

MODULE 6 – Vaccine Management



<http://www2a.cdc.gov/vaccines/ed/shtoolkit/>

Overview

Throughout this module, CDC’s Vaccine Storage and Handling Toolkit is referenced frequently. This toolkit will always be the most current source of information regarding vaccine storage and handling and should be the primary resource for vaccine storage and handling questions. Readers are urged to bookmark the website provided above for easy access when questions arise.

This module consolidates and standardizes information on all elements of vaccine management to help immunization grantees and their VFC providers improve the quality of their vaccine management from receipt to administration. It specifies the responsibilities at the various levels of vaccine management and provides general guidelines for effective vaccine management and correct vaccine storage and handling.

The module describes the required policies of the VFC program, which are based on guidance from CDC’s *Vaccine Storage and Handling Toolkit* (referenced above) and other relevant resource materials developed for proper vaccine management. Specific topics covered are:

- Vaccine Distribution
- Elements of Vaccine Management
- Grantee Vaccine Management Requirements
- Provider Vaccine Management Requirements
- Provider Vaccine Management Recommendations
- Project Points of Contact (PPOC) Users Guide

Specific recommendations for vaccine storage and handling procedures may vary among grantee immunization programs. This module outlines the minimum vaccine management requirements for the VFC program and includes recommendations for improving vaccine management practices. These recommendations may be implemented at the grantees’ discretion. Grantees may add additional vaccine management requirements to their provider enrollment requirements; however, the process to add additional requirements described in Module 3 must be followed.

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Vaccine Distribution

All vaccines purchased off the federal contract, with the exception of those that must be shipped frozen, are managed by CDC and distributed to end users through a third-party distributor (currently McKesson Specialty). Vaccines that must be kept frozen are shipped directly from the manufacturer to the end user in order to ensure maintenance of the cold chain.

Elements of Vaccine Management

The management of publicly purchased vaccine is one of the most important activities for which immunization grantees have oversight responsibility. Vaccines must be maintained properly to protect their viability prior to administration. Adhering to proper storage and handling procedures will minimize vaccine loss and wastage. The following paragraphs describe the key elements of vaccine management for immunization programs. Grantees are advised to consult the following resources for detailed information related to vaccine storage and handling:

CDC's Vaccine Storage and Handling Toolkit

(<http://www2a.cdc.gov/vaccines/ed/shtoolkit/>)

CDC's recommendations and guidelines for vaccine storage and handling

(<http://www.cdc.gov/vaccines/recs/storage/default.htm>)

Project Points of Contact (PPOC) Users Guide

(<http://www.cdc.gov/vaccines/programs/vmbip/agm-documents-ppoc.htm>)

The Cold Chain

Primary resource:

CDC's Vaccine Storage and Handling Toolkit

(<http://www2a.cdc.gov/vaccines/ed/shtoolkit/>)

Storage and handling that compromise vaccine viability can be costly in money and time. Vaccines must be stored properly from the time they are manufactured until the time they are administered. Excess heat or cold will reduce their potency and increase the risk that recipients will not be protected. The system used to maintain and distribute vaccines in optimal condition is called the "cold chain." The cold chain has three main components to ensure safe vaccine transport and storage:

- Transport and storage equipment
- Trained personnel
- Efficient management procedures

Vaccine manufacturers set vaccine temperature requirements for storage. It is important to follow manufacturers' vaccine product specifications found in the package insert. Contact the manufacturer directly for questions about a specific vaccine storage

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temperature or temperature excursion. Alternatively, specific questions on vaccine storage issues can also be sent to nipinfo@cdc.gov.

The cold chain begins with the cold storage unit at the vaccine manufacturing plant, extends through the transfer of vaccine to the distributor and then to the provider's office, and ends with the administration of the vaccine to the patient. Proper storage temperatures must be maintained at every link in the chain. At the transport link (from manufacturer to distributor to provider), vaccine is transported in a refrigerated or frozen state, as appropriate (refrigerator 35°–46°F [2°–8°C]; freezer 5°F [-15°C] or colder), using an insulated container or a refrigerated truck. During storage, vaccines must also be appropriately stored at the recommended temperature ranges shown above. As noted in the *Storage and Handling Toolkit*, the desired average temperature is 40°F/5°C for refrigerated vaccines.

