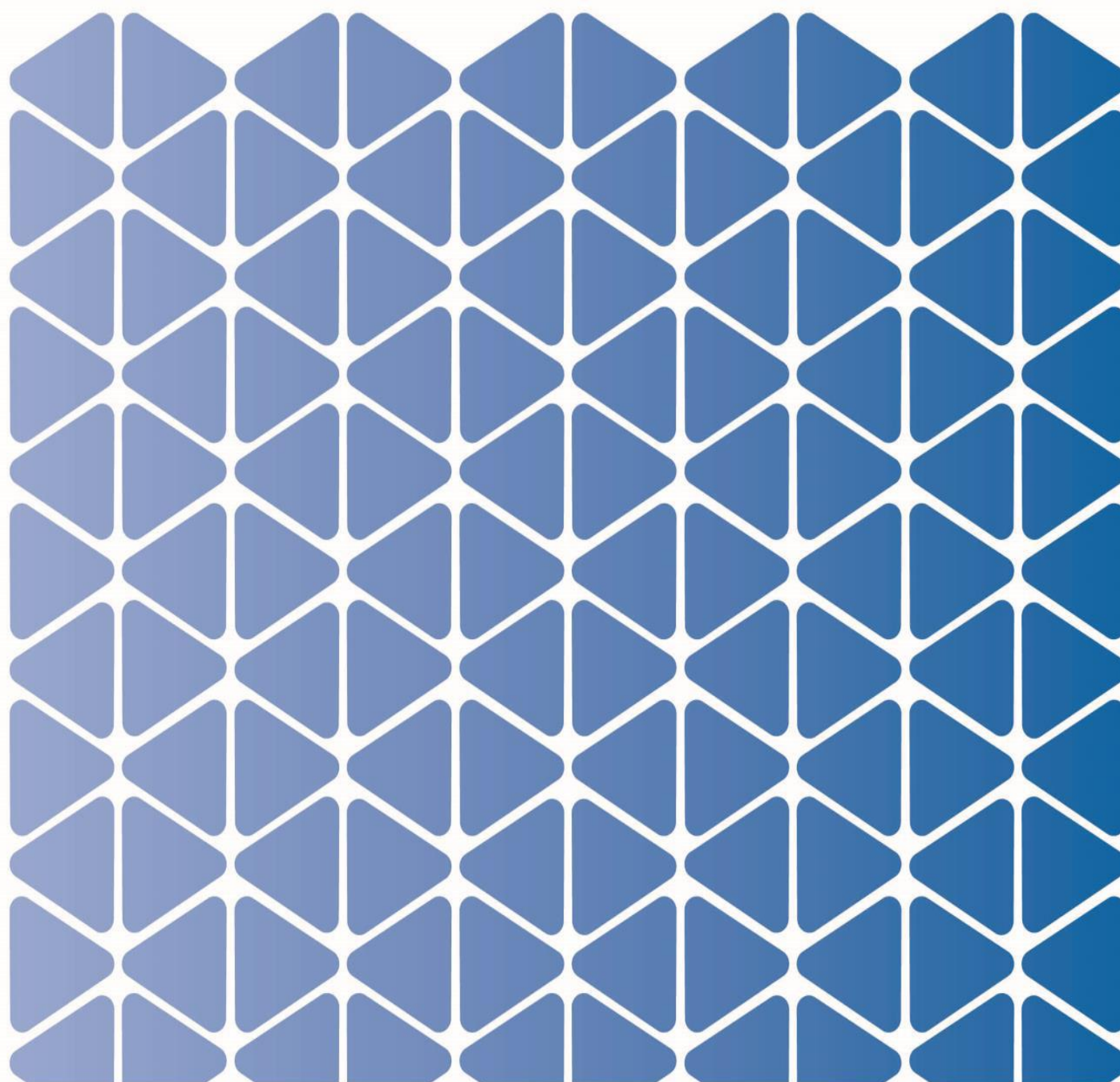


PATIENT INFORMATION

Adrenal Insufficiency Sick Day Rule Information

Information for patients on long-term steroid hormone replacement therapy
(e.g.: Hydrocortisone, prednisolone, dexamethasone).

