACS • Consider ACS based on risk of PTB and other clinical circumstances
Hypertensive disorders	<ul style="list-style-type: none"> • Consider ACS based on risk of PTB and other clinical circumstances
Multiple pregnancy	<ul style="list-style-type: none"> • Multiple pregnancy is a risk factor for PTB, but in isolation is not an indication for ACS
Fetal growth restriction	<ul style="list-style-type: none"> • Inconsistent evidence to recommend ACS for FGR however may result in slightly lower birth weight (difference 80 gm) • Use with caution based on clinical scenario

Assessment and transfer

Assessment

Indications for ACS may include, but not limited to:

- Preterm premature rupture of membranes (PPROM)
- Preterm labour (with or without intact membranes)
- Cervical change and dilation greater than or equal to 2cm
- Positive biochemical PTB prediction testing

Timing

Optimal timing for ACS administration is vital for efficacy:

- Commence at least 24 hours prior to, but not more than seven days prior to expected birth
- A single dose of ACS, given more than seven days prior to birth is ineffective at reducing respiratory distress syndrome (RDS)
- ACS for suspected PTB may be associated with higher rates of small for gestational age (SGA) babies who are subsequently born at term

Transfer

- Consider facility capability to manage PTB
- Liaise with Retrieval Services Queensland (RSQ) for advice on administration prior to transfer

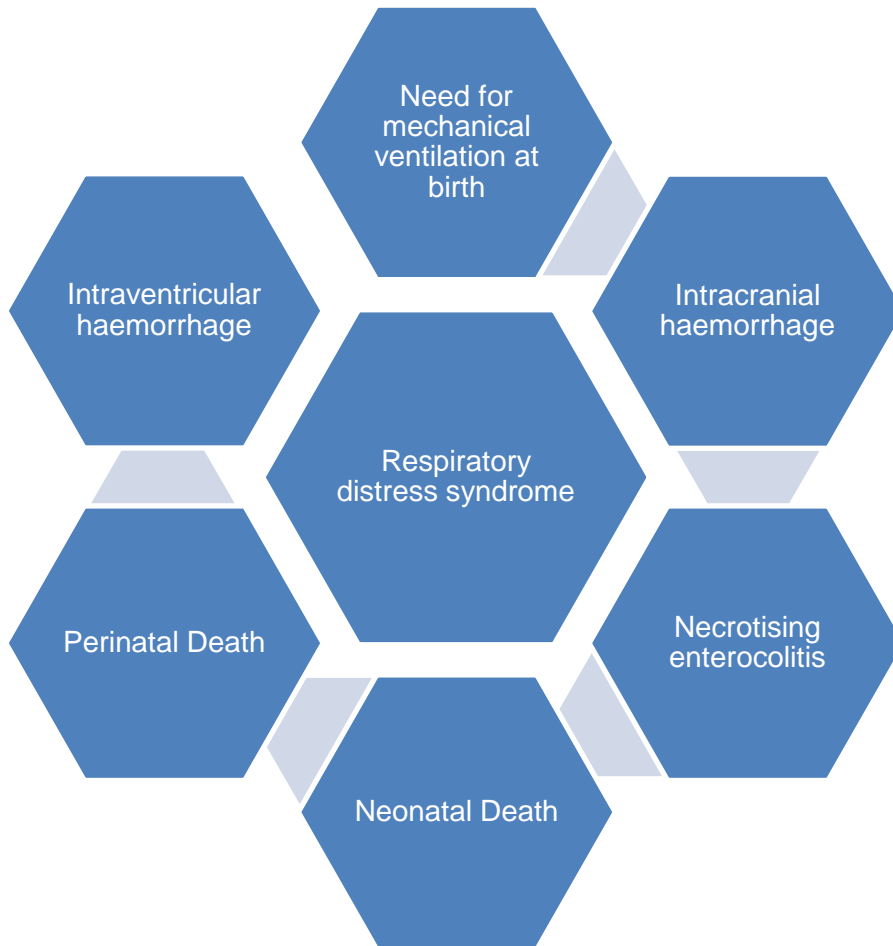
Initial administration

Indication	Dosing
<ul style="list-style-type: none">• <i>Recommend</i> a single course of ACS for women at risk of PTB (including multiple pregnancies), within the next seven days who are:<ul style="list-style-type: none">• 22+0 to 34+6 weeks gestation• <i>Consider</i> a single course of corticosteroids for women at high risk of PTB within the next seven days who are:<ul style="list-style-type: none">• Less than 21+6 weeks gestation (based on individual clinical scenario)• Greater than or equal to 35+0 weeks gestation	<ul style="list-style-type: none">• The most extensively studied regimens of ACS treatment are:<ul style="list-style-type: none">• Two doses of betamethasone 11.4 mg intramuscular injection (IM) 24 hours apart<ul style="list-style-type: none">• If PTB likely within 24 hours, consider giving the second dose at 12 hours <p>Or</p> <ul style="list-style-type: none">• Four doses of dexamethasone 6 mg IM injection 12 hours apart

Repeat administration

Indications	Dosing
<ul style="list-style-type: none">• Women at continued risk of PTB following the first course (initial administration)<ul style="list-style-type: none">• Routine repeat courses of ACS not recommended—consider based on assessment of risk of ongoing PTB• <i>Consider</i> based on:<ul style="list-style-type: none">• Gestational age• Repeat ACS may be most effective at less than 32+6 weeks but may be considered at any gestational age based on individual clinical scenario• PTB is planned or highly likely in the next seven days (especially within 48 hours)• Not less than seven days following the first course of ACS	<ul style="list-style-type: none">• Single dose of 11.4 mg betamethasone IM injection<ul style="list-style-type: none">• If after repeat dose the woman has not given birth within seven or more days a further single dose may be given• Maximum in any one pregnancy is three, single, repeat doses <p>Or</p> <ul style="list-style-type: none">• Single repeat dose of two doses of betamethasone 11.4 mg IM injection completed within 24 hours<ul style="list-style-type: none">• No further repeat courses of betamethasone after single repeat dose above

Benefits



- Women who receive ACS compared to those with no treatment have significantly lower severity or frequency, or both, of serious adverse neonatal outcomes, related to prematurity
- Weigh up the risks versus benefits prior to administration of ACS

Risks



- Long term outcomes for babies exposed to ACS are not yet fully known
- ACS can have an effect on the developing brain and despite the dramatic reductions in mortality for extremely low gestation babies there is increasing concern about the potential long term outcomes in more mature babies exposed to ACS
- Carefully consider short term vs long term benefits and risks of ACS administration