

Refrigerator/Freezer Purchasing Guide

1. The ability to maintain temperature	<p>Vaccine storage refrigerator or freezer units should be able to maintain the required temperatures throughout the year. CDC recommends the use of stand-alone units (units that only refrigerate or freeze), as they maintain the required temperatures effectively. CDC does not recommend the use of the freezer portion of combination units as they are not capable of maintaining the require temperatures. Most pharmacy-grade units are excellent at maintaining temperatures.</p> <p>Dormitory style refrigerators must not be used for vaccine storage.</p>
2. Size of the unit	<p>Vaccine storage units should be large enough to hold the year’s largest inventory (such as the inventory during influenza season) without crowding vaccines.</p> <p>Vaccine storage units should have enough space to hold water bottles for refrigerators and frozen packs for freezers. Water bottles and coolant packs help to stabilize temperatures in emergency situations like a power outage.</p>
3. Refrigerators or freezers with built-in thermometers	<p>Some refrigerator/freezer units have built-in thermometers. Some manufacturers place the built-in thermometer close to the wall of the unit, which contradicts the current recommendation that says thermometers should be placed at the center, close to the vaccines. If providers wish to buy a unit with a built-in thermometer, they should check for the placement of the glycol vial and whether the thermometer is calibrated or not. Providers should check the cost of recalibration with the manufacturers and they should recalibrate the built-in thermometers regularly according to the manufacturer’s recommendation. Providers must keep the certificates of calibration.</p>
4. Defrost cycle of the unit	<p>CDC recommends the use of refrigerators/freezers with an automatic defrost cycle or that are frost-free for vaccine storage. Units with manual defrost cycle may need a backup refrigerator/freezer when they are defrosted and accumulation of ice in a unit with manual defrost cycle may affect the performance of the unit. Therefore, units with manual defrost cycle are not preferred for vaccine storage.</p>
5. The door of the unit	<p>There is no specific recommendation on the type of refrigerator/freezer door. However, there are some qualities to look for. Some units have doors that close automatically with an alarm to detect if the door is ajar. Some units have locks and backup generator. A National Institute of Standards and Technology’s (NIST) study showed that refrigerators with a glass door have an increased risk of temperature excursion during power failure.</p>

After buying a new refrigerator or freezer unit, allow one week of twice daily temperature recordings, including minimum and maximum temperatures, to make sure the unit maintains the required temperature before storing vaccines in the unit.

Easy Steps to Purchase a Refrigerator or Freezer

- Step 1. Estimate the maximum number of doses that will be stored in the unit
 Step 2. Match the maximum doses with the minimum cubic feet needed
 Step 3. Search for product name and model number for prices or use the provided table

Refrigerators	Freezers
Add the number of doses on hand	Add the number of doses on hand
VFC vaccine _____	VFC MMR, MMRV and Varicella _____
VFC flu vaccine + _____	Private MMR, MMRV and Varicella + _____
Private vaccine + _____	Total doses _____
Private flu vaccine + _____	Multiply by x1.25
Total doses _____	Maximum doses = _____
Multiply by x1.25	
Maximum doses = _____	

Refrigerators		
Maximum Doses	Minimum Cubic Ft	Examples of Refrigerator-only units
2,000+ doses	May need more than one refrigerator	See below
1000 – 2000	40 cu. ft.	Thermo Scientific TSX4505GA; TSX4505GD *
900 – 1000	36 cu. ft.	PHCbi MPR-1014R*
801 - 900	21 - 23 cu. ft.	LabRepCO LHE-23-HG-PHNSF, SO-low DH4-23GD
701 - 800	17 - 20 cu. ft.	Bosch B30IR905SP; Insignia NS-UZ17SSO, Kenmore 22172
400 – 700	16.7 cu. ft.	Aegis Scientific GL-RG-16M*, LabRepCO LHE-16-HG-PH, Bosch B30IR905SP
100 - 399	4.9 - 6.1 cu. ft. (must be pharmacy grade)	Aegis Scientific EL-RG-4K, PHCbi PR-L5181W-PA
Freezers		
Maximum Doses	Minimum Cubic Ft	Examples of Freezer-only units
501 – 6,000	7 - 14.8 cu. ft.	Thermo Scientific TSX1230FA*; Frigidaire FFCL1542AW; Arctic Air CF07
201 - 500	5 - 5.6 cu. ft.	Kenmore 12502; Helmer Scientific HLF105-GX*
0 - 200	3.5 - 4.9 cu. ft.	Revco ULT430A*; Thermo Scientific JLF430W*; JFL430D*; JLF430A*, Accucold AFZ5PVBIADA, PHCbi PF-L5181W-PA

