Refrigerator & Freezer Guide

Purpose

In response to the Centers for Disease Control and Prevention (CDC) requirements and recommendations for vaccine storage, the Vermont Department of Health (VDH) Immunization Program is providing the following guidance on vaccine storage equipment. While the VDH Immunization Program does not recommend or endorse specific brands of vaccine storage units, the products listed in this guide may be used to store vaccine by Vaccines for Children (VFC) Vaccines for Adults (VFA) clinics. They illustrate a range of price points and styles to fit any size clinic or budget. Ultimately, the terms, conditions, price, etc. related to your purchase are between you and the vendor.

Requirements

Vaccine storage units must be selected carefully and used properly. The best option is a pharmaceutical-grade refrigerator and freezer for vaccine storage. If this is not feasible, use separate (under counter or full-size) units instead.

The use of stand-alone units is best practice. CDC recommends the use of stand-alone refrigerator and freezer units (self-contained unit that only refrigerates or freezes and consistently maintains required temperature for vaccine storage). A household refrigerator/freezer may meet minimum requirements for VFC/VFA vaccine storage. The temperature must be maintained between 2°C to 8°C for a refrigerator and -50°C to -15°C for a freezer. Studies conducted by the National Institute for Standards and Technology (NIST) demonstrate that the freezer section of combination units does not reliably maintain the required frozen vaccine storage temperatures. Units vary in size from a compact, under-the-counter style to a large, stand-alone, pharmaceutical grade storage unit. The use of dormitory or bar-style refrigerator/freezers is not allowed at any time for VFC and VFA vaccine storage.

The characteristics of vaccine storage unit include:

- space to store the year's largest inventory without crowding;
- additional space for water bottles in the refrigerator and frozen water bottles in the freezer to stabilize the temperature.

Frost-free or automatic defrost cycle freezers are preferred. Refrigerated vaccines should never be frozen. It is important to select and maintain refrigerators to eliminate the risk of freezing vaccine. If using a combination household refrigerator/freezer to store refrigerated vaccines, use only the refrigerator compartment. This combination household refrigerator/freezer must have separate exterior doors and thermostat controls. A separate stand-alone freezer should be used to store frozen vaccines.
Standalone Refrigerators

These units are found in home and appliance stores as well as through online retailers. Higher-end models are sometimes referred to as “commercial-grade” and are most often used in the food service industry. Use of stand-alone units is the best practice. NIST has demonstrated that stand-alone refrigerators are reliable at keeping vaccine storage temperatures. In addition, separate units reduce the risk of freezing refrigerated vaccine, increase storage space and reduce compressor wear associated with a dual zone system.

If you choose a freezerless/standalone refrigeration unit, some essential features to look for are:

- Ample room to store all vaccine on the middle 2-3 shelves
- Fully adjustable shelves
- Sufficient room to add water bottles
- Adequate capacity to store year’s largest vaccine volume without crowding
**Warning**

**Freezing vaccine:** Never store freeze-sensitive vaccine near the cold air vent in a refrigerator because the air direct from the vents can be below freezing temperature.

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**Standalone Refrigerator Options**

- **Follett REF20-LB Medical-grade Refrigerator**

- **Helmer Scientific iLR120 Laboratory Refrigerator**
Thermo Scientific
Revco High-Performance
Laboratory Refrigerator
REL1204A

Frigidaire 16.7 cu. ft.
Freezerless Refrigerator
Model# FRU17B2QW
Whirlpool  17.7 cu. ft.
Upright
Refrigerator ENERGY STAR®
Model# EL88TRRWS

Frigidaire Gallery  19 cu. ft.
Refrigerator
Model# FGRU19F6QF
Under Counter Refrigerators

Under counter refrigerators and freezers are appropriate choices for clinics with limited space for vaccine storage. These are not to be confused with dorm-style refrigerators (see warning at end of this section). Under counter refrigerators are high quality stand-alone units that allow for the storage of refrigerated vaccines only. Benefits of under counter refrigerators include:

- **Lower risk of vaccine loss.** Separate compressors and condensers decrease the risk of a total vaccine loss that might occur in a combined refrigerator/freezer unit.
- **Stability of temperatures.** Because these units are only required to hold a single set temperature they are not constantly re-adjusting and "sharing" cold air between the refrigerator and freezer.
- **Cost benefit.** If a clinic needs to add to their existing refrigerator capacity, this option may negate the need to buy a larger, more expensive standalone unit.