OUTPATIENT INFORMATION



Adrenal Insufficiency and self-management. Sick Day Rule Information

**Information for patients undergoing long- and short-term steroid hormone replacement therapy and those diagnosed with primary, secondary, or tertiary adrenal insufficiency.
(e.g.: Hydrocortisone, prednisolone, dexamethasone).**

What Is Adrenal Insufficiency?

Adrenal insufficiency is a condition in which the adrenal glands do not produce enough cortisol, a vital hormone that helps regulate blood pressure, energy, immune response, and the body's ability to manage stress.

Normally, cortisol levels increase during illness, injury, or physical stress. If your body can't produce enough, you may become seriously unwell especially in times of stress or infection.

If adrenal insufficiency is permanent, daily medication is needed for life to replace missing hormones and prevent complications such as adrenal crisis.

Types of Adrenal Insufficiency

Type	Description	My adrenal insufficiency is diagnosed or suspected as: Tick below column.
Primary (Addison's disease)	Caused by damage to the adrenal glands. The body doesn't produce enough cortisol or aldosterone.	
Secondary	Caused by reduced production of ACTH (from the pituitary gland), which stimulates adrenal function.	
Tertiary	Caused by reduced CRH (from the hypothalamus), often due to long-term steroid treatment affecting hormone signalling.	

Patients with the following conditions should carry a Steroid Emergency Card (Red) and be familiar with sick day rules

- Adults with adrenal insufficiency and steroid dependence for whom illness, or surgery puts them at risk of adrenal crisis, such as those with Addison's disease, congenital adrenal hyperplasia, and hypothalamo-pituitary damage from tumours or surgery.
- People taking long-term or high-dose corticosteroids for other medical conditions may develop adrenal insufficiency due to suppression of the hypothalamic–pituitary–adrenal (HPA) axis and become steroid dependent.
- People taking oral prednisolone 5 mg or more (or equivalent oral glucocorticoid dose) for more than 4 weeks, and for 12 months after stopping.
- People with respiratory disease (such as asthma) on high-dose ICS receiving repeated courses of oral steroids (3 or more courses over the past 6 months).
- People receiving intra-articular or intramuscular glucocorticoid injections plus glucocorticoids administered via another route (for example, inhaled or oral).
- People taking CYP3A4 enzyme inhibitors (such as ritonavir, itraconazole, and ketoconazole) in combination with glucocorticoids (via any route, except small amounts of mild or moderate topical glucocorticoids, which should be assessed on a case-by-case basis).

Steroid Medicines for Adrenal Insufficiency

Steroid Treatment Plan:

Steroid therapy for adrenal insufficiency may follow one of two approaches depending on the patient's condition. Please tick the appropriate management plan below:

Please tick the appropriate management plan for this patient.

Long-Term Daily Regimen

or

Non-Daily Regimen for Acute Illness Only

Glucocorticoid Replacement: Daily Regimen

Steroids such as hydrocortisone, prednisolone, and dexamethasone replace cortisol in people with adrenal insufficiency. If the condition is permanent, daily lifelong treatment is required. Patients may be either on hydrocortisone tablets (10 mg in the morning, 5 mg at lunchtime, and 5 mg in the evening) or prednisolone (5 mg once daily in the morning), usually for adrenal insufficiency replacement. It is important to take your first dose of hydrocortisone on waking and your last dose before 5 pm, as later doses may interfere with sleep.

My daily steroid tablet is:

Hydrocortisone tablet. Doses
.....

Or

Prednisolone tablet: Dose / doses:
.....

Or

.....

Steroid Use During Acute Illness Only (Non-Daily Regimen)

For individuals with partial adrenal insufficiency, steroid tablets may be required only during periods of acute illness or stress, when the body’s demand for cortisol temporarily exceeds its limited production. This short-term supplementation helps prevent adrenal crisis and supports recovery. Once the illness resolves and adrenal function stabilises, daily steroid use is no longer necessary.