If a cold chain failure is suspected or there is evidence that vaccine has been exposed to temperatures outside the recommended temperature range or inappropriately exposed to light, providers should immediately notify the state, city, territorial, or other responsible immunization program. Vaccine should be marked "DO NOT USE" so that the vaccine is not administered until a response indicating that the vaccine is acceptable for use has been received. Providers should not discard any vaccine unless directed to do so by the immunization program. Providers should follow the instructions in the CDC *Vaccine Storage and Handling Toolkit* for handling inappropriate vaccine storage conditions.

CDC's *Vaccine Storage and Handling Toolkit*

<http://www2a.cdc.gov/vaccines/ed/shtoolkit/pages/troubleshooting.htm>

The manufacturer's package insert describes the required storage conditions for a vaccine. Manufacturers also have access to internal (unpublished) thermostability data concerning the impact of exposures to inappropriate temperatures or light. Providers that experience or suspect that the cold chain has been compromised should contact the grantee immunization program which will contact manufacturers for guidance in the event of such exposure.

Prevention of Vaccine Loss and Wastage

Immunization program staff and healthcare providers and staff are responsible for maintaining vaccine quality from the time a shipment arrives until the moment a dose is administered. Maintaining the quality of vaccines and other biological products is the shared responsibility of manufacturers, vaccine handlers, and all healthcare professionals involved in immunization delivery.

Vaccine waste is both costly and preventable. There are many reasons for vaccine waste including heat and/or light exposure, inappropriate freezing, broken vials and syringes, poor reconstitution practices, contamination and suspected contamination, discarding doses at the conclusion of outreach sessions, missing inventory, and theft. However, the most significant causes of vaccine waste are attributed to poor vaccine management, i.e., loss due to expiration and loss due to cold chain failures.

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Vaccine loss due to expiration is frequently a consequence of over ordering and/or poor inventory management. Grantees should educate providers about proper vaccine management, including how to determine appropriate order sizes and rotate vaccine doses in inventory to avoid loss because of expiration and excess ordering. Grantees also need to review provider orders to monitor any issues pertaining to the provider's inventory management (e.g., wastage, excessive inventory).

Inventory Management

Public and private providers enrolled in the VFC program are responsible for the proper maintenance of their vaccine inventories and for ordering vaccine in the appropriate amounts. Providers are expected to maintain a five-week inventory and order vaccines in a manner that enables them to support that inventory.

Providers should order all vaccines at one time. To avoid shortages, providers should place replenishment vaccine orders at least 15 days in advance of their actual need.

Grantees should require providers to submit vaccine inventory with each order. This provides a check against possible stockpiling or inventory build-up and can serve to prompt the provider to order all vaccines at the same time.

Where practical, and as long as the cold chain can be maintained, short-dated vaccine may be transferred to another provider so that it may be used prior to expiration. The grantee must actively coordinate the transfer of vaccine between the providers.

Temperature Monitoring – Using Calibrated Thermometers

Providers enrolled in the VFC Program are required to have calibrated thermometers in all refrigerator and freezer compartments used for VFC vaccine storage in order to monitor temperatures. Reviewers conducting VFC compliance site visits must also use a separate calibrated thermometer during the visit to independently assess storage unit temperatures. Each device is to be covered by a Certificate of Traceability and Calibration. The traceability declaration is to confirm that the measurement standards and instruments used during calibration of the product are traceable to an ISO/IEC 17025 accredited testing laboratory, to NIST, or to another internationally recognized standards agency. A certificate of calibration accompanies thermometers that have undergone this calibration against a reference standard. If there is not a calibrated thermometer with valid documentation (i.e., certificate) at the time of the VFC compliance site visit in any of the vaccine storage units, then corrective action must be taken by the office to correct the situation, and the corrective action steps must be monitored by the grantee.

Additional information about thermometers is available in the *Vaccine Storage and Handling Toolkit* located at: <http://www2d.cdc.gov/nip/vsh/ToolkitWeb/splash.html>.

Grantees must establish their own policies regarding which types of thermometers are acceptable and their recalibration requirements when the thermometer calibration expires.

