Health Center Power Outage Preparedness and Response

For Administrators

This document provides recommendations for policies and procedures in the event of a power outage that can be included in a facility's emergency plan or in a standalone power outage plan. These plans can help ensure the safety of staff and patients in the event of a power outage. Improving clinic resilience may have the added benefit of improving clinic sustainability and cost-savings.

Power outage preparedness

1. Develop policies and procedures for a) periods of time when a power outage occurs, and clinic operations can rely on backup power and b) situations when backup power is unavailable or fails.
    a. Responses to power failures may include closing the facility, limiting services, communicating operational changes to staff and patients, and assisting high risk patients out of the facility.
2. Have an inventory of what equipment is and is not powered when using a generator or battery.
    a. Have equipment clearly marked, including power outlets.
    b. Update inventory when new equipment is purchased, or facility electrical upgrades occur.
3. Explore partnerships with local hospitals for short-term refrigeration of vaccines and medications in case of power outage.
4. Implement policies to reduce energy demand during normal operations, which translates into less backup energy needs during outages:
    a. Install a smart thermostat.
    b. Install motion sensor lights.
    c. Use LED bulbs throughout the facility (LEDs use less electricity and produce less heat).
    d. Install more efficient insulation and weatherization (may be subsidized by your utility provider).
    e. Conduct an energy audit to identify other opportunities for energy savings.
5. Develop a purchasing schedule policy to procure energy efficient equipment to limit the strain on generators during power outages.
6. Understand the capability of your backup generators, including the anticipated length of time they can run with various electrical loads with the current amount of fuel.
    a. Create an easily understood comparison chart of electrical load to length of time the generator can function, with examples of equipment, to improve duration of backup power.
7. Identify staff members to oversee the implementation of each of these policies and ensure they are followed through.

Partnerships and vendors

Contacting partners

Establish relationships with power related companies, such as electrical utility companies, generator service companies, electricians, and others. Plan for at least annual communication with these companies to check on the status of any verbal or written agreements, especially those that pertain to power outages. All formal business relationships such as with vendors should have written agreements. Create agreements with partners to receive emergency maintenance in case alternative power sources fail during an extreme heat event.

1. **Utility Companies:** Contact your power company to identify if your clinic is listed as a priority location during a power outage. Priority locations may receive preferential access to electricity during system outages or have electricity restored earlier. Utility companies may have a “Critical Infrastructure and Key Resources” (CIKR) list that identifies priority locations.
    a. Also inquire as to whether notice can be given in advance of planned outages and provide them with point of contact information for your clinic.
2. **Electricians & Contractors:** Establish a relationship with an electrical or contractor company to have the facility generator regularly inspected and maintained to prevent deterioration.
3. **Rental Companies:** Work with rental companies and develop partnerships to ensure the clinic can obtain extra generators and equipment in case the generator fails to operate during an extreme heat event.
4. **Community Organizations or Businesses:** Work with local businesses, organizations, or health centers to identify back-up cold chain options in case supply gets too warm.
5. **Staff members:** Identify who will oversee the implementation of each of these policies and ensure they are followed through.

Emergency power sources

Emergency power options

1. Work with an electrician to receive an evaluation of the possibility of installing generators or backup batteries and prices for the installation. An evaluation may be able to identify the right size of generators or batteries needed to run a portion of the facility or the entire facility, along with the price of labor required to complete the installation.
2. Generators
    a. Gas/Diesel generators are the most affordable backup power source available. These can range from portable generators to industrial generators which can be installed into the ground and configured to turn on when the power grid fails.
        i. Benefits: These are generally less expensive up-front and may be more reliable for large facilities.
        i. Drawbacks: Requires purchase and storage of combustible fuels, requires regular maintenance and refueling during extended power outages, and contributes to local air pollution.

b. Solar power systems are more expensive but more environmentally friendly, do not contribute to local air pollution, and can be more cost effective in the longer term. These can also range from small portable systems to larger stationary systems with panels and energy storage.

   i. Benefits: These do not rely on fuel sources during prolonged power outages, and they do not contribute to local air pollution. These can often be used during non-emergency times to reduce energy costs.
   i. Drawbacks: More expensive up-front than fuel generators. Powering a full facility may require more space for solar panels than is available on a facility's roof.

3. Battery Storage

   a. Battery storage is necessary for solar power systems to be practical during power outages. Backup batteries can also be used without solar by charging batteries from grid power, however, during outages, recharging these systems will be unlikely until grid power is restored. While battery storage can be expensive up-front, the size and carrying capacity of battery systems is increasing while manufacturing costs have been decreasing over time. While solar power systems and battery storage are more expensive than fuel generators, they can often qualify for local or federal rebates and be connected to the grid allowing for energy cost savings during non-emergency times.

      i. Benefits: Quieter than a generator. Can be stationary or portable, does not rely on purchasing fuel, and does not emit pollutants.
      i. Drawbacks: Significant expense up front, especially to power a full facility.

4. Hybrid Systems

   a. A hybrid solar, battery, and fuel generator system may be a cost-effective way to ensure power to essential equipment.

Procurement

1. Identify a purchasing schedule to buy gas/diesel generators (or replace old ones as they become outdated or inefficient), back up battery storage, and sustainable energy such as solar.

   a. Create policies to set aside funds in a reasonable period for each large purchase over time.

   b. Consider guidelines for generator specifics (such as energy output, size, weight, and other factors that could be critical to effectively powering your clinic).

2. Create policies for generator placement to encompass safety, such as away from windows, doors, air-conditioning units, or any air intake for the facility to prevent carbon monoxide and other pollution from getting into the facility if it is a gas or diesel generator.

3. Create policies for generator placement to ensure the generator is easily accessible for maintenance but also remains cool, receives adequate airflow during days of extreme heat, and minimizes air pollution near patient and staff areas.

4. Identify staff members to oversee the implementation of each of these policies and ensure they are followed through.

Upkeep

1. Schedule annual maintenance and inspections for the clinic's emergency power sources.
    a. Maintenance and upkeep are critical to ensuring equipment will turn on and run properly when needed.
    b. Schedule maintenance during the off-season to save on costs.
2. Schedule a regular cycle to ensure the clinic's generator is running properly and continues operating.
    a. It is optimal to run a generator monthly for at least 30 minutes to keep it functioning smoothly.
3. Identify staff members to oversee the implementation of each of these policies and ensure they are followed through.

Refueling

1. Create a refueling schedule to ensure the generator(s) is ready to operate when least expected.
2. Identify personnel and/or vendors with the task of refueling the generator(s) and establishing a schedule to refuel during emergency operations.
3. Fuel Sources: Establish an agreement with suppliers to ensure fuel can be delivered or picked up during emergency operations or so fuel supplies can be held for your clinic's needs.
4. Identify staff members to oversee the implementation of each of these policies and ensure they are followed through.

During a power outage

1. Implement policies to reduce energy demand, especially while on back-up power.
    a. Set thermostats to 76°F.
    b. Install motion sensor lights.
    c. Use LED bulbs throughout facility (use less electricity and produce less heat).
    d. Turn off and unplug all computers and monitors that are not in use.
    e. Unplug appliances such as microwaves and coffeemakers.

Notes: