



VFC Vaccine Storage Requirements and Recommendations

Failure to store vaccines properly can reduce vaccine potency and cause patients to have little or no protection against disease. Having reliable and properly maintained vaccine storage equipment is an insurance policy to protect patient health and safeguard your facility against:

- Costly vaccine replacement
- Unintentional administration of damaged vaccine
- Costs of revaccination
- Loss of patient confidence in your practice and vaccines

Refrigerators and freezers to store vaccines are available in different grades:

- **Pharmaceutical:** Also called “purpose-built,” these units are designed by the manufacturer specifically to store vaccines or other biological materials.
- **Commercial:** Although usually intended to store food and beverages, commercial units are often larger and more powerful than the household units found in most homes. Though these units are intended to meet the higher demands of larger facilities, these units are not specifically built for the storage of biological materials.
- **Household (non-commercial/domestic):** These units are usually smaller than commercial units and are intended for use in small offices and in homes and typically for food storage. Just like commercial units, they are not designed specifically for the storage of biological materials. Such units are usually available in common home supply stores.

Refrigerators and freezers also come in different types:

- **Stand-alone:** These are refrigerator-only or freezer-only units and can come in pharmaceutical or commercial grades. These units can vary in size, from compact, under-the-counter style to large walk-in units.
- **Combination:** These units contain both a refrigerator and freezer. This includes typical household grade units but can also be pharmaceutical grade with separate compressors for the refrigerator and freezer.
- **Dormitory-style:** These units are NOT acceptable to store VFC vaccines or other vaccines purchased with public funds at any time. Dormitory-style units are small combination refrigerator/freezer units that have one exterior door and a freezer or icemaker compartment within the refrigerator.

Colorado VFC Vaccine Storage Unit Requirements

VFC providers must only store publicly funded VFC and 317 vaccines in refrigerator or freezer units that meet or exceed the following minimum requirements. Units used to store VFC vaccine must meet or exceed the program requirements even if they are only used as overflow, temporary or day storage.

- A combination household refrigerator/freezer with separate exterior doors and two temperature controls or thermostats, one control for the refrigerator and one control for the freezer.
 - A combination household unit with one control may be used if only the refrigerator section or only the freezer section is used to store vaccines and the unit meets the other requirements listed below.
- Reliably maintain the appropriate vaccine storage temperatures year-round.
 - Refrigerator temperatures are maintained between 35°F and 46°F (2°C and 8°C). The desired average temperature for refrigerated vaccines is 40°F (5°C).
 - Freezer temperatures are maintained between -58°F and +5°F (-50°C and -15°C). The desired average temperature for frozen vaccines is 0°F (-18°C).
- Large enough to store the largest vaccine inventory a provider may have at the busiest time of the year without crowding.
- Enough room to store water bottles or coolant packs to stabilize the temperatures and use as a barrier to prevent vaccine from being placed in areas not intended for vaccine storage.
 - It is important to use water bottles/coolant packs to help maintain temperatures in all storage units, including pharmaceutical grade ones.
 - Water bottles/coolant packs help keep temperatures stable during defrost cycles, when the storage unit door is frequently opened, and in case of a power outage.
 - Use water bottles/coolant packs as a barrier to keep vaccines from being placed in areas that are not intended for vaccine storage such as the floor, doors and under cooling vents of the unit.
- Dedicated to the storage of vaccines. Food and beverages must NOT be stored in a vaccine storage unit.
 - This reduces the number of times the unit is opened and the number of people coming into contact with the unit which helps to keep the temperatures stable.
- Remove all vegetable, fruit or deli bins in household units; these drawers must not be used for vaccine storage. Fill these spaces with water bottles or coolant packs.
- Precautions to ensure vaccine storage units are not accidentally disconnected from the power supply including “Do Not Disconnect” labels at both the electrical outlets and circuit breakers or back-up generators.
- Dormitory-style units must NEVER be used to store VFC vaccine under any circumstances including temporary or day storage.
- Vaccine storage units must have a certified calibrated thermometer placed centrally in the unit, next to the vaccines.

Recommended Vaccine Storage Units

The Centers for Disease Control and Prevention (CDC) strongly recommends the following to further protect and safeguard vaccines. It is important to note that current CDC recommendations may become future VFC program requirements

- Pharmaceutical grade vaccine storage units or stand-alone refrigerator and freezer units.
- If using a combination household unit, only use the refrigerator section and use a separate stand-alone freezer to store frozen vaccines.
- Do not use the top shelf of the refrigerator section in a household combination if the cooling vent from the freezer opens there. There is high risk of freezing vaccines placed near the cooling vents. Place water bottles on the top shelf to help absorb cold air from the vent.
- Frost-free freezer with an automatic defrost cycle is preferred if regular manual defrosting cannot be guaranteed. For manual defrost guidance please see the CDC Vaccine Storage and Handling Toolkit at the link in Additional Resources below.

The CDC recommendations are based on studies by the National Institute of Standards (NIST) that showed:

- Freezer sections of household combination units did NOT maintain proper temperatures for vaccine storage.
- Stand-alone refrigerators or freezers and pharmaceutical grade units maintained proper temperatures better than household or commercial combination units.
- Household stand alone refrigerators without freezers have issues keeping temperatures stable from the front to the back of the unit. The temperatures near the front of the unit can be from 1°C to 2.5°C warmer. When using these units for vaccine storage, providers should consider the front to back temperature differences when placing vaccines.

Additional Resources:

- Additional information regarding vaccine storage units is available in the CDC Vaccine Storage and Handling Toolkit located at: <http://www.cdc.gov/vaccines/recs/storage/toolkit/storage-handling-toolkit.pdf>
- American Academy of Pediatrics Practice Management Guides for Vaccine Storage and Handling Refrigerators, Freezers, and Vaccine Storage at: <http://www2.aap.org/immunization/pediatricians/pdf/VaccineStorageRF.pdf>
- Refrigerator Setup for Vaccine Storage: <http://eziz.org/assets/docs/IMM-963.pdf>
- Freezer Setup for Vaccine Storage: <http://eziz.org/assets/docs/IMM-966.pdf>

If you have any questions or need additional information, call the VFC Program at 303 692-2650 or email cdphe_vfc@state.co.us.