

Backup Power for Medical Equipment & Caregiving

For any household where a power outage isn't just an inconvenience, it's a medical risk. This is the hands-on side of the Access & Functional Needs chapter and its addendum.

Most people in this exact situation aren't ready for it

In one survey of durable medical equipment users, only about 25% had any alternative power source for equipment like CPAP machines, oxygen concentrators, or power wheelchairs. If that's a gap in your household, the steps below are worth doing this week, not eventually.

Know what you're actually powering

Device	Typical power draw
CPAP machine	30–60 watts
Oxygen concentrator	300–600 watts or more
Power wheelchair or scooter (charging)	200–500 watts, 6–8 hours to fully charge

A CPAP is realistic to run off a mid-size portable power station for a full night. Be honest with yourself about an oxygen concentrator, though: a stationary concentrator running continuously draws roughly 7,000-8,400 Wh a day, and even the largest single portable power stations on the market top out around 4,000-5,000 Wh, less than half a day's worth. A big power station buys real time, but it isn't a way to run a stationary concentrator indefinitely off battery power alone; the backup oxygen cylinders and portable oxygen system below are what actually cover a multi-day outage, not a bigger battery.

Home dialysis is a different scale of problem

A home dialysis system doesn't have a generic wattage figure the way a CPAP does; the real number depends on your exact machine plus whatever heater, water system, and dialysate equipment run alongside it, and treatment schedules are often fixed by clinical necessity (some peritoneal dialysis cyclers run unsupervised overnight). Confirm the full backup-power requirement with your dialysis provider directly rather than estimating from a device label, and enroll in your utility's priority restoration program specifically as a dialysis patient; most utilities treat this the same as oxygen and other life-sustaining equipment.

Build the backup plan

1. **Call your equipment supplier** if you rent or lease your device. Some home health equipment providers offer emergency battery backup support directly; it's a five-minute call to find out.
2. **Size a portable power station to your device's actual wattage**, not a guess. The math: a power station's capacity is rated in watt-hours (Wh); divide that number by your device's watts, then multiply by roughly 0.85 to 0.90 to account for real-world inverter loss, to get an honest estimate of runtime in hours. A CPAP without a heated humidifier typically needs 300-500 Wh for a full night; add a heated humidifier or heated tubing and that climbs to 700-1,000 Wh. If your power station has a DC output that matches your CPAP's power brick, use that instead of the AC outlet: it skips a second DC-to-AC-to-DC conversion step and loses less power to inefficiency along the way. Check the device's rated draw (usually on a label or in its manual) against the power station's rated capacity before buying, and see [Sizing a Solar Array & Battery System](#) for the same math applied to a larger whole-house setup.
3. **Enroll in your utility's medical baseline or priority restoration program** if one exists in your area. Many utilities maintain a list of customers with life-sustaining equipment and prioritize them for restoration after an outage; it costs nothing to sign up and does nothing for you if you never do.
4. **Ask about backup oxygen cylinders or a portable oxygen system** with your medical provider if you rely on an oxygen concentrator, so a dead battery isn't your only fallback.

Where to find it: portable power stations are sold at electronics and outdoor retailers in a wide range of capacities; medical baseline and priority restoration programs are run by your electric utility directly, check their website or call customer service to ask what they offer.

Keep refrigerated medication like insulin in its safe range

Power loss doesn't just threaten devices; it threatens medication that has to stay cold. Unopened insulin needs to be stored between about 36–46°F, and **freezing destroys it just as surely as overheating does**, so

packing it directly against ice is its own mistake.

- **Use a cooler with ice packs, not loose ice**, and keep the insulin in a sealed bag or container so it never touches ice directly. This keeps most insulin viable for roughly 24 to 48 hours, long enough to bridge a typical outage or get to a pharmacy.
- **Know your specific insulin's rules.** Most insulin, once in use (opened), is actually fine unrefrigerated at room temperature for about a month, check the specific product insert, so a short outage may not be the emergency it first feels like; it's unopened, backup insulin that needs the cold chain protected.
- **A dedicated battery-powered medical cooler or a small 12V mini fridge** is worth it for a household that depends on refrigerated medication regularly, rather than relying on a cooler and ice restock for every outage.
- **If you're ever unsure whether a dose was compromised**, insulin that's been frozen, overheated above about 86°F, or looks cloudy when it shouldn't or has clumps or discoloration, don't use it; call your pharmacist or provider before your next dose.

Where to find it: insulated medication travel cases and cooling packs are sold at pharmacies and online; battery-powered medical coolers designed specifically for insulin are sold by medical supply retailers and typically run for 24+ hours on a charge.

Formalize a backup caregiver

A plan that only lives in one person's head is a single point of failure. If someone in your household depends on another person for care, medication management, or help with equipment, name a specific backup caregiver, in writing, and have them actually learn the routine hands-on rather than just agreeing to help in theory. The addendum's own Stage 2 goal is exactly this: sitting down together so the backup caregiver learns the specific care routine directly, not just knows it exists.

Write your own plan, in one sentence

Only about 25% of people in this exact situation have any alternative power source in place. Finish this sentence with your own real plan:

"By this Friday, I will call my CPAP supplier and ask what backup power option they actually offer."

Know someone this guide would actually help? Being the person who's ready includes being the person who says something.

[Send them this page ›](#)

Sources

- Device power draw figures and backup power sizing: DontGoGrid
- Preparedness gap among durable medical equipment users, and utility/provider backup planning guidance: Domestic Preparedness; ADA National Network
- Insulin storage temperature range, cold-chain guidance during power outages, and in-use stability at room temperature: CDC; American Diabetes Association
- Home dialysis backup power planning and utility priority-service enrollment: American Association of Kidney Patients; Home Dialysis Central
- Watt-hour runtime formula, inverter efficiency, and CPAP/oxygen concentrator battery sizing figures: GeneratorChecker; GeneratorChecker