

Department of Diabetes and Endocrinology

INFORMATION FOR ENDOCRINE PATIENTS TAKING REPLACEMENT STEROID MEDICATION (GLUCOCORTICOIDS) – **STERIOD SICK DAY RULES**

IMPORTANT INFORMATION:

Your name:	
Your BRI Hospital or NHS number:	
Your date of birth:	
Date document completed:	
Your consultant endocrinologist:	
Endocrine specialist nurses: Reena Solomon, Emily Lomas & Aelfric Pillay	0117 342 6223 AdultEndocrineNurse@UHBW.nhs.uk
Your normal steroid medication:	

Background information

Cortisol is a hormone that is essential for life and wellbeing. It is produced in the adrenal glands. Your routine steroid replacement therapy is needed because you have underproduction of cortisol. In certain situations your normal steroid dosage needs to be temporarily increased and there is further information in this leaflet about the various situations in which you would need to increase your steroid medication or to use an emergency hydrocortisone injection.

What is adrenal insufficiency?

Adrenal insufficiency is when the adrenal glands are unable to make the hormone cortisol. The most common causes for adrenal insufficiency are:

- Addison's disease – an autoimmune condition where the body attacks itself and destroys the cells in the adrenal glands so they can no longer produce hormones, including cortisol.
- Pituitary or hypothalamic causes – tumours, certain cancer treatments (monoclonal antibodies), surgery or radiotherapy to the hypothalamus or pituitary gland stop the signalling hormones from being produced. This leads to the adrenal glands not being able to produce cortisol.
- Long term steroid medication – some conditions such as inflammatory bowel disease, rheumatology conditions or respiratory disorders are treated with long term steroid medication. There is a possibility if you take steroids for a long time that the cells in the adrenal glands which produce cortisol may stop working on their own as they become used to the steroid medication doing their job for them.
- Genetic conditions – some genetic conditions like CAH result in cortisol not being able to be produced.

What is the treatment for adrenal insufficiency?

The most commonly used steroid replacement medication for endocrine patients is hydrocortisone, but occasionally prednisolone is used - rarely other steroid medications such as dexamethasone are used.

Why are steroid sick day rules important?

- Cortisol follows a distinct daily pattern, the largest amount of cortisol is produced first thing in the morning, and then levels gradually drop during the day until they reach their lowest level around midnight.
- Cortisol is very important during times of stress. The stress can be physical (illness or injury), or it can be emotional (bereavement). During stress, larger amounts of cortisol are produced which allow the body to complete all the processes needed to cope with the stress such as fighting infection.
- In adrenal insufficiency you need to copy this natural cortisol increase for stress by doubling your normal steroid dose. Typically, the dose of steroids will only need to be increased for a couple of days if you have a short illness that is managed in the community.
- There are times when your body requires more additional steroid than simply doubling your dosage. During these times it is recommended that you have an emergency hydrocortisone injection (more information about this can be found in following sections).

General information about steroid replacement therapy

- You should never stop taking your steroid tablets.
- If you are unable to take your usual steroid tablets for any reason, such as vomiting or in readiness for surgery, you will need steroids via an alternative route such as by injection or intravenously.
- If you miss your steroid medication or do not take extra during times when your body is stressed, you are at risk of an adrenal crisis.
- For situations where you are unable to speak for yourself, such as an accident, it is advised that you wear some form of medical alert identification (i.e. bracelet, necklace) at all times and carry a steroid card. Some mobile phones even have medic alert apps for you to use. This way emergency responders know what condition you have and how best to treat you.
- Always carry your steroid card, emergency hydrocortisone injection kit and a few steroid tablets with you in case needed while away from home.
- When going abroad make sure you have extra hydrocortisone tablets in case you become ill. If travelling with an emergency hydrocortisone injection kit you will need a travel letter for customs outlining why you need to carry injectable medication.

What is an adrenal crisis?

This is a potentially life-threatening condition where your body is not getting enough steroids to continue working. This is a medical emergency and can be fatal if urgent medical assistance is not sought.

What are the signs and symptoms of an adrenal crisis?

These may include low blood pressure, feeling dizzy or light-headed, fever, shivering or feeling very cold, nausea and /or vomiting, feeling very weak, extreme tiredness, drowsiness or confusion, aching muscles and/or joints, stomach-ache or severe diarrhoea.

Managing steroid replacement doses at home

Type of illness	What action to take with your steroids	Any other action to take	What to do after
Temperature more than 37.5°C (99.5°F) or Infection (i.e. chest or urine infection)	Double usual Hydrocortisone dose for the duration of the fever (same applies if you take Dexamethasone or Cortisone Acetate). If you take Prednisolone, increase this to 10mg instead. If you take modified release Hydrocortisone (Plenadren) then switch to Hydrocortisone immediate release and take 20mg on waking/10mg at midday and 10mg at 5pm	Contact your GP if your illness worsens or lasts more than 3 days Seek urgent medical help if your temperature is 40°C (104°F) or above	When your temperature is back to normal, you can slowly reduce your steroid dose back to normal over 2-3 days
Vomiting or diarrhoea	Take an additional 20mg Hydrocortisone (or 5mg Prednisolone or 0.75mg Dexamethasone or 25mg Cortisone Acetate) immediately after vomiting or diarrhoea episode. Sip rehydration fluids if able If you have repeated vomiting or diarrhoea, administer emergency Hydrocortisone 100mg injection	Repeated vomiting or diarrhoea requires urgent medical help You should attend an Accident & Emergency Department or be seen by a GP at home If appropriate dial 999	If you required medical help, the doctor treating you should advise you on when to reduce your steroid dose back to normal
Severe illness or suspected adrenal crisis	Administer emergency Hydrocortisone 100mg injection	Seek urgent medical help and dial 999 for an ambulance	The hospital doctor treating you should advise you on when to reduce your steroid dose back to normal
Severe shock (i.e. bereavement or road traffic accident)	Take Hydrocortisone 20mg (Prednisolone 5mg) or administer emergency Hydrocortisone 100mg injection	No other action should be necessary	If you become unwell or think you are having an adrenal crisis, get urgent medical help
Injury (i.e. head injury, fractured bone, burns or deep cuts)	Administer emergency Hydrocortisone 100mg injection and seek urgent medical help	Dial 999 for an ambulance or attend an Accident & Emergency department depending on severity of injury	The hospital doctor treating you should advise you on when to reduce your steroid dose back to normal
Long haul flight (a flight more than 12 hours)	Increase in steroid dose required. Please contact the hospital team who manage your steroid medication for further advice prior to your flight		
Viral colds without fever or general	Usually no dose increase required		

