

Refrigerator/Freezer Purchasing Guide

<p>1. The ability to maintain temperature</p>	<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>
<p>2. Size of the unit</p>	<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>
<p>3. Refrigerators or freezers with built-in thermometers</p>	<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>
<p>4. Defrost cycle of the unit</p>	<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>
<p>5. The door of the unit</p>	<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

<p>Refrigerators</p> <p>Add the number of doses on hand</p> <p>VFC vaccine _____</p> <p>VFC flu vaccine + _____</p> <p>Private vaccine + _____</p> <p>Private flu vaccine + _____</p> <p>Total doses _____</p> <p>Multiply by x1.25</p> <p>Maximum doses = _____</p>	<p>Freezers</p> <p>Add the number of doses on hand</p> <p>VFC MMR, MMRV and Varicella _____</p> <p>Private MMR, MMRV and Varicella + _____</p> <p>Total doses _____</p> <p>Multiply by x1.25</p> <p>Maximum doses = _____</p>
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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.	Revco REL4504A; TSX4505GD *
900 – 1000	36 cu. ft.	Nor-Lake NSPR331WWG/O*; Panasonic MPR-1014R*
801 - 900	21 - 23 cu. ft.	Aegis Scientific 1-EL-R-23*; Nor-Lake NSPT524WWG/5*, SPT524WWF/5
701 - 800	17 - 20 cu. ft.	Frigidaire FCGM181RQB; Insignia NS-UZ17SSO
400 – 700	16.7 cu. ft.	Nor-Lake LR161WWW/O*; Kenmore 70722; Frigidaire FRU17B2JW
100 - 399	4.9 - 6.1 cu. ft. (must be pharmacy grade)	Nor-Lake LR021WWW/OM; NSPR041WMG/O*; NSXF041WMW/O*;
Freezers		
Maximum Doses	Minimum Cubic Ft	Examples of Freezer-only units
501 – 6,000	7 - 14.8 cu. ft.	Revco TSX1230FA *; Frigidaire FFFC15M4TW; FFFC13M4TW; FFFC09M1RW; Arctic Air CF07
201 - 500	5 - 5.6 cu. ft.	Revco ULT430A*; Frigidaire FFFC05M2UW; Kenmore 12502; Helmer Scientific HLF105*
0 - 200	3.5 - 4.9 cu. ft.	Nor-Lake LF041WWW/OM*; Revco ULT430A*; Thermo Scientific JLF430;* JFL430D*

Refrigerator

Model	Manufacturer	Temperature range**	Size in cubic feet	Price*	Defrost Cycle	Door	Website
AccuVAx	TruMed			Contact Sales rep for information		Closed system - No Door	http://trumedsystems.com/accuvax/
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
13-986-050	Fisher Scientific	2°C to 9°C	5.5	\$3,220	Automatic	Solid door	https://www.fishersci.com/shop/products/fisher-uc-solid-door-5-15p/fbg505sa
REF20-LB	Follett	1.5°C to 5°C	19.7	\$9,805	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	\$9,805	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	\$4,165	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	\$4,640	Automatic	Glass door	https://www.follettice.com/performance-plus-undercounter-medical-grade-refrigerator-touchscreen-or-led-controls-45-cu-ft
FFRU17B2Q W	Frigidaire	Adjustable	16.6	\$849	Automatic	Solid door	https://www.frigidaire.com/Kitchen-Appliances/Refrigerators/Single-Door-Refrigerator/FFRU17B2QW/
FFRU17B2Q W	Frigidaire	Adjustable	16.6	\$849	Automatic	Solid door	https://www.frigidaire.com/Kitchen-Appliances/Refrigerators/Single-Door-Refrigerator/FFRU17B2QW/

