2024 Oregon Vaccine Refrigerator & Freezer Guide

Current Requirements

The storage component of participating in the VFC/VAP program is often the most expensive, selecting your vaccine storage units must be done with care. The Center for Disease Control and Prevention (CDC) and the Oregon Immunization Program (OIP) highly recommend purchasing separate, biomedical-grade units rather than a household-style combination unit.

Note: Any newly enrolled providers after July 1, 2024, will not be allowed to use the freezer compartment of a household combination unit. Dorm-style units are not allowed for ANY type of vaccine storage.

As required by the CDC and OIP, any vaccine storage unit carrying VFC/VAP vaccine must have the following:

1. Enough room to store the largest amount of vaccine or immunization inventory during the year, without crowding. This would typically include any vaccine or immunizations that are considered seasonal (e.g., influenza and RSV).
2. Enough room to store water bottles (in commercial or household refrigerators) and frozen water bottles (in the commercial or household freezer) to stabilize the temperatures and minimize temperature excursions that can impact vaccine or immunization potency.
3. A calibrated digital data logger (DDL) with a buffered probe (with exception of ultra-low DDLs) centrally located in each storage unit.
4. The ability to reliably maintain the appropriate vaccine storage temperatures year-round with a back-up plan in case of an emergency.

5. A unit dedicated to the storage of vaccines, immunizations, and medication only. Storing food and drink is not allowed as it results in frequent door opening and temperature destabilization.

Dorm-style units are not allowed

Small, single door combined units should never be used for any vaccine storage. The freezer compartment is incapable of maintaining temperatures appropriate for varicella and zoster vaccine storage. Furthermore, cold air from the freezer compartment is often vented down into the main compartment causing unstable and inconsistent refrigerator temperatures.

Household combination unit (not recommended)

If you are currently using a household combination refrigerator/freezer, we strongly recommend you upgrade to a biomedical-grade unit. If an upgrade isn't possible, consider purchasing a separate countertop freezer and only using the main section of the household refrigerator.

According to studies conducted by National Institute of Standards and Technology (NIST), household combination units are less capable of maintaining proper storage temperatures in both the refrigerator and freezer compartments. This is because cold air from the freezer blows directly into the refrigerator compartment and onto the sensitive vaccine. By far, the best practice is to choose a separate refrigerator and freezer purpose-built for the precise storage of vaccines.

If you were enrolled with a household combination unit before July 1, 2024, and using both compartments of the household combination unit that is consistently maintaining the required temperature ranges may continue to do so. If temperature excursions occur that can't be attributed to another cause (e.g., power outage), you will have to discontinue use, even if it requires the purchase of a separate freezer unit. Any newly enrolled providers after July 1, 2024, will not be allowed to use the freezer compartment of a household combination unit.

Water Bottles

In general, CDC recommends that water bottles (refrigerators) or frozen water bottles (freezers) be placed throughout each storage unit to: (1) stabilize or extend temperatures during a power outage and (2) serve as physical blocks preventing the placement of vaccines in areas of the unit at higher risk for temperature excursions (such as in doors, vegetable bins, on the floor, or near/under cooling vents).

However, not all manufacturers recommend the use of water bottles in their pharmaceutical-grade and purpose-built units. Before adding water bottles, check with your manufacturer for guidance.

Built-in digital data loggers

Some refrigerator and freezer manufacturers include built-in digital loggers with their units. Unless these loggers meet VFC logger requirements, they **should not be used for vaccine monitoring**. All official temperature readings must only be taken from your VFC-approved, calibrated digital data logger/backup logger.

Choosing the right size storage unit

You will need to have sufficient room across storage units to store your current stock as well as any additional stock acquired during peak season without overcrowding. You can also work with the supplier to determine the best fit for your clinic.

Choosing the right location

Proper placement of your refrigerator and freezer is very important to their efficiency and longevity. Poor airflow and high temperatures will cause even the best units to overheat and fail. Pay close attention to manufacturer ventilation guidelines when deciding on placement within your facility.

Note: As a state agency, we cannot endorse or recommend any specific brand or product. The terms and conditions of your purchase are between you and your vendor.

