

DEFINE AND TREAT *do not wait for a laboratory glucose*

THE LEVELS

Level 1 — < 70 mg/dL (3.9 mmol/L): an alert value. Treat and **review the regimen**. **Level 2** — < 54 mg/dL (3.0 mmol/L): clinically significant. **Level 3** — **severe**: any level with **altered mental status requiring assistance** — a patient-safety event.

CONSCIOUS AND SWALLOWING

15–20 g fast-acting oral carbohydrate — glucose tablets, juice, or gel. **Recheck in 15 minutes and repeat if still low**. Once above target, give a **complex carbohydrate snack or the next meal**, or it will simply fall again.

UNCONSCIOUS OR NPO

Intravenous dextrose, then recheck. **Glucagon only if there is no IV access**. Doses below.

THE DOSES *because “give dextrose” is not an order*

IV DEXTROSE

D50W 25 g (50 mL) IV push through a good vein, or **D10W 100-250 mL**, which is gentler on the vein and causes less rebound hyperglycemia. **Recheck at 15 min**. Follow with a complex carbohydrate or a **D10 infusion** if the cause is still acting.

GLUCAGON, ONLY WITHOUT ACCESS

1 mg IM or SC, or 3 mg intranasal. It mobilizes **glycogen, so it fails where there is none**: liver disease, malnutrition, alcohol. Often causes vomiting. **Get access and give dextrose**.

OCTREOTIDE FOR SULFONYLUREA

50-100 mcg SC every 6 to 8 h. It suppresses the insulin release that dextrose keeps re-triggering, which is why repeat glucose boluses fail here. **Admit; do not discharge after one correction**.

FIND THE CAUSE *in hospital it is nearly always iatrogenic or situational*

Cause	Detail
The feed or meal stopped	The single commonest inpatient cause. Enteral feed interrupted for a procedure, vomiting, nil-by-mouth orders, or a missed meal — while the insulin continued. Any interruption to nutrition must trigger an immediate insulin review .
Insulin or sulfonylurea	Wrong dose, wrong timing, duplicated prescriptions, or a correction scale stacked on top of basal-bolus. Sulfonylureas cause prolonged, recurrent hypoglycemia and are a common culprit in the elderly.
Improving renal function	Insulin and sulfonylureas are renally cleared . As an acute kidney injury recovers, clearance rises and the previously appropriate dose becomes an overdose. Frequently missed.
Steroid taper	Glucose falls as steroids are reduced or stopped, but the insulin regimen built around the steroid stays in place. Reduce insulin as the steroid comes down .
Illness itself	Sepsis, liver failure, adrenal insufficiency, alcohol, malnutrition and cachexia . New unexplained hypoglycemia in a non-diabetic patient should prompt thought of adrenal insufficiency and of occult sepsis.

TWO SITUATIONS THAT NEED MORE THAN DEXTROSE *where a single correction is not enough*

SULFONYLUREA-INDUCED

Do not discharge after a single correction. The effect is long, and **rebound hypoglycemia recurs for many hours to days**, particularly with long-acting agents and renal impairment. **Admit for observation and repeated glucose monitoring**, and consider **octreotide**, which suppresses the insulin secretion driving it and reduces the need for repeated dextrose boluses. Beware overdose and deliberate self-harm.

HYPOLYCEMIA WITHOUT DIABETES

If there is no obvious cause, **the diagnostic samples must be taken during the hypoglycemia**, before treating — take them as you give the dextrose. Send **glucose, insulin, C-peptide, proinsulin, beta-hydroxybutyrate, and a sulfonylurea screen**, plus **cortisol**. **High insulin with high C-peptide** suggests insulinoma or a sulfonylurea; **high insulin with low C-peptide** indicates exogenous insulin administration. Missing that window means repeating the whole episode.

PREVENT THE NEXT ONE *this is a systems problem more than a clinical one*

Action	Detail
Review insulin daily	Against the actual glucose readings , not yesterday's orders. Adjust proactively rather than only reacting to a low.
Link nutrition to insulin	Make it explicit that a stopped feed or a nil-by-mouth order requires an insulin review the same hour . Hold prandial doses if the patient does not eat, and time rapid-acting insulin with or just after the meal in unreliable eaters.
Individualize the target	Relax targets in the frail, elderly, those with hypoglycemia unawareness, advanced renal or liver disease, and limited life expectancy. Tight control on the wards causes harm without benefit .
Treat it as an incident	A level 3 event should trigger a documented review of the regimen and, where relevant, an incident report. Recurrent hypoglycemia in the same patient is a prescribing failure, not bad luck.
Plan the discharge	Reassess the home regimen — the admission often reveals it was already too aggressive. Check the patient can recognize and self-treat , and address driving advice and hypoglycemia unawareness.

HYPOLYCEMIA UNAWARENESS *the patients who stop feeling it*

WHY IT HAPPENS

Repeated hypoglycemia blunts the counter-regulatory and adrenergic warning response, so the patient loses the tremor, sweating and palpitations that would normally prompt them to eat. The first sign then becomes **confusion or collapse**. Commonest in **long-standing type 1 diabetes, tight control, autonomic neuropathy**, and in those on **beta-blockers**, which mask the adrenergic symptoms.

WHAT TO DO

Deliberately relax targets and scrupulously avoid further hypoglycemia for several weeks — awareness often recovers. Consider **continuous glucose monitoring with alarms**, structured education, and involvement of the diabetes team. **Ask about it directly**: "Do you still get warning symptoms before your sugar drops?" It changes the target, the regimen and the driving advice.

PEARLS & PITFALLS

- Take the **diagnostic labs before you give the dextrose** in unexplained hypoglycemia — the window closes the moment you treat.
 - Sulfonylurea hypoglycemia recurs**. One correction and discharge is a recognized cause of death; admit and consider octreotide.
- Always follow the sugar with food**. Fast-acting carbohydrate alone will be followed by another fall.
 - Recovering renal function unmasks insulin overdose**. Reduce the dose as the creatinine improves.
 - An interrupted feed is an insulin emergency**. This single link prevents a large share of inpatient hypoglycemia.