Model	Manufacturer	Temperature range**	Size in cubic feet	Price*	Defrost Cycle	Door	Website
iPR125-GX	Helmer Scientific	2°C to 10°C	25.2	Contact Sales rep for information	Automatic	Glass Door	https://www.helmerinc.com/products/iseriessr-laboratory-refrigerator-ilor125-gx
HPR125-GX	Helmer Scientific	2°C to 10°C	25.2	Contact Sales rep for information	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 Sales rep for information	Automatic	Solid Door	https://www.helmerinc.com/products/horizon-seriestm-undercounter-pharmacy-refrigerator-hpr105-gx
iPR105-GX	Helmer Scientific	2°C to 10°C	5.3	Contact Sales rep for information	Automatic	Solid Door	https://www.helmerinc.com/products/iseriessr-undercounter-pharmacy-refrigerator-ipr105-gx
iPR113-GX	Helmer Scientific	2°C to 10°C	13.3	Contact Sales rep for information	Automatic	Glass door	https://www.helmerinc.com/products/iseriessr-pharmacy-refrigerator-ipr113-gx
iPR120-GX	Helmer Scientific	2°C to 10°C	20.2	Contact Sales rep for information	Automatic	Glass door	https://www.helmerinc.com/products/iseriessr-pharmacy-refrigerator-ipr120-gx
70722	Kenmore	Adjustable	16.7	\$860	Automatic	Solid door	https://www.kenmore.com/products/kenmore-70722-16-7-cu-ft-counter-depth-freezerless-refrigerator-white/
G-1MRG	Migali Scientific	2°C to 8°C	12	\$3,475	Automatic	Glass door	http://www.migaliscientific.com/product/glass-door-upright-refrigerator-12-cuft/?cat=vaccine-storage

Model	Manufacturer	Temperature range**	Size in cubic feet	Price*	Defrost Cycle	Door	Website
G-1R	Migali Scientific	2°C to 8°C	23	\$3,780	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	\$4,035	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	\$5,800	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	\$6,038	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	\$5,788	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	\$5,788	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	\$5,800	Automatic	Glass door	http://www.migaliscientific.com/product/sliding-glass-door-upright-refrigerator-55-cuft/?cat=vaccine-storage
EVOX-2RG	Migali Scientific	2°C to 8°C	55	\$7,688	Automatic	Glass door	http://www.migaliscientific.com/product/55-cuft-glass-door-pharmacy-refrigerator/?cat=vaccine-storage
EVOX-2R	Migali Scientific	2°C to 8°C	55	\$7,688	Automatic	Solid door	http://www.migaliscientific.com/product/solid-door-upright-refrigerator-55-cuft/?cat=vaccine-storage
EVOX-U1RG-ADA	Migali Scientific	4°C	4.3	\$5,388	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	\$2,488	Automatic	Solid door	http://www.migaliscientific.com/product/4-3-cuft-solid-door-pharmacy-refrigerator/?cat=vaccine-storage
EVOX-2PT	Migali Scientific	2°C to 8°C	55	\$11,588	Automatic	Glass door	http://www.migaliscientific.com/product/clean-room-pass-thru-refrigerator-55-cuft/?cat=vaccine-storage

Model	Manufacturer	Temperature range**	Size in cubic feet	Price*	Defrost Cycle	Door	Website
EVOX-1PT	Migali Scientific	2°C to 8°C	25	\$8,588	Automatic	Glass door	http://www.migaliscientific.com/product/clean-room-pass-thru-refrigerator-25-cuft/?cat=vaccine-storage
LR161WWW /0	Nor-Lake Scientific	4°C	16.7	\$2,800	Automatic	Self-closing	www.norlake.com/docs/default-source/specification-sheets/general-purpose-laboratory-refrigerator-upright-auto-defrost-specification-sheet-%28139512%29.pdf
SR-L6111W-PA	PHCbi	1°C to 14°C	5.7	\$2,444	Automatic	Solid door	https://www.phchd.com/us/biomedical/preservation/under-counter-refrigerators/sr-l6111w
LS27SD	Powers Scientific Inc.	2°C to 8°C	6.5	\$3,822	Automatic	Glass door	http://powersscientific.com/2-8c-constant-temperature-refrigerators-vaccine-storage/
LS26SD	Powers Scientific Inc.	2°C to 8°C	10	\$2,980	Automatic	Glass door	http://powersscientific.com/2-8c-constant-temperature-refrigerators-vaccine-storage/
LS28SSD	Powers Scientific Inc.	2°C to 8°C	18	\$3,454	Automatic	Glass door	http://powersscientific.com/2-8c-constant-temperature-refrigerators-vaccine-storage/
LS33SD	Powers Scientific Inc.	2°C to 8°C	25	\$4,105	Automatic	Glass door	http://powersscientific.com/2-8c-constant-temperature-refrigerators-vaccine-storage/
LS52SD	Powers Scientific Inc.	2°C to 8°C	52	\$4,685	Automatic	Glass door	http://powersscientific.com/2-8c-constant-temperature-refrigerators-vaccine-storage/
DH4-23SD	So-Low	2°C to 8°C	23	\$3,580	Automatic	Solid door	http://www.so-low.com/lab-pharmacy-refrigerators/Solid_Door_Laboratory_and_Pharmacy_Refrigerators/DH4-23SD-Solid-Door-Pharmacy-Refrigerator
TempArmour	TempArmour	2°C to 8°C	21	\$3,299	Automatic	Solid door	https://www.temparmour.com/

