

# Hydrocortisone

100mg injection, 4mg tablet,  
1mg/mL oral mixture\*, 1% topical

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**Note:**

This guideline provides advice of a general nature. This statewide guideline has been prepared to promote and facilitate standardisation and consistency of practice, using a multidisciplinary approach. The guideline is based on a review of published evidence and expert opinion.

Information in this statewide guideline is current at the time of publication.

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Health practitioners in the South Australian public health sector are expected to review specific details of each patient and professionally assess the applicability of the relevant guideline to that clinical situation.

If for good clinical reasons, a decision is made to depart from the guideline, the responsible clinician must document in the patient's medical record, the decision made, by whom, and detailed reasons for the departure from the guideline.

This statewide guideline does not address all the elements of clinical practice and assumes that the individual clinicians are responsible for discussing care with consumers in an environment that is culturally appropriate and which enables respectful confidential discussion. This includes:

- The use of interpreter services where necessary,
- Advising consumers of their choice and ensuring informed consent is obtained,
- Providing care within scope of practice, meeting all legislative requirements and maintaining standards of professional conduct, and
- Documenting all care in accordance with mandatory and local requirements

## Synonyms

Cortisol

## Dose and Indications

### Treatment of pressor and volume resistant hypotension

#### Intravenous

1mg/kg/dose

Doses up 2.5mg/kg/dose have been used for inotrope resistant hypotension.

Gestational Age (weeks) at birth	Frequency
< 34	Every 6 to 12 hours
≥ 34	Every 6 to 8 hours

Use for the least possible duration, until stable off inotropes (usually 2 – 5 days).

### Refractory Hypoglycaemia

#### Intravenous, Oral

1 - 2.5mg/kg/dose every 6 hours as required

For oral administration, dose should be rounded to the nearest whole milligram.



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**Surgical stress to cover adrenal suppression in neonates currently on dexamethasone or previously finished a course of dexamethasone lasting more than 1 week less than 4 weeks ago**

**Intravenous**

1mg/kg prior to surgery, then 1mg/kg every 6 hours for up to 48 hours

**Physiological Replacement in primary adrenal insufficiency (including Congenital Adrenal Hyperplasia (CAH)) and hypopituitarism**

**IV/IM/Oral**3 – 5mg/m<sup>2</sup>/dose every 8 hours

Seek endocrinology advice when starting treatment. A dose towards the higher end of the range is often required for CAH.

For oral administration, dose should be rounded to the nearest whole milligram.

Body Surface Area (BSA) Calculation

$$BSA (m^2) = \sqrt{\frac{\text{height(cm)} \times \text{weight(kg)}}{3600}}$$

**Stress (surgery, acute illness) in primary adrenal insufficiency or hypopituitarism**

**Intravenous, Intramuscular**

Initial dose: 25mg (standard dose)

Subsequent dose: 5mg to 10mg (standard dose) every 6 hours for the 1<sup>st</sup> 24-48 hours of illness then reduce to 10mg/m<sup>2</sup>/dose every 8 hours

**Inflammation of skin**

**Topical**

Apply 1% hydrocortisone ointment or cream to the affected area 1 or 2 times a day.



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## Preparation and Administration

### Intravenous

There are **TWO STEPS** to this process.

**STEP ONE:** Add 2mL of Water for Injection to the vial (100mg) and shake gently to dissolve (to a total volume of 2mL). The resulting solution contains 50mg/mL hydrocortisone.

*The ACT-O-VIAL product is stable for 24 hours stored under refrigeration – check with local policy about re-accessing vial for the same patient.*

**STEP TWO:** Further dilute 1mL of the 50mg/mL hydrocortisone solution with 9mL of compatible fluid (to a total volume of 10mL). The resulting solution contains 5mg/mL hydrocortisone.

Dose	0.5mg	1mg	2.5mg	5mg	7.5mg	10mg
Volume	0.1mL	0.2mL	0.5mL	1mL	1.5mL	2mL

Administer over 3 to 5 minutes.

### Oral

#### Oral tablets

Using a tablet cutter, cut a 4mg tablet in halves or quarters (depending on the dose required). Crush the portion of the tablet required for the dose, and disperse in 1-2mL of sterile water or milk for administration to the patient. Discard the remaining portion of the tablet.

> Note: *Hydrocortisone is not soluble in water or milk. Inaccurate dosing can occur when a whole 4mg tablet is dispersed in water, and a proportion of the final volume administered. First cut the tablet in halves or quarters and disperse the required dose in water/milk as above.*

#### Oral Mixture

\*The 1mg/mL oral mixture is not commercially available however is manufactured at Women's & Children's Health Network Pharmacy.

Dose	0.5mg	1mg	2.5mg	5mg
Volume	0.5mL	1mL	2.5mL	5mL

Doses should be administered during or after a feed to reduce stomach discomfort.

### Topical

Apply sparingly. Avoid topical application to large body surface areas since appreciable absorption may occur resulting in systemic effects.



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## Compatible Fluids

Glucose 5%, glucose 10%, glucose/sodium chloride solutions, sodium chloride 0.9%

## Adverse Effects

These occur when hydrocortisone is used at pharmacological doses. The incidence of adverse effects is related to dose and duration of treatment. Systemic effects may result from topical treatment.

### Common

Adrenal suppression, increased susceptibility to infection, masking of signs of infection, sodium and water retention, hypertension, hypokalaemia, hyperglycaemia, osteoporosis, fractures, delayed wound healing, skin atrophy, bruising, hirsutism, growth restriction, myopathy, muscle wasting, cushingoid appearance, weight gain, cataracts

## Monitoring

- > blood pressure
- > plasma glucose
- > signs of infection as per local unit protocol.

## Practice Points

- > Hydrocortisone in the eye is used under ophthalmology recommendation only.
- > Topical hydrocortisone is a mild corticosteroid and is contraindicated in untreated skin infections.
- > When applying topically, avoid contact with eyes.
- > Use cautiously in patients with gastrointestinal ulceration, hypertension, hyperglycaemia, renal impairment or hypothyroidism.
- > Phenobarbitone, phenytoin and rifampicin all increase steroid metabolism.
- > Frusemide, chlorothiazide, amphotericin B are associated with potassium depletion which may be exacerbated by hydrocortisone therapy.
- > Acute cardiovascular collapse may occur when corticosteroids are abruptly stopped or if adrenal response is inadequate in periods of stress such as infection, trauma, surgery and blood loss.
- > Hydrocortisone is not routinely recommended for prevention and treatment of chronic lung disease due to the current lack of evidence.<sup>1,2</sup>



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**Steroid equivalents (*glucocorticoid activity* of oral or intravenous dose)**

Cortisone Acetate	1.25mg
Dexamethasone	0.04mg
Hydrocortisone	1mg
Methylprednisolone	0.2mg
Prednisolone / Prednisone	0.25mg

**Steroid equivalents (*sodium retaining activity* of oral or intravenous dose)**

Cortisone Acetate	1.25mg
Dexamethasone	Minimal activity
Hydrocortisone	1mg
Methylprednisolone	2mg
Prednisolone / Prednisone	1.25mg

## References

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## Document Ownership & History

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