

## Purpose

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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

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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 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

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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.

## Standalone Refrigerator Options

<p><b>Follett REF20-LB Medical-grade Refrigerator</b></p>	
<p><b>Helmer Scientific iLR120 Laboratory Refrigerator</b></p>	

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



**Frigidaire Gallery 18.6-cu  
ft Freezerless  
Refrigerator  
FGRU19F6QF**



# Refrigerator & Freezer Guide

**Whirlpool 17.7 cu. ft.  
Upright  
Refrigerator ENERGY  
STAR®  
Model# EL88TRRWS**



**PH-ABT-HC-12  
12 Cu. Ft. Premier Pharmacy  
Standard Solid Door Vaccine  
Refrigerator**



## 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

**Helmer Scientific  
iLR105 Undercounter  
Laboratory/Pharmacy  
Refrigerator**



**Follett Performance  
Plus Undercounter  
Medical-Grade  
Refrigerator**



**Thermo Scientific  
Revco High-  
Performance  
Undercounter  
Laboratory  
Refrigerator  
REL404A**



**Panasonic MRP-  
S163-PE**



# Refrigerator & Freezer Guide

**Marvel 6ARM-BS-F-R**



**GEM Model CTR:  
Under Counter  
Laboratory/Pharmacy  
Refrigerator**



# Refrigerator & Freezer Guide

**ABS 4.6 cu. ft.  
Undercounter ABT-  
UCBI-0404G-ADA**



**Sanyo  
SR-L6111W  
Laboratory  
Appliance Series**



**ABS 4.6 cu. ft.  
Freestanding ABT-  
UCFS-0504W**



## Stand-alone Freezers

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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

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**Helmer  
Scientific  
iLF105  
Undercounter  
Laboratory  
Freezer**



# Refrigerator & Freezer Guide

**Follett  
Performance  
Plus  
Undercounter  
Medical-  
Grade  
Freezer**



**Thermo  
Scientific  
Revco High-  
Performance  
Undercounter  
Lab Freezer  
ULT430A**



# Refrigerator & Freezer Guide

**Sanyo  
Under  
counter  
Laboratory  
Freezer  
(SF-L6111W)**



**ABS 14 cu. ft.  
Freezer ABT-  
1420AB**



**Kenmore  
20.6 cu. ft.  
Upright  
Freezer**



# Refrigerator & Freezer Guide

**4.3 cu. ft.  
Migali EVOX-  
U1F Freezer**



**1.3 cu.ft. ABS  
Auto Defrost  
Freezer  
ABT-HC-  
UCFS-0120A**



## 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. Avoid delay to prevent vaccine loss.