Refrigerator

Model	Manufacturer	Temperature range**	Size in cubic feet	Price*	Defrost Cycle	Door	Website
DAR110A1 WDD	Danby	Adjustable	11	\$899.99	Automatic	Solid Door	https://www.danby.com/en-us/products/apartment-size-refrigerators-en-us/dar110a1wdd/
FBG12RPG A	Fisher Scientific	1°C to 12°C	12	\$5,410	Automatic	Glass door	https://www.fishersci.com/shop/products/fbg-ref-12-pnt-glass-115v-60hz/fbg12rpga
FBG505SA	Fisher Scientific	2°C to 9°C	10	\$2,538	Automatic	Solid door	https://www.fishersci.com/shop/products/vaccine-medical-upright-refrigerator-2/K210SDR#
REF20-LB	Follett	1.5°C to 5°C	19.7	Contact Vendor	Automatic	Glass door or Solid	https://www.follettice.com/full-size-single-door-laboratory-and-pharmacy-refrigerator-197-cu-ft-capacity
REF20-PH	Follett	1.5°C to 5°C	19.7	Contact Vendor	Automatic	Glass door or Solid	https://www.follettice.com/full-size-single-door-laboratory-and-pharmacy-refrigerator-197-cu-ft-capacity
REF5P-00-00	Follett	2°C to 10°C	4.5	Contact Vendor	Automatic	Solid door	https://www.follettice.com/performance-plus-undercounter-medical-grade-refrigerator-touchscreen-or-led-controls-45-cu-ft
REF5P-00-GD	Follett	2°C to 10°C	4.5	Contact Vendor	Automatic	Glass door	https://www.follettice.com/performance-plus-undercounter-medical-grade-refrigerator-touchscreen-or-led-controls-45-cu-ft
iPR125-GX	Helmer Scientific	2°C to 10°C	25.2	Contact Vendor	Automatic	Glass Door	https://www.helmerinc.com/products/iseriessr-laboratory-refrigerator-ilr125-gx
HPR125-GX	Helmer Scientific	2°C to 10°C	25.2	Contact Vendor	Automatic	Glass door	https://www.helmerinc.com/products/horizon-seriestm-pharmacy-refrigerator-hpr125-gx
HPR105-GX	Helmer Scientific	2°C to 10°C	5.3	Contact Vendor	Automatic	Solid Door	https://www.helmerinc.com/products/horizon-seriestm-undercounter-pharmacy-refrigerator-hpr105-gx

Model	Manufacturer	Temperature range**	Size in cubic feet	Price*	Defrost Cycle	Door	Website
iPR105-GX	Helmer Scientific	2°C to 10°C	5.3	Contact Vendor	Automatic	Solid Door	https://www.helmerinc.com/products/iseriesr-undercounter-pharmacy-refrigerator-ipr105-gx
iPR113-GX	Helmer Scientific	2°C to 10°C	13.3	Contact Vendor	Automatic	Glass door	https://www.helmerinc.com/products/iseriesr-pharmacy-refrigerator-ipr113-gx
iPR120-GX	Helmer Scientific	2°C to 10°C	20.2	Contact Vendor	Automatic	Glass door	https://www.helmerinc.com/products/iseriesr-pharmacy-refrigerator-ipr120-gx
NS-UZ21WHO	Insignia	Adjustable	16.8	Contact Vendor	Automatic	Solid door	https://www.insigniaproducts.com/pdp/NS-UZ17WH0/6336449
G-1MRG	Migali Scientific	2°C to 8°C	12	Contact Vendor	Automatic	Glass door	http://www.migaliscientific.com/product/glass-door-upright-refrigerator-12-cuft/?cat=vaccine-storage
G-1R	Migali Scientific	2°C to 8°C	23	Contact Vendor	Automatic	Solid door	http://www.migaliscientific.com/product/23-cuft-solid-door-pharmacy-refrigerator/?cat=vaccine-storage
G-1RG	Migali Scientific	2°C to 8°C	23	Contact Vendor	Automatic	Glass door	http://www.migaliscientific.com/product/23-cuft-glass-door-pharmacy-refrigerator/?cat=vaccine-storage
G-2RG	Migali Scientific	2°C to 8°C	53	Contact Vendor	Automatic	Glass door	http://www.migaliscientific.com/product/glass-door-upright-refrigerator-52-cuft/?cat=vaccine-storage
G-2RF	Migali Scientific	2°C to 8°C	53	Contact Vendor	Automatic	Solid door	http://www.migaliscientific.com/product/solid-door-upright-refrigerator-52-cuft/?cat=vaccine-storage
EVOX-1R	Migali Scientific	2°C to 8°C	25	Contact Vendor	Automatic	Solid door	http://www.migaliscientific.com/product/solid-door-upright-refrigerator-25-cuft/?cat=vaccine-storage
EVOX-1RG	Migali Scientific	2°C to 8°C	55	Contact Vendor	Automatic	Glass door	https://www.migaliscientific.com/glass-door-upright-refrigerator-25-cu-ft
EVOX-2RG-S	Migali Scientific	2°C to 8°C	55	Contact Vendor	Automatic	Glass door	http://www.migaliscientific.com/product/sliding-glass-door-upright-refrigerator-55-cuft/?cat=vaccine-storage