I need steroid tablet only during acute illness until my partial adrenal insufficiency is recovered.

My steroid tablet dose for acute illness:
.....

What Are Sick Day Rules?

Sick day rules help guide how to safely adjust your steroid medication if you become unwell.

When you're ill (e.g. fever, infection, or feeling generally unwell), your body would naturally produce more cortisol. Because your adrenal glands can't do this, you need to take stress steroid dose to mimic the natural stress response.

Only increase your steroid dose—no changes are needed to your other hormone medications.

This temporary increase is safe and essential and should continue until you feel better.

If you cannot take oral medication or you feel severely unwell, seek urgent medical advice or emergency care.

What Is Acute Adrenal Crisis? Also known as Addisonian crisis or acute adrenal insufficiency

An acute adrenal crisis is a **life-threatening emergency** that occurs when the body doesn’t have enough of the hormone **cortisol**, especially during illness, injury, or stress.

Cortisol helps control blood pressure, blood sugar, salt balance, and the body's response to stress. Without enough cortisol, the body cannot function properly and can quickly become seriously unwell.

Possible Symptoms

- Severe weakness or fatigue
- Vomiting and diarrhoea
- Low blood pressure or dizziness
- Abdominal pain
- Confusion or collapse
- Loss of consciousness
-

What to Do If an adrenal crisis is suspected:

- Administer **emergency hydrocortisone injection** (if available)
- Call **999 immediately or attend A&E** and clearly state:
“I am steroid-dependent and may be having an adrenal crisis.”

Sick-day dosing

Medication Adjustment Guidelines During Periods of Stress in Patients with Adrenal Insufficiency

During periods of physiological stress, individuals with adrenal insufficiency require increased glucocorticoid dosing to replicate the body's natural rise in cortisol. Psychological stress may also necessitate dosing modifications based on clinical judgement.

Definition of Stress in Adrenal Insufficiency (Sick-Day Management)

Physiological stress: Includes fever, intercurrent illness, trauma, invasive procedures, surgery, and pregnancy (including labour and pregnancy loss).

Psychological stress: Sudden, intense emotional events such as bereavement, major life changes events such as getting married or divorced, or academic pressure.

General Dose Adjustment Guidance

Mild illness (e.g. viral infection without fever): Stress dose of glucocorticoid dose for 2–3 days.

Moderate illness or fever $\geq 37.5^{\circ}\text{C}$: Stress dose of glucocorticoid dose; maintain until recovery.

Severe illness, trauma, or surgery: Immediate injection of hydrocortisone 100mg may be required.

Labour and delivery: Specialist-led dosing; typically, IV hydrocortisone during active labour.

Psychological stress: Dose increase not routinely required unless symptoms or functional impact warrant adjustment.

Stress Dosing Regimens for Patients on Prednisolone or Hydrocortisone tablet.

Daily doses of ≥ 10 mg prednisolone, ≥ 40 mg hydrocortisone, ≥ 1.5 mg dexamethasone, or ≥ 2 mg budesonide are considered sufficient and typically do not require adjustment under standard physiological conditions.

Steroid	Stress Dose	Duration	Replacement Dose (after recovery) for daily steroid dependent patients.	My steroid medication. Tick below column
Prednisolone	10 mg once daily	48 hours – 7 days or until recovered	5 mg once daily	
Hydrocortisone	20 mg AM, 10 mg midday, 10 mg evening.	48 hours – 7 days or until recovered	10 mg AM, 5 mg midday, 5 mg evening.	

Additional Advice

- Resume maintenance (replacement) dose once recovered.
- **If No Improvement Within 48 Hours:**
- Refer to GP or medical team to reassess steroid dose and underlying condition.
- Ensure emergency hydrocortisone injection is available, and carers know how to administer it.
- Seek prompt medical advice if vomiting, diarrhoea, or inability to take oral medication occurs.
- If the patient only uses steroids during acute illness, taper to alternate days for 4–7 days before discontinuing, based on clinical assessment.

Emergency Management

If the patient is severely unwell (e.g. collapse, giddiness, unable to take oral medication, unconscious, nil by mouth, vomiting or diarrhoea):

- Administer Hydrocortisone 100 mg IM immediately and contact GP or 999 or attend A&E.
- Monitor blood pressure, blood glucose, and U&Es
- Arrange hospital admission if adrenal crisis is suspected or high-risk symptoms are present.
- Initiate IV 0.9% normal saline and/or dextrose infusion as **clinically indicated**.

Emergency Hydrocortisone Injection Video – Please Watch Before and After Your Clinic Appointment

You can find helpful videos on emergency hydrocortisone injections from Liverpool University Hospitals on Google and YouTube. These resources demonstrate proper techniques, offer patient perspectives, and explain when and how to administer the injection during an adrenal crisis.

Here are the most relevant links:

1. <https://youtu.be/ixOqrGi-a4g>
2. <https://www.youtube.com/watch?v=oucbVQ0Whq8>
3. <https://www.youtube.com/watch?v=gDlawLaYYWc>

This is Sick Day Rule 1:

Sick Day Rule 1	Stress dose of steroids during:
	<p>A Period of illness with fever (temperature above 37.5°C)</p> <p>An illness requiring bed rest.</p> <p>Illness requiring treatment with antibiotics.</p> <p>Vomiting or diarrhoea but still able to tolerate diet and fluids.</p> <p>See your GP if you are still unwell after 48 hours.</p> <p>If your symptoms or condition worsen, or if you are concerned about anything, please call your GP, 111 or 999 and state you are steroid dependant patient and are unwell.</p>

- During periods of significant physiological stress, you can have stress dose of 40 mg oral hydrocortisone total daily doses in 2 to 4 divided doses (for example, hydrocortisone tablet 20 mg AM, 10mg at lunch and 10 mg at evening) or 10 mg of oral prednisolone daily in 1 to 2 divided doses until the acute illness or physical trauma has resolved.
- If you are taking a daily oral prednisolone dose of 10 mg or more that you do not need additional sick-day dosing, but you can split your total daily dose into 2 equal doses.
- **The acute illness dose (stress dose) is starting at the beginning of illness regardless of day or night.** For example, if you are taking hydrocortisone, start with a 20mg of hydrocortisone at the beginning of illness and then continue hydrocortisone tablet 20 mg AM, 10mg at lunch and 10 mg at evening. If you are taking Prednisolone, the stress dose is 10mg of prednisolone at the beginning of illness then 10 mg of prednisolone once daily in the morning during acute illness.
- Do not increase glucocorticoid dosing for a long duration. If the symptoms do not improve within 48 h, the patient's steroid dose needs to be reviewed by a GP/Doctor.
- If you vomit within 30 minutes of taking an oral dose, you can take the stress dose once vomiting subsides. If vomiting recurs within 30 minutes, give intramuscular hydrocortisone, and advise the person to attend the emergency department.
- If there is no improvement, contact the GP for an urgent review stating that you have adrenal insufficiency, are unwell, are taking stress doses of steroids, and do not feel well.

How much steroid medicine should I take once I feel better?

As soon as your illness is over and the symptoms are gone (for example, fever, vomiting, diarrhoea...etc.) you can usually return to taking your usual amount of medication. You should discuss this with your local doctor (GP).

What if I am so ill that I cannot take my steroid medication?

If you are too ill to take your oral steroid medication or you cannot keep them down (i.e. vomiting or severe persistent diarrhoea) you must take an **intramuscular injection of hydrocortisone 100mg**. You or someone who lives with you will need to learn how to give you this injection. If you don't have anyone who can give your injection you must contact your GP practice or ring 111 or attend A&E to advise them that you need your hydrocortisone injection.

