

Cortisol Deficiency

What is cortisol deficiency?

Cortisol is a hormone made by the adrenal glands. Cortisol is necessary for daily bodily functions in the immune system, for metabolism, and helping control blood sugar. When the body doesn't make enough cortisol, it must be replaced with a medication called hydrocortisone. The pituitary gland in the brain also makes its own hormones which help regulate the adrenal glands.

How does it happen

Cortisol Deficiency can happen a few different ways. If the pituitary is damaged from a tumor, brain injury, or inherited malformation, this can harm adrenal function.

It can also happen along with several disorders including:

- Congenital adrenal hyperplasia (CAH)
- Malformations of the adrenal glands
- Addison's disease (also known as autoimmune adrenalitis)
- Pituitary gland malfunction

Treatment

Children with cortisol deficiency cannot make the extra cortisol that the body needs and your child may need extra hydrocortisone to recover from stressful events. The extra hydrocortisone can usually be given by increasing the dose of hydrocortisone that your child takes on a regular basis.

If your child is also on fludrocortisone (Florinef®), this doesn't need to be increased during most types of stress. You should continue with the same dose unless your doctor tells you otherwise.

Your child's maintenance dose of oral hydrocortisone (Cortef®) is: _____

Stress doses

For illness or "stress": If your child has any of these symptoms, you need to increase the dose of hydrocortisone:

- A fever over 100.4°F
- Throwing up
- Loose, runny poop
- Other sudden illness
- Moderate trauma (such as a single broken bone without breaking the skin)

This is called a "stress dose".

Your child's "stress dose" of oral hydrocortisone (Cortef®) is: _____

If your child throws up within 30 minutes of taking oral hydrocortisone, wait 20-30 minutes to see if their upset stomach gets better, then try to repeat the oral dose. If they don't keep down the oral dose, then give Solu-Cortef injection. Don't wait until they look pale or are lethargic.

Continue with this dose until 24 hours after the last fever and symptoms have gotten better, or if your doctor tells you to stop. If you're not sure when or how to adjust the dose, call the endocrinology clinic for instructions.

Injections

In some cases, children with cortisol deficiency are too sick to take medicines by mouth and must have hydrocortisone by an injection.

Notes

- Be sure to have unexpired hydrocortisone sodium succinate (Solu-Cortef®) readily available.
- Be familiar with the injection method before you need to use it, and review the procedure occasionally.
- Be sure caregivers are familiar with your child's condition and know what to do in an emergency.
- Your child's teacher should also be aware of their diagnosis and know what to do in an emergency.
- The amount for the injection will be based on your child's size. Check with their doctor for recommendations.
- The first time you get this medication, your insurance may need a Prior Authorization. We can help you with that process.

How to give an injection

For MAJOR illness or stress when your child can't tolerate the oral dose of hydrocortisone:

- Severe dehydration,
- Illnesses with non-stop throwing up or loose, runny poop
- Accidents with multiple broken bones
- internal injuries or unconsciousness

What to do:

1. Don't panic.
2. Press down on the plastic top of the Solu-Cortef® Mix-O-Vial (100mg/2ml or 250mg/2mL) to force the liquid onto the powder section.
3. Mix gently by shaking or rolling until the powder is completely dissolved, about 30 seconds.
4. Screw the needle onto the syringe if they came in separate packages.
5. Clean the rubber top of the vial with an alcohol wipe
6. Stick the needle through the rubber top and turn the bottle upside down (with the needle still in it). Draw up _____ ml (or _____ mg) into the syringe. This is your child's dose.
7. Push out any air bubbles from the syringe making sure the dose is still correct.
8. Clean the skin with a new alcohol wipe and inject into a muscular part of the body such as the thigh, buttocks, or upper arm.
9. **Take your child to be seen by a doctor.**

Emergency Phone Numbers:

Anschutz Campus

- Nearest Emergency Room: _____
- Emergency Room: 720-777-6888
- Main Line: 720-777-1234

childrenscolorado.org

Author: Endocrinology | Approved by Patient Education Committee | Valid through 2025

The information presented is intended for educational purposes only. It is not intended to take the place of your personal doctor's advice and is not intended to diagnose, treat, cure or prevent any disease. The information should not be used in place of a visit, call or consultation or advice of your doctor or other health care provider.

IN CARE OF KIDS

- Endocrinology Clinic: 720-777-6128
 - Monday to Friday 8am-5pm. Press option 6 for urgent assistance.
 - After hours, weekends or holidays the message center will answer and have the on-call doctor paged.
 - To talk to a nurse about non-urgent concerns press option 3 to leave a message during business hours. Nurses return calls throughout the day.

Briargate

- Nearest Emergency Room: _____
- Emergency Room: 719-305-7075
- Main Line: 719-305-1234
- Endocrinology Clinic: 719-305-9400
 - Monday to Friday 8am-5pm.
 - After hours, weekends or holidays the message center will answer and have the on-call doctor paged.
 - To talk to a nurse about non-urgent concerns press option 3 to leave a message during business hours. Nurses return calls throughout the day.

Pediatrician or Family Doctor: _____

Surgery

If your child is scheduled for any surgeries, including dental surgery, please have the surgeon, dentist, or anesthesiologist call us the week before the procedure at 720-777-6128 for advice about the hydrocortisone dose.

Notes

Your child should always wear an identification bracelet or necklace with the words "CORTISOL DEFICIENCY" or "ADRENAL INSUFFICIENCY". This lets medical personnel know your child needs extra cortisol during stresses such as accidents or sudden illnesses. You may not be immediately available, or you may not be able to speak for your child during these events. A wallet ID isn't good enough since the ID can be lost during an emergency. The endocrine clinic can give you information on how to get a medic-alert bracelet.