**Warning**

**Dormitory-Style Units** - Small single-door (dormitory-style or bar-style) combined refrigerator-freezer units are NEVER permitted for vaccine storage, even temporarily.
# Under Counter Refrigerator Options

<table>
<thead>
<tr>
<th>Helmer Scientific</th>
<th>Follett Performance Plus Undercounter Medical-Grade Refrigerator</th>
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<tr>
<td>iLR105 Undercounter Laboratory/Pharmacy Refrigerator</td>
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Thermo Scientific
Revco High-Performance
Undercounter Laboratory Refrigerator
REL404A

Panasonic MRP-S163-PE
Refrigerator & Freezer Guide

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<td>ACCUCOLD FF6X 5.5 cu. ft.</td>
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<td>GEM Model CTR: Under Counter Laboratory/Pharmacy Refrigerator</td>
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Immunization Program ● ahs.vdhimmunizationprogram@vermont.gov ● 802-863-7638 or 1-800-640-4374
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<tr>
<td><strong>ABS 4.6 cu. ft. Undercounter ABT-UCBI-0404G-ADA</strong></td>
</tr>
<tr>
<td><img src="image1" alt="ABS 4.6 cu. ft. Undercounter" /></td>
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<tr>
<td><strong>Sanyo SR-L6111W Laboratory Appliance Series</strong></td>
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<tr>
<td><img src="image2" alt="Sanyo SR-L6111W" /></td>
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<tr>
<td><strong>ABS 4.6 cu. ft. Freestanding ABT-UCFS-0504W</strong></td>
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<tr>
<td><img src="image3" alt="ABS 4.6 cu. ft. Freestanding" /></td>
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Stand-alone Freezers

Use of stand-alone units is a best practice, and the NIST has demonstrated that stand-alone freezers are reliable at maintaining frozen vaccine storage temperatures. Stand-alone freezers are superior for storage of frozen vaccine over combination refrigerator/freezer units.

- Freezers must be frost-free or have a defrost cycle to remove any build-up of frost.
- Freezers must have shelves so vaccine is not sitting on the floor of the freezer.
- Freezers must have enough capacity to store year’s largest vaccine volume without crowding.
- Freezers must have space for frozen water bottles.

Some Stand-alone Freezer Options

Helmer Scientific
iLF105
Undercounter Laboratory Freezer
### Refrigerator & Freezer Guide

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<tr>
<td>Follett Performance</td>
<td>Follett Performance Plus Undercounter Medical-Grade Freezer</td>
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<tr>
<td>Plus Undercounter</td>
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<td>Medical-Grade Freezer</td>
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<td>Thermo Scientific</td>
<td>Thermo Scientific Revco High-Performance Undercounter Lab Freezer</td>
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<td>Revco High-Performance</td>
<td>ULT430A</td>
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<td>Undercounter Lab Freezer</td>
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<td>Sanyo Under counter Laboratory Freezer (SF-L6111W)</td>
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<tr>
<td>ABS 14 cu. ft. Freezer ABT-1420AB</td>
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<td>Kenmore 20.6 cu. ft. Upright Freezer</td>
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<table>
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<tr>
<th>Model</th>
<th>Specifications</th>
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<tr>
<td>Migali EVOX-U1F</td>
<td>4.3 cu. ft.</td>
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<tr>
<td>ABS Auto Defrost</td>
<td>1.3 cu.ft.</td>
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<tr>
<td>ABT-HC-UCFS-0120A</td>
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- **Migali EVOX-U1F**: 4.3 cu. ft. freezer.
- **ABS Auto Defrost**: 1.3 cu.ft. freezer with auto defrost feature.

[Image of Migali EVOX-U1F freezer]

[Image of ABS Auto Defrost freezer]
Medical Grade Manufacturers to Consider

Biomedical Panasonic
http://www.biomedical.panasonic.eu/biomedical-refrigerators/high-performance-lab-refrigerators

Migali Scientific
http://www.migaliscientific.com/products/

Lab Research Products
http://www.labresprod.com

American BioTech Supply (ABS)
http://www.americanbiotechsupply.com/

Follett
http://www.follettice.com

Thermo Fisher Scientific
http://www.thermo.com

Helmer
http://www.helmerinc.com

Used and Refurbished Refrigerators and Freezers

There are several used and remanufactured equipment vendors online. Prices are often 30% - 50% lower than retail. Consider calling your manufacture of choice and asking about used or “scratch and dent” items. Helmer, for example, has a rotating inventory of “scratch and dent” units that come with a much lower price tag and a full warranty.

Tips for proper vaccine storage and handling

- Store vaccine in the center of the unit, at least 2-3 inches away from the walls, floor, coils and ceiling of the storage compartment.
- Never store vaccine inside crisper bins, in the unit door or on the unit floor.
- Record Max/Min once a day in the morning, time and initial for the reading on the paper temperature logs using the state supplied data logger.
- Never store vaccine in a dorm-style refrigerator, for any period of time.
- Conduct weekly inventory to assure rotation of vaccine.
- Store water bottles marked “Do Not Drink” in the refrigerator to help maintain temperature.
- Store frozen water bottles in the freezer to help maintain temperature.
- Call the Immunization Program immediately if your vaccine has been exposed to an out-of–range temperature. Email the. ltd data file to the email below. Avoid delay to prevent vaccine loss.