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Recalibration requirements should take into account manufacturer specifications and guidelines. Grantees should consider the following when developing requirements:

1. Manufacturer specifications for recalibration of thermometers: the manufacturer-specified frequency of recalibration varies by make and model, with recalibration every 1-2 years being typical. This should be considered as part of the overall cost when purchasing thermometers.
2. The recalibration of reviewer thermometers: reviewer thermometers are used to assess storage unit temperatures during compliance visits to compare against the provider site's thermometer temperature reading. It is important to recalibrate the thermometers used by reviewers according to the manufacturer's recommended schedule.
3. The relative accuracy of thermometers: nearly all thermometers will have some variance in accuracy (generally +/- 1° C and +/- 2° F). The grantee should define the acceptable variance before recalibration or replacement is required.

Grantee Vaccine Management Requirements

All grantee staff working on VFC activities must receive initial training and periodic review in a formal setting on the grantee's responsibilities for VFC vaccine management. The content and date of the training for each staff member must be documented and kept as part of the staff member's training/orientation record. All staff should have a copy of the responsibilities and must know how to do the following as appropriate to their role:

- Provide training on appropriate vaccine ordering, handling, and storage, as well as reporting requirements about wastage to VFC-enrolled providers and their staff. The initial training should occur at the time of enrollment into the VFC program. The training should include giving providers a simple generic vaccine management plan that they can modify or use as is to meet the vaccine management plan requirement. Follow-up training should occur in any of the following situations: provider request, site visit findings, or program changes. Maintain records of training of VFC providers and other attendees responsible for storage and handling of vaccine who participate in such training. Please refer to the *Vaccine Storage and Handling Toolkit* section on *Storage and Handling Plans* (<http://www2a.cdc.gov/vaccines/ed/shtoolkit/>) and Appendix 5 for resources to assist in the development of vaccine management plans.
- Review, approve, and process orders from VFC-enrolled providers in a timely manner.
- Review orders for appropriateness based on provider profile, doses administered and inventory data.

- Order grantee-funded vaccine in accordance with the vaccine spending plan that is established annually and updated monthly which outlines population-based vaccine needs, funding sources and purchase schedules for each NDC.
- Ensure that vaccines remain effective (potent) by developing, reviewing regularly, and, as necessary, updating written standard operating procedures (SOPs) for providers that cover vaccine ordering, receiving, storage, handling, inventory management and disposal.
- Annually review vaccine storage and handling practices and update all VFC providers on the latest storage and handling policies.
- Request that VFC providers notify the program of any vaccine doses that will expire before they will be able to administer them. When feasible and if the cold chain can be ensured, redistribute short-dated vaccines to high-volume providers who are able to administer them before they expire.
- Develop and implement written procedures for providers to report and respond to losses resulting from vaccine expiration, waste, and compromised cold chain.
- Document expired and wasted doses of publicly purchased vaccine.
- Require providers to return wasted and expired vaccines to the distributor to facilitate collection of excise tax credit.
- Actively coordinate and document the transfer of vaccine between providers. Vaccine transfers between providers can occur only after receiving approval from the grantee.

Provider Vaccine Management Requirements

An important VFC program responsibility of the grantee is to work with providers to develop and implement simple but accurate plans for routine and emergency vaccine management. Grantees must provide templates to providers on key vaccine management requirements. Please see the *Vaccine Storage and Handling Toolkit* (<http://www2a.cdc.gov/vaccines/ed/shtoolkit/>) sections on *Storage and Handling Plans* and *Vaccine Personnel*, as well as Appendix 5 for resources to assist in the development of plans. All providers must be able to meet the following requirements in order to participate in the VFC program:

Vaccine Personnel

Each VFC provider must:

- Designate one staff member to be the primary vaccine coordinator and at least one back-up vaccine coordinator who is able to perform the same responsibilities as the primary vaccine coordinator in the event that the primary person is unavailable. These positions will be responsible for key requirements and will provide oversight for all vaccine management within the office.
- The designated vaccine coordinator and backup must be responsible for reviewing vaccine storage unit temperatures to ensure they are within the recommended

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- ranges and documenting the temperature on the temperature logs for each storage unit twice a day.
- Train other staff who are responsible for administering vaccines or who may be required to transport vaccine in an emergency situation, following the office's vaccine storage and handling plan. A simple log sheet with the staff member's name and date of training must be kept and displayed as documentation.
 - Unless otherwise noted, the vaccine coordinator and/or backup should be the VFC contact for the office.

Storage and Handling Plans

Providers must have written routine and emergency storage and handling plans. They may develop their own or customize grantee-supplied storage and handling templates to reflect their office practice. Both the routine and the emergency plans should be simple, and the processes outlined in the plan should be presented in a clear and concise manner. Both plans should be reviewed and updated as necessary.