What should I say to my GP, ambulance team and A&E doctors when I seek emergency help?

I have adrenal insufficiency, and I am on regular steroid tablets or at risk of adrenal insufficiency and taking steroids during acute illness. I am unwell and urgently need either 100 mg intramuscularly or intravenous hydrocortisone. (If you have already administered your intramuscular injection of hydrocortisone, inform GP / paramedics/ A&E Clinician). Please check my blood pressure, urea and electrolytes (U&E's), glucose and other relevant tests. I may need 0.9% sodium chloride / dextrose intravenous infusion. If I am not treated urgently, my life could be in danger.

The table below gives you simple advice on when to take intramuscular injection of hydrocortisone.

Sick day rule 2:

Sick Day Rule 2	Inject hydrocortisone 100mg intramuscularly during:
	<p>Period of severe illness. If you collapse, or experience giddiness/ light-headedness on standing, confusion, severe lethargy and unable to get out of bed due to severe illness.</p> <p>Loss of consciousness.</p> <p>Unable to take oral steroid medications e.g. during/ before the surgical procedures and investigation (you must inform the surgical / medical team you are a steroid dependant patient).</p> <p>If you are unable to absorb oral glucocorticoids, for example, during prolonged diarrhoea and vomiting. Give 100 mg intramuscular or intravenous hydrocortisone.</p> <p>If you require an injection of hydrocortisone, then you will need to be assessed by a healthcare practitioner, please call GP, 111 or 999 and state you are steroid dependant patient and are unwell.</p>

What to Do If You Cannot Administer Your Hydrocortisone Injection

If you are unwell and **unable to administer your emergency intramuscular hydrocortisone injection**, take the following steps immediately:

- **Seek urgent medical help** without delay.
- Contact:
 - **Your GP**, or
 - **NHS 111** for advice, or
 - **Call 999** or attend A&E if symptoms are severe or you're feeling extremely unwell.

- Clearly state: **“I am steroid-dependent and currently unwell. I need urgent medical attention.”**

Important Advice - Alert ID.

It is a good idea to purchase a ‘Medic Alert’ bracelet or necklace and carry a red steroid card at all times.

Holiday advice / Travelling local or abroad.

If you are planning a holiday or travelling overseas, it’s important to prepare for your health needs ahead of time:

Medication Supply

- Carry twice your usual supply of steroids to cover stress dosing in case of illness.
- Keep medication in your hand luggage, clearly labelled, with copies of prescriptions.

During Long-Haul Flights

- If your flight exceeds 12 hours, take stress dose on the day of travel to support your body through prolonged stress.

Emergency Preparedness

- Take a hydrocortisone injection kit for emergencies (e.g. adrenal crisis).
- Ensure travel companions know how and when to use the injection if you cannot self-administer.

Travel Documentation

- Obtain a travel letter from your doctor / nurse explaining the purpose of your medicines and injection kit.
- This can assist with customs and airport security checks and ensures faster access to care if needed abroad.

What to do if you are having a surgical procedure or investigation?

Daily doses of ≥ 10 mg prednisolone, ≥ 40 mg hydrocortisone, ≥ 1.5 mg dexamethasone, or ≥ 2 mg budesonide are considered sufficient and typically do not require adjustment under standard physiological conditions.

Surgical procedures and investigations	Steroid dose adjustments	How to seek help
Minor Procedure (e.g.: tooth extraction)	Stress dose of steroid tablet on the day of procedure, then if required administer 100mg injection hydrocortisone one dose,	Tell the dentist / anaesthetist/ GP/Surgeon/ medical