stress such as exams etc.	
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Please note that if you take an additional medication called Fludrocortisone, this does not need to be increased during illness – simply continue your normal dosage.

SICK DAY RULES: Pregnancy, Surgery and Dental/ Medical procedures

- **Minor procedures** (i.e. tooth extraction) – Double normal oral dose for 24 hours. In patient on prednisolone, increase the dose of prednisolone to 10mg once a day. (Take 5mg of Prednisolone OR 20mg of Hydrocortisone one hour prior to the procedure).
- **Major Dental Surgery** - You may need 100mg of IM Hydrocortisone before major dental work anaesthesia – discuss in advance with your dentist. Take a double dose for 24 hours after any dental procedure, and then return to your normal dose.
- **Invasive Intestinal Procedures** Requiring Laxatives (e.g. colonoscopy/ any other procedures requiring bowel prep)
 - (A) Pre procedure: Double normal oral dose for 24 hours. In patient on prednisolone, increase the dose of prednisolone to 10mg once a day.
 - (B) Procedure: 100mg hydrocortisone im/iv immediately prior to procedure. **Also discuss with your surgeon/anaesthetist as you may need to be admitted a day before for IV/IM hydrocortisone with saline infusion.**
- **For any other major surgery/procedures** requiring a general anaesthesia will require parenteral steroid cover. Please discuss with your surgeon/ anaesthetist as we have guidelines on steroid management available for the clinician performing the procedure to use. They or you can contact the endocrine team to discuss for further details.
- **All pregnant** patients taking replacement steroid medication should be referred promptly in early pregnancy to a specialist endocrine antenatal clinic – locally, the BRI team support the St Michael's endocrine antenatal service.

Emergency hydrocortisone injection

- We always strongly recommend that anyone with adrenal insufficiency has the emergency Hydrocortisone 100mg injection along with needles and syringes for giving it. This injection is to be used at times when you are unable to take your normal steroid

medication such as vomiting or during times of injury (see table on page 4). You can give this injection to yourself or a family member can administer it but you/they will need to be taught how to do so.

- There are two forms of emergency Hydrocortisone injection, a premixed one (Hydrocortisone Sodium Phosphate 100mg) or a powder and water which must be mixed (Hydrocortisone Sodium Succinate 100mg). If you do not have one of these, or the one you have is out of date and you would like one to be arranged for you, either get in touch with your GP or the Endocrine Specialist Nurses.

Below are links to videos of how to use prepare and give the emergency Hydrocortisone injection:

- Hydrocortisone Sodium Phosphate (ready mixed ampoule)
https://www.youtube.com/watch?v=NDf6VD6z_w4
- Hydrocortisone Sodium Phosphate (powder and liquid)
<https://www.youtube.com/watch?v=eRGbVG3asso>

These Sick Day Rules are here to help you. If you're feeling off-colour, injured or ill, follow these rules to keep safe and reduce the chances of an adrenal crisis. Make sure that you keep taking your medication whatever is going on. An adrenal crisis is serious, uncomfortable and can be life-threatening.

Weaning Steroid doses

If you have increased your normal steroid dose for more than 4-5 days, then please slowly reduce your dose back to normal over a few days. Your GP, endocrinologist or endocrine nurse specialist can advise on this if you are unsure.

Example:

Steroid Preparations	Last day of full 'sick day rules' dose	Day 1 when well	Day 2 when well	Day 3 when well
Hydrocortisone	20mg waking 10mg Lunch 10mg Evening	20mg waking 10mg lunch 5mg evening	20mg waking 5 mg Lunch 5 mg evening	10mg waking 5mg Lunch 5 mg evening
Prednisolone	10mg waking	8 mg waking	6 mg waking	5 mg waking

Additional information

- **Carry a Steroid Emergency Card**
If you do not have this (see the pic below), then please do get in touch with the Endocrine nurses.
- Ensure you have a supply of oral Prednisolone or Hydrocortisone.
You will need to take this in addition to your normal steroid medication if you are unwell in accordance with sick day rules.
- A one-month reserve of steroid medication is recommended,
For example, Hydrocortisone 10mg tablets x 2 boxes of 28 tablets



RESOURCES:

Adrenal Insufficiency Leaflet <https://www.endocrinology.org/clinical-practice/patient-information/>

Adrenal Crisis Information <https://www.endocrinology.org/clinical-practice/clinical-guidance/adrenal-crisis/>

Covid Information <https://www.endocrinology.org/clinical-practice/covid-19-resources-for-managing-endocrine-conditions/>

Patients with pituitary disease advice are available from The Pituitary Foundation (<http://www.pituitary.org.uk>).

For medic alert info <http://www.amazon.co.uk/medicalert>
<https://www.medicalert.org.uk>