Equipment Options

With the above guidelines in mind, we have compiled a short list of equipment options that meet or exceed Oregon VFC/VAP and CDC requirements. The list covers a wide range of price points and configurations to fit any clinic's size or budget. This guide is far from exhaustive and is only meant as an overview of the *types* of storage units to consider during your search. None of the examples listed are recommended by OIP, they are only meant to help begin your search.

As always, the Oregon Immunization Program is here to help. Don't hesitate to contact our VFC/VAP Help Desk with any questions you have about these requirements or the storage options you are considering.

Used and refurbished equipment

There are several used and remanufactured equipment vendors online. Prices are often 30-50% off retail. Also consider calling your manufacture of choice and asking about less expensive used units. Helmer, for example, has a rotating inventory of scratch and dent units that come with a much lower price tag and full warranty. As with any large purchase, only buy from reputable vendors and get all guarantees in writing.

Manufacturers to consider in this category:

- **Ace Laboratory Systems:** www.acelabsystems.com
- **Lab X:** www.labx.com
- **Labequip:** www.labequip.com/

Under-counter refrigerators and freezers

Under-counter refrigerators and freezers are an excellent choice for clinics with limited space. Benefits of under-counter units include:

- **Lower risk:** Separate compressors and condensers decrease the risk of a total vaccine loss that might occur in a single combined unit.
- **Flexibility:** Small and easy to relocate, under-counter units can be positioned in multiple ways depending on the need.
- **No cold air vent:** Traditional combined units use a cold air vent to blow frozen air into the refrigerator compartment. Separate units mean separate compressors and no need for cold air venting.
- **Cost effective:** If a clinic is looking to add to its existing refrigerator or freezer capacity, this option allows for the purchase of only what is needed. A single under-counter refrigerator or freezer might negate the need to buy a larger, more expensive replacement unit.

Manufacturers to consider in this category:

- **Migali Scientific:** Glass Door Under-Counter Refrigerator. www.migaliscientific.com/product/4-3-cuft-glass-door-pharmacy-refrigerator/?cat=vaccine-storage

- **Helmer Scientific:** Undercounter Pharmacy Refrigerator and Freezers. https://www.helmerinc.com/search

- **Follett:** Compact Refrigerators and Freezers. https://www.follettice.com/healthcare/compact-refrigerators

Full-size, stand-alone refrigerators and freezers

Biomedical-grade refrigerators and freezers are considered the best, most secure option for vaccine storage. Unfortunately, they require a larger investment and are most often found in health departments, laboratories, and hospitals. However, many of the biologic-grade manufacturers also produce refrigerators and freezers in an array of sizes and price points.

Manufacturers to consider in this category:

- **PHCbi:** Large capacity pharmaceutical refrigerators, freezers, ultra-low freezers, and undercounter refrigerators and freezers. https://www.phchd.com/us/biomedical/preservation

- **Magali Scientific:** Vaccine storage. https://www.migaliscientific.com/products/vaccine-storage

- **Helmer Scientific:** Vaccine storage. https://www.helmerinc.com/product-types/vaccine-storage

- **Follett Healthcare:** Medical–grade refrigerators and freezers. https://www.follettice.com/products/healthcare

- **TempArmour Refrigeration:** Vaccine storage. https://www.temparmour.com/

Full-size, combined refrigerator-freezers

While they look like household combination units, biomedical-grade combination units are far superior for vaccine storage in several important ways:

- Separate refrigeration systems for the refrigerator and freezer.
- Improved cabinet insulation to avoid hot and cold spots.
- Built-in, digital temperature display.
- Built to industrial standards and warrantied for industrial use.
- Fan-forced air circulation delivers quick temperature recovery.

Biomedical-grade, combination units are ideal for clinics wanting a best-practice storage solution in a compact package.