- The routine vaccine storage and handling plan should include guidance on routine vaccine management process/practices. Please refer to “Routine Vaccine Storage and Handling Plan Worksheet in the *Vaccine Storage and Handling Toolkit* (<http://www2a.cdc.gov/vaccines/ed/shtoolkit/>).
- The emergency vaccine storage and handling plan must include guidance on what to do in the event of refrigerator or freezer malfunctions, power failures, natural disasters, or other emergencies that might compromise appropriate vaccine storage conditions. Please refer to “Emergency Vaccine Retrieval and Storage Plan Worksheet” found in the *Vaccine Storage and Handling Toolkit* (<http://www2a.cdc.gov/vaccines/ed/shtoolkit/>).
- In any type of power outage:
 - Freezers and refrigerators should not be opened until power is restored, except to transport vaccine to an alternative storage location.
 - Temperatures and duration of power outage must be monitored; vaccine should not be discarded or administered until the situation has been discussed with public health authorities.
- At a minimum, the emergency plan must be reviewed and updated annually (or as necessary) or when there is a change in staff that have responsibilities specified in the emergency plan.

Vaccine Storage Equipment

Providers must have appropriate equipment that can store vaccine and maintain proper conditions. For detailed information on refrigerators and freezers, grantees and providers should refer to CDC’s *Vaccine Storage and Handling Toolkit* (<http://www2a.cdc.gov/vaccines/ed/shtoolkit/>). Two types of storage units are acceptable:

- 1) A refrigerator that has a separate freezer compartment with a separate exterior door, or

2) Stand-alone, single-purpose refrigerators and freezers.

Refrigerators or freezers used for vaccine storage must comply with the following requirements:

- Be able to maintain required vaccine storage temperatures year-round;
- Be large enough to hold the year's largest inventory;
- Have a working thermometer calibrated with certificate in accordance with National Institute of Standards and Technology (NIST) or the American Society for Testing and Materials (ASTM) standards placed in a central area inside each storage compartment; follow manufacturer's recommended schedule for recalibration.
- Be dedicated to the storage of vaccines. (Food and beverages must not be stored in a vaccine storage unit because this practice results in frequent opening of the door and destabilization of the temperature.)

A dormitory-style refrigerator (a small combination refrigerator-freezer unit outfitted with a single external door) is **never acceptable for permanent storage** of VFC vaccines. Permanent storage is defined as having the vaccine supply maintained in the unit 24 hours a day/7 days a week. Dormitory-style refrigerators are not adequate for long-term storage of biological products; they cannot be used to store vaccine on a permanent basis due to their inability to reliably maintain temperatures needed to keep vaccine within required ranges to prevent vaccine loss caused by inappropriate temperature excursions. The primary concern with dormitory-style units is the presence of the freezer compartment co-located inside the refrigerator compartment, which creates an environment that places refrigerated vaccine at high risk for freezing.

At the grantee's discretion, providers may use dormitory-style refrigerators to **temporarily** store a clinic's single-day supply of **refrigerated** vaccines. The freezer portion of the dormitory-style refrigerator must never be used to store any vaccine. Temporary storage is defined as storing a clinic's single-day supply of refrigerated vaccines and returning unused vaccine to the main (permanent) refrigerator storage unit at the end of each clinic day. Visually monitoring temperatures twice daily and recording temperatures in a log are required for any unit storing VFC vaccine, permanent and temporary.

Grantees have the discretion to ban the use of dormitory style refrigerator among providers altogether, even for temporary storage. However, for grantees choosing to allow the use of dormitory-style refrigerators under limited conditions for short-term (temporary) storage of select VFC vaccines, the following conditions listed below must apply:

1. The purpose of using these units is for temporary storage when it is not reasonable for the staff administering the vaccine to go to the main storage unit to obtain vaccine for each and every patient.
2. **The unit is never used for storing varicella-containing vaccines**

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3. Only small amounts of inactivated vaccines are maintained in these units. The amount of inactivated vaccines stored in the unit must never exceed the amount used in the clinic in one day.
4. The vaccine is returned to the main storage unit at the end of each clinic business day and vaccine is never stored in these units overnight or during periods of time when the practice is not open for business.
5. Each unit has a dedicated calibrated thermometer in place.
6. **Temperatures are visually monitored and documented twice a day on temperature log specifically for that unit.** Appropriate action is immediately taken when the temperatures are outside the appropriate range.
7. These units must be included and examined during the VFC compliance visit and corrective actions taken and documented by the grantee if any of the above conditions are not met.