Pharmaceutical Combination Units

MPR-215F-PA	PHCbi	2°C to 14°C Refrigerator/ -35°C to -15°C Freezer	6.2 Refrigerator/ or/1.4 Freezer	Contact Sales rep for information	Automatic	Solid door	https://www.phchd.com/us/biomedical/preservation/Refrigerator-and-Freezer-Combo/mpr-215f
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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 or/4.8 Freezer	Contact Sales rep for information	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 or/4.8 Freezer	Contact Sales rep for information	Automatic	Solid door	https://www.phchd.com/us/biomedical/preservation/Refrigerator-and-Freezer-Combo/mpr-n450fsh-pa
Freezers							
FFFC09M1RW	Frigidaire	-13°F to 1.4°F	8.7	\$499	Manual	Solid door	https://www.frigidaire.com/Kitchen-Appliances/Freezers/Chest-Freezer/FFFC09M1RW/
FFFC13M4TW	Frigidaire	-13°F to 1.4°F	12.8	\$619	Manual	Solid door	https://www.frigidaire.com/Kitchen-Appliances/Freezers/Chest-Freezer/FFFC13M4TW/
HFC3501ACW	Haier	Adjustable	3.5	\$169	Manual	Solid door	https://www.haierappliances.com/appliance/specs/hfc3501acw
HF50CM23NW	Haier	Adjustable	5.0	\$189	Manual	Solid door	https://www.haierappliances.com/appliance/specs/hf50cm23nw
HF71CM33NW	Haier	Adjustable	7.1	\$219	Manual	Solid door	https://www.haierappliances.com/appliance/specs/hf71cm33nw

Model	Manufacturer	Temperature range**	Size in cubic feet	Price*	Defrost Cycle	Door	Website
HLF120	Helmer Scientific	-15°C to -30°C	20	\$5,385	Automatic	Self-closing	http://www.helmerinc.com/products/hlf120-laboratory-freezer.html
iLF104	Helmer Scientific	-15°C to -30°C	4	\$4,667	Automatic	Self-closing	http://www.helmerinc.com/products/ilf104-ada-undercounter-laboratory-freezer.html
HLF104-ADA	Helmer Scientific	-15°C to -30°C	4	\$3,472	Automatic	Solid door	http://www.helmerinc.com/products/hlf104-ada-undercounter-laboratory-freezer.html
EVOX-U1F-ADA	Migali Scientific	-30°	4.3	\$3,388	Automatic	Solid door	http://www.migaliscientific.com/product/solid-door-under-counter-freezer/?cat=vaccine-storage
EVOX-1F	Migali Scientific	-30°	25	\$3,188	Automatic	Solid door	http://www.migaliscientific.com/product/solid-door-upright-freezer-25-cuft/?cat=vaccine-storage
NSXF211W WW/0	Nor-Lake Scientific	-20°C to -30°C	24	\$4,150	Automatic	Solid door	http://www.norlake.com/nor-lake-products/scientific-industrial/products/laboratory-pharmacy/premier-series/premier-solid-door-low-temp-freezers--30%C2%BAc/nsxf211www-0

*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.