Model	Manufacturer	Temperature range**	Size in cubic feet	Price*	Defrost Cycle	Door	Website
EVOX-U1RG-ADA	Migali Scientific	4°C	4.3	Contact Vendor	Automatic	Glass door	http://www.migaliscientific.com/product/4-3-cuft-glass-door-pharmacy-refrigerator/?cat=vaccine-storage
EVOX-U1R-ADA	Migali Scientific	4°C	4.3	Contact Vendor	Automatic	Solid door	http://www.migaliscientific.com/product/4-3-cuft-solid-door-pharmacy-refrigerator/?cat=vaccine-storage
EVOX-1PT	Migali Scientific	2°C to 8°C	25	Contact Vendor	Automatic	Glass door	http://www.migaliscientific.com/product/clean-room-pass-thru-refrigerator-25-cuft/?cat=vaccine-storage
MPR-S300H-PA	PHCbi	2°C to 14°C	12.2	Contact Vendor	Automatic	Glass door	https://www.phchd.com/us/biomedical/preservation/pharmaceutical-refrigerators/mpr-s300h-pa
MPR-S1201RXH-PA	PHCbi	2°C to 14°C	40.8	Contact Vendor	Automatic	Glass door	https://www.phchd.com/us/biomedical/preservation/pharmaceutical-refrigerators/mpr-s1201rxh-pa
LS27SD	Powers Scientific Inc.	2°C to 8°C	6.5	Contact Vendor	Automatic	Glass door	https://powersscientific.com/laboratory-refrigerators/
LS26SD	Powers Scientific Inc.	2°C to 8°C	10	Contact Vendor	Automatic	Glass door	https://powersscientific.com/laboratory-refrigerators/
LS28SSD	Powers Scientific Inc.	2°C to 8°C	18	Contact Vendor	Automatic	Glass door	https://powersscientific.com/laboratory-refrigerators/
LS33SD	Powers Scientific Inc.	2°C to 8°C	25	Contact Vendor	Automatic	Glass door	https://powersscientific.com/laboratory-refrigerators/
LS52SD	Powers Scientific Inc.	2°C to 8°C	52	\$4,685	Automatic	Glass door	https://powersscientific.com/laboratory-refrigerators/
BFRV84	TempArmour	2°C to 8°C	Standard	\$3,499	Automatic	Solid door	https://www.temparmour.com/refrigerators
BFRV84	TempArmour	2°C to 8°C	Compact	\$2,699	Automatic	Solid door	https://www.temparmour.com/refrigerators

