

# Hydrocortisone

## advice for the pituitary patient



*The Pituitary Foundation Information Booklets*

The  
**Pituitary**  
FOUNDATION

*Working to support pituitary patients, their carers & families*

### **Sick day rules – steroid cover**

**CORTISOL is a steroid hormone produced by the adrenal gland. It plays a complex role in regulating body functions and is essential for survival.**

**Hydrocortisone** is a synthetic hormone taken as a replacement for the natural cortisol hormone. It is prescribed when this hormone is deficient, either because there is a failure of cortisol production by the adrenal gland (Addison's disease/primary adrenal insufficiency), or failure of the pituitary gland to produce ACTH (the hormone that stimulates the production of cortisol by the adrenal glands), also known as secondary adrenal insufficiency.

Hydrocortisone is available as tablets under the trade name hydrocortisone, containing 10mg or 20mg.

**Prednisolone** may be prescribed to individual patients instead of hydrocortisone and works in the same way as hydrocortisone. Prednisolone is available as tablets under the trade name Deltacortril containing 2.5mg or 5mg or prednisolone 1mg or 5mg.

**Plenadren®** is a hydrocortisone modified-release tablet, designed to be taken once daily. The Plenadren tablet is available in 5mg and 20mg strengths. It is more expensive than traditional hydrocortisone and its advantages and/or disadvantages have not yet been clearly established in routine clinical practice.

An injection containing 100mg hydrocortisone is available for emergency situations for those on hydrocortisone, prednisolone or Plenadren.

### **How do I take it?**

The usual dose for hydrocortisone is up to 20mg by mouth, split over two or three times daily, and depending on your individual endocrinologist's recommendations. For example: 10mg when you wake up, 5mg at midday and 5mg no later than 6pm. Hydrocortisone should ideally be taken with water and is better absorbed if taken before food. The usual dose for prednisolone is 3mg - 5mg by mouth, split over two times daily. Plenadren is taken once daily, at least 30 minutes before your breakfast, preferably between 6.00am and 8.00am in the morning.

During normal health and life, when we become ill or suffer injuries, our bodies produce increased levels of cortisol to help us survive those stresses.

Now that you are unable to produce your own cortisol, you need to be aware of when to provide an increased cortisol level during stressful times or during ill-health. The amount of increase needed, the way the cortisol is given and the length of time the increase is needed, will vary depending on the situation you are in.

The table (on facing page) outlines the more common life events when an increase in cortisol cover would be needed, and provides advice as to how long the increase should be for and in what form the cortisol should be given (tablets, injection to muscle or direct into vein).

**You should always seek medical advice if you have needed to use your emergency injection or if an increased dose of your tablets has not helped to resolve your symptoms.**

# Sick day rules - steroid cover

Illness/situation	Action to take	Level of care needed
Adrenal crisis – weak, dizzy, nausea, faint, loss of consciousness	Have emergency injection if possible; dial 999 and state ‘adrenal crisis’	<b>Urgent – need hospital admission to stabilise</b>
Temperature higher than 38c, signs of infection or proven to have infection (urine tract, chest, tonsillitis etc.)	2-3 times all normal doses of hydrocortisone for duration of infection	GP/Self-care, if symptoms not resolved at 48 hours, see GP as may need antibiotic treatment
Antibiotic treatment for infections	Double all normal doses for duration of antibiotics (usually 3-7 days)	
Vomiting with/without diarrhoea	Take extra dose immediately at onset of vomiting. Emergency 100mg injection if vomiting recurs within 30mins of taking extra dose	<b>Urgent if unable to tolerate fluids and emergency injection used need admission to stabilise</b> GP if able to tolerate fluids and retain oral hydrocortisone, check sodium within range. May need anti-sickness treatment
Diarrhoea (frequent watery stools)	If no vomiting, double all doses of hydrocortisone until diarrhoea settles. If signs of adrenal crisis, follow advice in row 1	Self-care/GP <b>Urgent if signs of adrenal crisis</b>
Significant accident/falls/injury	If able, double hydrocortisone dose as soon as incident happens. If significant injury e.g. broken bone, give emergency injection	Self-care <b>Urgent if significant injury as need hydrocortisone cover and injury treated</b>
Severe shock i.e., bereavement, road traffic accident, witness to trauma	Take 20mg as tablets if able or double usual dose of prednisolone if able. May need to use emergency injection if shock severe	See GP or hospital for further advice. <b>Sudden and severe shock may be classed as emergency - seek medical attention if in doubt</b>
Long haul flight over 12 hours	Double usual dose on day of flight. One double dose should suffice	
General stress, exams, etc.	Not usually required. Ask GP if concerned	
Dental treatments • e.g. Extraction with anaesthetic • e.g. Root canal – local anaesthetic • e.g. Filling, dental hygiene	<ul style="list-style-type: none"> <li>• 100mg IM just before extraction</li> <li>• Double dose 1 hr prior to surgery</li> <li>• Double dose 1 hr prior to procedure</li> </ul>	<ul style="list-style-type: none"> <li>• Double dose 24 hours then return to normal</li> <li>• Double dose 24 hours then return to normal</li> <li>• Double dose 24 hours then return to normal</li> </ul>