Manufacturers to consider in this category:

- **PHCbi:** Pharmaceutical refrigerator with freezer. https://www.phchd.com/apac/biomedical/preservation/pharmaceutical-refrigerators/pharmaceutical-refrigerators-with-freezer/mpr-414f

- **Fisher Scientific:** Combination refrigerator freezers. https://www.fishersci.com/us/en/browse/90106015/combination-refrigerator-freezers

Ultra-low Temperature Freezer

Some vaccine requires ultra-low temperature for storage. If you are considering long a unit that holds ultra cold temperatures, look for a unit with these specifications:

- Digital temperature display,
- Microprocessor control,
- Audible alarms,
- Ability to hold ultra-low (-80 to -60^{o}C) temperatures consistently.

Manufacturers to consider in this category:

- **ABS (American Biotech Supply):** 17 Cu Ft Ultra-Low Freezer. https://americanbiotechsupply.com/freezers/freezer-products/ultra-low-temperature-freezers/standard-ultra-low-temp-freezers/17-cu.-ft.-ultra-low-temperature-freezer

- **PHCbi:** Twinguard ULT Freezer. https://www.phchd.com/global/biomedical/preservation/ultra-low-freezers/TwinGuard-ULT-freezers/mdf-u500vx

Doorless/Vending Style Unit

Vaccine refrigerators that dispense vaccine without having to open a door and selecting the right vaccine.

Manufactures to consider in this category:

- **TruMed**: AccuVax Vaccine management system; integrated fridge and freezer unit. https://trumedsystems.com/products/accuvax/

Additional Equipment/Information

This section was created to review additional equipment, add-ons, and services you might consider when assessing your vaccine storage and monitoring needs.

Portable cold storage

These are excellent options for emergency storage, long distance transport or use during day clinics in the field. Some units use electricity to run a cooling system, while others use advanced insulation combined with propriety cooling packs/phase change panels (make sure you'll have enough room to store these packs/panels in your units before purchasing, some can be prohibitively large). Whichever type you choose, it's a smart investment that will add another layer of protection to your vaccine management practice.

- **Edgestar:** Portable fridge/freezer with 12V DC. https://www.edgestar.com/outdoor-portable-fridge-freezers/

- **Vericor:** Portable Cool Cube transport system. www.vericormed.com/cool-cube-vaccine-transport-coolers

- **TempArmour:** Portable vaccine carrier. https://www.temparmour.com/vaccine_carrier

- **FridgeFreeze:** Portable vaccine refrigerators and freezers. www.fridgefreeze.com

- **CSafe:** Bio-medical refrigerator and freezer carriers. https://csafeglobal.com/specialty-solutions/

- **Roemer Industries:** Customizable, portable medical refrigerator and freezers. www.roemerindustries.com

Emergency battery backup

Other than a generator, one of the best ways to buy time during an emergency is using a battery back-up. Ideally, these would be used in combination with an alarm system to add hours to your response window.

- **Medi+Products:** Vaccine refrigerator battery back-up. http://www.mediproducts.net/products-refrigeration/

- **Xantrex PowerHub 1800:** http://www.xantrex.com/power-products/backup-power/xpower-powerhub-1800.aspx

- **Goal Zero Yeti 1500x Lithium Portable Power Station:** https://www.goalzero.com/collections/portable-power-stations/products/goal-zero-yeti-1500x-portable-power-station

- **EATON 9PX UPS:** https://eaton-upssystems.com/eaton-9px-ups/

Biomedical-grade equipment repair

If your biomedical-grade refrigerator or freezer malfunctions, call your manufacturer to check on warranty status. The manufacturer should have a list of local repair shops authorized to work on your equipment. If the manufacturer cannot support, below is a list of repair companies operating in Oregon that might be able to assist with repairs **(Note: this is not an exhaustive list**):

Portland Metro:

- **Commercial Refrigeration Inc**
  503-234-6445
  www.cri-pdx.com

- **PermaCold Engineering, Inc.**
  503-249-8190
  http://www.permacold.com/

- **Dial Service Co.**
  503-777-4011
  www.dialrefrigeration.com/index.html

Oregon Coast:

- **Wilde Refrigeration Inc.**
  541-265-3255
  https://www.hmicontracting.net/company/wilde-refrigeration-inc-5412653255

Salem:

- **West Coast Mechanical**
  503-315-2277
  https://www.westcoast-mc.com/refrigeration