It is essential for the integrity and continuation of the VFC program to ensure that VFC vaccine is stored under conditions which decrease the chance of vaccine loss due to inappropriate storage conditions. Sharing with the provider the monetary amount that the VFC vaccine represents in that specific practice can help to further illustrate the need to store and manage the vaccine appropriately. Grantees are encouraged to develop a protocol to have reviewers discuss the monetary value of vaccine stored at the provider site. The directions for reviewers can be outlined in the grantee's site visit protocols.

Vaccine Storage Practices

The vaccine storage practices listed below are the responsibility of the provider/clinic vaccine coordinator or the vaccine coordinator's back-up. If delegated to the back-up, the designated vaccine coordinator must monitor these activities regularly.

- Rotate vaccine stock by placing vaccines with shorter expiration dates in front of those with longer expiration dates; check for short-dated vaccine.
- Notify the grantee immunization program of any vaccine doses that will expire before they can be administered. Only with the approval and direct guidance of the grantee immunization program and only if the cold chain can be ensured, redistribute short-dated vaccines to high-volume providers who are able to administer it before it expires.
- Store vaccines that require refrigeration in the middle of the refrigerator compartment away from the coils, walls, floor, and cold air vent.
- Store vaccines that require freezer storage in the middle of the freezer compartment, away from the walls, coils, and peripheral areas.
- Store vaccine with enough space to allow for cold air circulation around the vaccine.
- Never store vaccines in the door of the storage unit.
- Never store food or drink in the storage unit.

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Temperature Monitoring

Please see “Temperature Monitoring” section in CDC’s *Vaccine Storage and Handling Toolkit* (<http://www2a.cdc.gov/vaccines/ed/shtoolkit/>).

Temperature monitoring should be the primary responsibility of the provider/clinic vaccine coordinator and backup. If other staff must monitor temperatures, those persons must be trained on how to respond to and document actions taken when temperatures are outside the appropriate range.

- Post a temperature log on the vaccine storage unit door or nearby in a readily accessible and visible location.
- Record refrigerator and freezer temperatures twice each day (beginning and end) ensuring that refrigerator temperatures are between 35° and 46° F (2° and 8°C) and the freezer temperatures are 5°F or lower (-15°C or lower). Twice-daily temperature monitoring and recording is required even if a continuous graphing/recording thermometer or a digital data logger is used.
- Take immediate action to correct improper vaccine storage conditions, including inappropriate exposure to light and inappropriate exposure to storage temperatures outside the recommended ranges. Document actions taken on the temperature log.
- Maintain an ongoing file of temperature logs, and store completed logs for 3 years (unless state statutes or rules require retention for a longer period).

Receiving Vaccine Shipments

Primary resource:

“Vaccine Shipments” section of CDC *Vaccine Storage and Handling Toolkit* (<http://www2a.cdc.gov/vaccines/ed/shtoolkit/>)

- VFC vaccine shipments received from the distributor contain heat and freeze exposure indicators. VFC direct shipments of frozen vaccine from manufacturers are shipped in specialized boxes and do not contain heat indicators.
- Immediately upon delivery of vaccine, check the vaccine cold chain monitors, if included, and store vaccine according to manufacturers’ product specifications.
- Take proper action if either the freeze or heat cold chain monitor was activated. Instructions for reading the monitors are printed on the monitor cards.
- Document heat or freeze monitor readings if indicative of out-of-range temperature exposure, and contact the state immunization program for further guidance. Document action taken based on state immunization program instructions.
- If the provider believes that a vaccine shipment is compromised, temperature monitors are out-of-range, or a heat monitor is not activated (i.e., turned on), the provider should also contact McKesson Customer Service within 2 hours of vaccine shipment delivery time at 1-877 836-7123.
- Develop policies and protocols for maintaining the vaccine cold chain during transport to off-site clinics or emergency storage locations. See guidelines:

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Maintaining the Cold Chain During Transport
(<http://www.immunize.org/catg.d/p3049.pdf>).