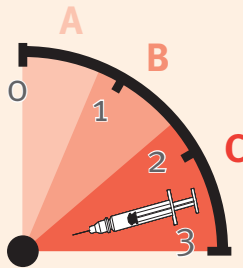
# Sick day rules - steroid cover

Illness/situation	Action to take	Level of care needed
<b>Surgery with long recovery - e.g. heart, bowel</b>	100mg IV with anaesthetic, then 100mg IV every 6hrs or 200mg continuous IV over 24hrs until able to eat/drink, then double normal dose for 48hrs, and taper back to normal	Tell the anaesthetist and surgeon that you take hydrocortisone before the operation. Replacement at time of surgery and immediately post operatively should be managed by surgical teams
<b>Surgery with quick recovery - e.g. joint replacement</b>	100mg IV with anaesthetic, then 100mg IV every 6hrs or 200mg continuous IV over 24hrs until able to eat/drink then double normal dose for 48hrs, and taper back to normal	
<b>Minor surgery – e.g. cataract, hernia</b>	100mg IM pre-anaesthetic double normal dose for 24 hrs post-surgery then normal doses	
<b>Minor surgery with local anaesthetic – e.g. mole removal</b>	Take extra dose 1-hour pre-procedure, extra dose 1-hour post procedure, then normal doses	
<b>Colonoscopy/Barium enema</b>	Double your usual dose as soon as the preparatory laxatives take effect and for duration of the preparation. <b>For colonoscopy only:</b> a 100mg injection 30 minutes before procedure to be given by doctor. Take usual dose on morning of procedure. NB: Some centres may want to admit you to hospital the night before to give the bowel prep and provide hydrocortisone cover	Tell the doctor before procedure that you take hydrocortisone. Drink lots of water to prevent dehydration
<b>Gastroscopy</b>	100mg intra muscular or intra venous at start of procedure	Tell the doctor before procedure that you take hydrocortisone. Double dose for 24 hours
<b>Cystoscopy</b>	100mg intra muscular immediately pre-procedure	Tell the doctor before procedure that you take hydrocortisone. Double dose 24hr then resume as normal

# Emergency hydrocortisone injections

## When do I know that I would need an emergency injection?

If you cannot absorb your tablets, or your usual replacement wasn't sufficient for an acute shock or illness. This may happen gradually or perhaps quite quickly. You would feel weak, sickly and light headed. The cortisol clock at right gives approximate times of need for emergency medical help and replacement.



## Emergency cortisol replacement peak timings for clinical use

- A** = period of first feeling unwell (within, or up to, one hour)
- B** = period of increasing illness (failure to retain oral cortisol) (during 2nd hour)
- C** = **DANGER ZONE** - emergency cortisol injection needed (by the 3rd hour)

## Emergency hydrocortisone injection



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So far as possible ensure person needing injection is safe and that injection site is as clean as possible, if able, wash and dry hands, open 'Emergency kit'. This should have:

1x drawing up needle 1x blue injection needle 1x 2ml syringe  
Either 1 x ampule hydrocortisone (as shown above left) or 1 x 2 part hydrocortisone injection, (as shown above right).

# Emergency hydrocortisone **injections**



**2**  
Open packages of both needles and syringe.



**3**  
To draw up, attach larger needle to syringe (usually has green hub).



**4**  
Ensure all liquid is in the lower part of the ampule and break off the top by holding with the blue dot facing and 'snapping' backwards. Use a tissue to avoid scratches to your fingers.



**5**  
Place the tip of the needles (attached to syringe) into the opening of the ampule - this can be tipped up without losing any liquid.



**6**  
Using one finger and thumb to draw plunger toward you, and one finger to secure syringe, draw the liquid into the syringe.  
When all liquid is in the syringe, discard the empty ampule in sharps disposal.

# Emergency hydrocortisone injections

**At this point for the Powder/Liquid version**, hold the powder bottle on flat surface, insert needle through rubber at top and push syringe plunger to inject all liquid into bottle. Mix the liquid and powder together with a 'swirling' motion. This should only take a few seconds. When mixed turn bottle upside down in one hand, insert needle through rubber so tip is in liquid and draw the fluid into syringe using the same technique shown for the ampule above. Ensure no air bubble in syringe and remove drawing up needle - dispose of in sharps disposal bin. Attach injection needle.



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Injection is given into muscle. Generally, the thigh muscle will be easiest to use. The injection should be given in the upper mid portion of the thigh and at a 90-degree angle. (Practice pad in use for pictures)

## To give injection:

- hold the barrel of the syringe between forefinger and thumb in your dominant hand
- remove the needle cover
- use the non-dominant hand to support the skin at the injection site
- ensure the area to be injected is clean and dry, you can wipe with a medi-swab if one is available
- insert the needle into the skin with a smooth and steady push
- move non-dominant hand to support needle and syringe
- use dominant hand to depress plunger with a smooth pressure until all liquid has been injected
- move non-dominant hand back to support leg, and holding syringe barrel between forefinger and thumb of dominant hand, remove from the leg
- apply light pressure to injection site using cotton swab or clean tissue for a few seconds, there is no need to rub
- dispose of in sharps disposal bin – DO NOT ATTEMPT TO REPLACE NEEDLE COVER.



## Instructions for AMBULANCE and A&E CLINICIANS

If I am in severe shock, trauma, have vomited, or I have been in an accident, I will urgently need to have either a 100mg intramuscular injection of hydrocortisone or 100mg IV hydrocortisone. Please check my blood pressure, U&E's, glucose and other relevant tests.

**If I am not treated urgently, my life could be in danger**

- Arrange hospital admission
- Insert IV cannula and commence infusion with N-Saline + dextrose

- Check U&E, glucose & other relevant tests
- Give hydrocortisone 100mg IM or IV stat
- Continue Hydrocortisone 100mg, 6 hourly by IM injection or IV bolus
- Exclude underlying precipitating causes.

Ensure that the patient is stable on oral steroids prior to discharge.

If you (the treating clinician) have any queries about emergency hydrocortisone and/or pituitary-related illness,

**PLEASE CONTACT THE ENDOCRINOLOGIST  
ON CALL WITHOUT DELAY**

### The Pituitary Foundation

**86 Colston Street,  
Bristol, BS1 5BB**

**[www.pituitary.org.uk](http://www.pituitary.org.uk)**

Helpline: 0117 370 1320

Endocrine Nurse Helpline: 0117 370 1317  
available scheduled hours.

The Foundation provides a *Patient Care Card* with emergency medical information included for those taking hydrocortisone. If you don't have this, please order one through our website shop or contact us. If this leaflet has helped you, please consider becoming a member of The Pituitary Foundation. Membership details can be found on our website **[www.pituitary.org.uk](http://www.pituitary.org.uk)** or by calling **0117 370 1333**

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