Pharmaceutical Combination Units

Model	Manufacturer	Temperature range**	Size in cubic feet	Price*	Defrost Cycle	Door	Website
MPR-N450FH-PA	PHCbi	2°C to 14°C Refrigerator/ -35°C to -15°C Freezer	11.5 Refrigerator/4.8 Freezer	Contact Vendor	Automatic	Solid door	https://www.phchd.com/us/biomedical/preservation/Refrigerator-and-Freezer-Combo/mpr-n450fh-pa
MPR-N450FSH-PA	PHCbi	2°C to 14°C Refrigerator/ -35°C to -15°C Freezer	11.5 Refrigerator/4.8 Freezer	Contact Vendor	Automatic	Glass/Solid door	https://www.phchd.com/us/biomedical/preservation/Refrigerator-and-Freezer-Combo/mpr-n450fsh-pa
MPR-715F-PA	PHCbi	2°C to 14°C Refrigerator/ -35°C to -15°C Freezer	14.7 Refrigerator/6.2 Freezer	Contact Vendor	Automatic	Glass/Solid door	https://www.phchd.com/us/biomedical/preservation/Refrigerator-and-Freezer-Combo/mpr-715f
AccuVax	TruMed			Contact Vendor		No Door	http://trumedsystems.com/accuvax/

Freezers

HFC3501AC W	Haier	Adjustable	3.5	\$169	Manual	Solid door	https://www.haierappliances.com/appliance/specs/hfc3501acw
HF71CM33N W	Haier	Adjustable	7.1	\$219	Manual	Solid door	https://www.haierappliances.com/appliance/specs/hf71cm33nw
17992	Kenmore	Adjustable	8.8	\$569	Manual	Solid door	https://www.kenmore.com/products/kenmore-17992-8-8-cu-ft-chest-freezer-white/

Model	Manufacturer	Temperature range**	Size in cubic feet	Price*	Defrost Cycle	Door	Website
17662	Kenmore	Adjustable	7	\$399	Manual	Solid door	https://www.kenmore.com/products/kenmore-17662-7-cu-ft-chest-freezer-white/
HPR120-GX	Helmer Scientific	-15°C to -30°C	20.2	Contact Vendor	Automatic	Self-closing	https://www.helmerinc.com/product-types/vaccine-storage
iPR105-GX	Helmer Scientific	-15°C to -30°C	5.3	Contact Vendor	Automatic	Self-closing	https://www.helmerinc.com/product-types/vaccine-storage
HPR113-GX	Helmer Scientific	-15°C to -30°C	13.3	Contact Vendor	Automatic	Solid door	https://www.helmerinc.com/product-types/vaccine-storage
EVOX-U1F-ADA	Migali Scientific	-30 C °	4.2	Contact Vendor	Automatic	Solid door	http://www.migaliscientific.com/product/solid-door-under-counter-freezer/?cat=vaccine-storage
EVOX-1F	Migali Scientific	-30 C °	20.2	Contact Vendor	Automatic	Solid door	http://www.migaliscientific.com/product/solid-door-upright-freezer-25-cuft/?cat=vaccine-storage
Ultra Cold Freezers							
iUF118-GX	Helmer Scientific	-50°C to -86°C	18	Contact Vendor	NA	Solid door	https://www.helmerinc.com/product-types/vaccine-storage
K203ULT	K2 Science	-25°C to -86°C	3.39	\$5,895	NA	Solid door	
MDF-DU500ZHA-PA	PHCBi	-40°C to -86°C	18.5	Contact Vendor	NA	Solid door	https://www.phchd.com/us/biomedical/preservation/ultra-low-freezers/mdf-du500zha-pa
MDF-DC700VXC-PA	PHCBi	-40°C to -86°C	25.3	Contact Vendor	NA	Solid door	https://www.phchd.com/us/biomedical/preservation/ultra-low-freezers/mdf-dc700vxc

*Prices are subject to change and may differ based on manufacturer contracts or quantities ordered.

**The temperature ranges refers to the preset operating temperature of the specified unit.

You store expensive vaccines worth thousands of dollars in the refrigerator or freezer unit you buy. Therefore, you have to be strict when you choose your storage unit. For instance, 10 doses of MMRV and 10 doses of HPV vaccines cost \$2,790 more than the price of some refrigerator units.

Notice: This table provides a list of refrigerators/freezers which can be considered as options when providers plan to purchase a refrigerator and/or freezer for vaccine storage. The information in this document may change over time and does not include all products or manufacturers. Therefore, providers should conduct a detailed search when they plan to purchase a refrigerator/freezer. The North Dakota Department of Health does not recommend or endorse products or manufacturers. This list is a courtesy. Providers may purchase refrigerators and freezers not manufactured by companies on this list. This guide does not differentiate between pharmaceutical and commercial grades.