Vaccine Wastage

Primary resource:

“Preparation and Disposal” section of CDC’s *Vaccine Storage and Handling Toolkit*
(<http://www2a.cdc.gov/vaccines/ed/shtoolkit/>)

- Notify immediately the immunization program of vaccine cold chain failure/wastage incidents involving publicly funded vaccines after discovery of the incident. Follow the guidance of the grantee on how to document and report the incident.
 - Wasted vaccine: a vaccine that cannot be used; includes expired, spoiled, drawn-up but not administered, dropped vial, broken vial, lost vial.
 - Expiration date: the last date on which the vaccine may be used; expired vaccine includes vaccine that is past the manufacturer expiration date on the vial or expiration date after reconstitution depending on the vaccine and according to manufacturer instructions.
- Implement written protocols for reporting and responding to losses resulting from vaccine expiration, wastage, and compromised cold chain.
- Remove wasted/expired vaccine from storage containers with viable vaccine to prevent inadvertent administration.
- Return, as directed by the grantee, all wasted or expired publicly purchased vaccines for excise tax credit.

Please note: Providers should return vaccine to the centralized distributor.

Vaccine Preparation

The National Center for Immunization and Respiratory Diseases (NCIRD), Centers for Disease Control and Prevention, strongly recommends that providers draw vaccine only at the time of administration to ensure that the cold chain is maintained and that vaccine is not inappropriately exposed to light. **Do not** pre-draw doses before they are needed.

Vaccine Ordering and Inventory Management

- Order vaccine in accordance with actual vaccine need
- Develop and maintain complete, accurate and separate stock records for both publicly and privately purchased vaccines. The requirement to keep separate records does not necessitate having separate storage units for public and private vaccines. Providers must be able to distinguish between their public and private vaccine stock.

Vaccine Security and Equipment Maintenance

Primary resources:

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“Storage Equipment” section of CDC’s *Vaccine Storage and Handling Toolkit*
(<http://www2a.cdc.gov/vaccines/ed/shtoolkit/>)

Post “DO NOT DISCONNECT” notices at both the electrical outlet and the circuit breaker to prevent power from being disconnected.

Provider Vaccine Management Recommendations

Grantees may encourage providers to implement all or some of the following vaccine management activities, as applicable to the individual practice.

Vaccine Personnel

The primary and backup vaccine coordinators should train other staff to be responsible for vaccine storage and handling requirements in case of emergency.

Vaccine Storage Practices

- Remove vegetable bins from the refrigerator; replace with cold water bottles.
- Store all opened and unopened vials of vaccine in their boxes inside the appropriate storage unit so that their contents and expiration dates are easily visible.
- Stabilize refrigerator and freezer temperatures with proper placement and use of water bottles and frozen packs.
- Keep vaccines organized.
- Open only one vial, or box, of a particular vaccine at a time to control vaccine use and allow easier inventory control. On each opened vaccine vial indicate on the label the date and time it was reconstituted or first opened.
- Store vaccine products that have similar packaging in different locations in the storage unit to avoid confusion and medication errors.

Temperature Monitoring

- Monitor vaccine storage temperatures by using a minimum/maximum thermometer or continuous recording thermometer in the refrigerator and freezer.

Vaccine Security and Equipment Maintenance

- Limit access to the vaccine supply to authorized personnel only.
- Install locks on refrigerators and, if possible, the electrical plug.
- Safeguard public vaccines by providing facility security, such as temperature alarms and restricted access to vaccine storage and handling areas.
- In larger clinics, provide a source of backup power (generator) and a security system to alert appropriate personnel in the event of a power outage.

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- If applicable, test backup generators quarterly and maintain backup generators at least annually (check manufacturer specifications for test procedures and maintenance schedules).

Project Points of Contact (PPOC) Users Guide

The PPOC Users Guide is a resource for grantees that provides guidance on vaccine ordering, vaccine shipping, vaccine inventory management, and wasted/expired vaccine returns. This guidance is based on federal contracting rules and procedures, including those outlined in the federal vaccine distribution contract and the Federal Acquisition Regulations (FAR). For additional information, Grantees should refer directly to the PPOC guide located at the following link:

<http://www.cdc.gov/vaccines/programs/vmbip/agm-documents-ppoc.htm>.

This document can be found on the CDC website at:

<http://www.cdc.gov/vaccines/programs/vfc/downloads/vfc-op-guide/10-module-6.pdf>