	<p>either intramuscularly (IM) by patient / relative or IM or intravenous (IV) by medical staff, 30 minutes prior to the procedure. Minor or routine extractions may not require injection Hydrocortisone, whereas complex or highly stressful procedures could necessitate injection hydrocortisone administration to prevent adrenal insufficiency. Clinical assessment and consultation with a dentist or clinician are recommended for individualised patient management.</p> <p>After that, resume normal steroid dose from next day if you are well but if you are unwell follow the sick day rules.</p>	<p>staff, that you take steroid tablets and have adrenal insufficiency</p>
<p>Small and major elective operations (e.g.: hernia repair, abdominal operations or chest operations... etc.) and you are admitting to the hospital on the day of surgery</p>	<p>Stress dose of your steroid tablet on the morning of the procedure. The hospital staff should administer Hydrocortisone injections according to the hospital guidelines and adjust the doses of your oral steroid post-operatively.</p> <p>Post-procedure: If you are tolerating diet and fluids well and is not experiencing vomiting, continue usual dose of steroid. If you are feeling unwell, continue stress dose of steroid until you are feeling better. If there is no improvement within 24–48 hours, consult a physician, GP, or hospital. Follow adrenal insufficiency sick day rule.</p>	<p>Tell the dentist / anaesthetist/ GP/Surgeon/ medical staff, that you take steroid tablets and have adrenal insufficiency</p>
<p>a) Endoscopy procedure. All endoscopic patients, regardless of whether sedation is required. Example: OGD, Colonoscopy, ERCP, Bronchoscopy, Cystoscopy and EUS</p>	<p>Administer a stress dose of your steroid tablet on the morning of the procedure. Then, medical staff will administer a 100 mg hydrocortisone injection 30 minutes prior to the procedure. If the procedure requires bowel preparation laxatives, start the stress dose of steroid on the day of the bowel preparation.</p> <p>Post- procedure: If you are tolerating diet and fluids well and is not experiencing vomiting, continue usual dose of steroid. If you are feeling unwell, continue stress dose of steroid until you are feeling better. If there is no improvement within 24–48 hours, consult a physician, GP, or hospital. Follow adrenal insufficiency sick day rule.</p>	<p>Tell the Surgeon / medical staff, that you take steroid tablets and have adrenal insufficiency</p>

<p>b) Bowel procedures requiring laxatives/enema for patients taking fludrocortisone or vasopressin dependent (diabetes insipidus) patients.</p>	<p>b)</p> <p>If you are taking fludrocortisone, you may need hospital admission for intravenous fluids and injection hydrocortisone when bowel preparation starts.</p> <p>Please inform the surgeon and medical staff that you are currently taking steroid medication. They need to review your requirement for intravenous fluids and injected glucocorticoid (hydrocortisone 50 mg IM or IV every 6 hours) during preparation, particularly in relation to fludrocortisone.</p> <p>For vasopressin dependent (diabetes insipidus) patients, contact endocrine consultant advise for IV fluid and give injected glucocorticoid (hydrocortisone 50 mg IM or IV 6 hourly) during preparation.</p>	
<p>Barium Enema</p>	<p>Stress dose of steroid on the day of procedure. Resume normal dose from next day if you are well but if you are unwell follow the sick day rules.</p>	<p>Tell the anaesthetist / GP/ Surgeon / medical staff, that you take steroids tablets and have adrenal insufficiency.</p>

If your symptoms or condition worsens, or if you are concerned about anything, please call your GP, 111, or 999.

Psychological stress

What to do if I have severe mental shock e.g.: bereavement or road traffic accident?

Sudden or severe shock may be classified as an emergency. If you are experiencing severe shock, administer one stress dose of steroid as soon as possible. Continue the stress dose only if required thereafter.

You don't need an increase your medication dose for general emotional stress, exams, a common cold or airline flights. Ask your GP if you are concerned.

Pregnancy

If you become pregnant, contact your Endocrinologist for advice regarding your steroid medication.

Antenatal care

- Tell your GP and pregnancy specialist as soon as possible.

- Increase glucocorticoid (and mineralocorticoid for primary adrenal insufficiency) replacement doses in the third trimester of pregnancy, if needed, depending on clinical symptoms, sodium levels and postural blood pressure.
- For fever, infection and physical trauma needing medical attention and short-term vomiting related to illness or early pregnancy:
- immediately take an additional 20 mg hydrocortisone dose and follow sick-day dosing.
- For pregnancy-related vomiting, take glucocorticoids when not feeling nauseated and to seek advice from your health care professional team if prolonged.

For hyperemesis gravidarum:

- Immediately inject 100 mg hydrocortisone intramuscularly and go to the emergency department or early pregnancy unit.
- Manage hyperemesis gravidarum in an inpatient setting.

Before major physical activity

Depending on the degree of physical activity, you might benefit from taking small dose of steroid before engaging activities such as long-distance running/ marathon, major sports events or competitive dancing. Contact your Endocrinologist for advice.

DVLA (Driver and vehicle licensing Agency) information

If you are diagnosed with Addison's disease and have a bus, coach or lorry licence, it's your legal obligation to inform the Driver and Vehicle Licensing Agency (DVLA).

What to do if I need training in how to give my hydrocortisone injection?

Ask your doctor to contact the Endocrine department or your department Specialist Nurse to arrange to train you.

What to do when the hydrocortisone injection stock is finished or has expired?

Your GP will be able to provide repeat prescription for injection hydrocortisone and water for injection. They may also supply the 2ml syringes and 23 G intramuscular needles from their stock. Contact your specialist nurse if your GP is not able to supply the equipment for your hydrocortisone injection. You can get these items from the pituitary Foundation www.pituitary.org.uk.

For any **queries and advice between Monday to Friday 8.30am – 2.30 pm** (except Bank Holidays) please contact your Hospital Endocrine Consultants or Specialist Nurse through their Secretary phone no:

Worcestershire and Kidderminster Hospital Endocrine consultant's secretary phone number: 01905 760671 / 01905 733039

Email: wah-tr.diabetesadvicewrh@nhs.net

Redditch Alexandra Hospital Endocrine consultants secretary phone number:

01527 503890

Email: wah-tr.diabetesadvicealx@nhs.net

Endocrine Specialist Nurse at Worcester Acute Hospitals NHS Trust.

Phone: 07563373193

Email: wah-tr.endocrinespecialistnurses@nhs.net

Please Note, these phone numbers and email addresses are not for emergency management or emergency contact.

Some useful websites are below:

UK Addison's Disease Self Help Group

www.adshg.org.uk

The pituitary Foundation

www.pituitary.org.uk

Medic Alert

www.medicalert.org.uk

Freephone: 0800581420

Patient Experience

We know that being admitted to hospital can be a difficult and unsettling time for you and your loved ones. If you have any questions or concerns, please do speak with a member of staff on the ward or in the relevant department who will do their best to answer your questions and reassure you.

Feedback

Feedback is really important and useful to us – it can tell us where we are working well and where improvements can be made. There are lots of ways you can share your experience with us including completing our Friends and Family Test – cards are available and can be posted on all wards, departments and clinics at our hospitals. We value your comments and feedback and thank you for taking the time to share this with us.

Patient Advice and Liaison Service (PALS)

If you have any concerns or questions about your care, we advise you to talk with the nurse in charge or the department manager in the first instance as they are best placed to answer any questions or resolve concerns quickly. If the relevant member of staff is unable to help resolve your concern, you can contact the PALS Team. We offer informal help, advice or support about any aspect of hospital services & experiences.

Our PALS team will liaise with the various departments in our hospitals on your behalf, if you feel unable to do so, to resolve your problems and where appropriate refer to outside help.

If you are still unhappy you can contact the Complaints Department, who can investigate your concerns. You can make a complaint orally, electronically or in writing and we can advise and guide you through the complaints procedure.

How to contact PALS:

Telephone Patient Services: 0300 123 1732 or via email at: wah-tr.PALS@nhs.net

Opening times:

The PALS telephone lines are open Monday to Thursday from 8.30am to 4.30pm and Friday: 8.30am to 4.00pm. Please be aware that a voicemail service is in use at busy times, but messages will be returned as quickly as possible.

If you are unable to understand this leaflet, please communicate with a member of staff.