

FOLLOW VACCINE STORAGE AND HANDLING GUIDANCE

The Centers for Disease Control and Prevention (CDC) *Vaccine Storage and Handling Toolkit* provides best practices based on recommendations of the Advisory Committee on Immunization Practices, vaccine manufacturers' product information, and studies conducted by the National Institute of Standards and Technology. If you are a Vaccines for Children (VFC) provider, **consult your state/local immunization program for recommendations and requirements specific to your area.**

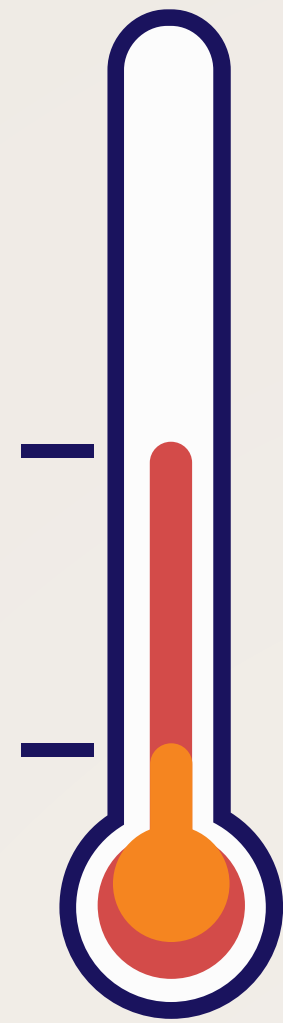
Vaccine Storage Basics

- **Always** refer to the manufacturer's package insert for the most up-to-date recommendations.

STORE FROZEN VACCINES IN FREEZER BETWEEN **-50°C and -15°C** (-58°F and +5°F)

STORE REFRIGERATED VACCINES BETWEEN **2°C and 8°C** (35°F and 46°F)

with a desired average temperature of 5°C (40°F).



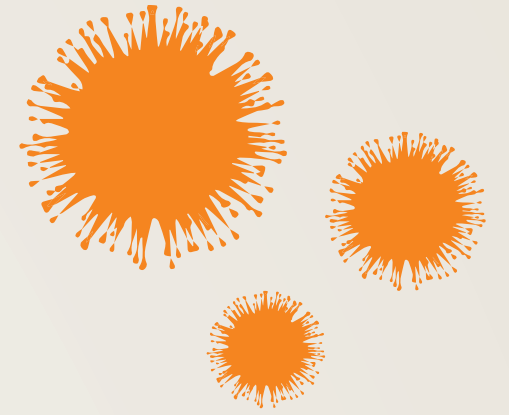
- Place **soonest expiring** vaccines and diluents in front of those expiring later.
- **Label and store** look- or sound-alike vaccines (eg, Hib and HepB) and pediatric and adolescent formulations (eg, DTaP and Tdap) **separately.**
- **Never** store other medications or biologics in same tray or containers/bins. If possible, store products other than vaccines in a different unit.
- **Clearly label** diluents and store with appropriate vaccine component, when possible.



Keep vaccines and diluents in **ORIGINAL PACKAGING** with lids closed until ready for administration.

Vaccine Storage Units

Medical-grade units with digital- or microprocessor-controlled thermostats, wire shelves, an interior fan, and a port for temperature probe are vastly superior to domestic refrigerators with analog thermostats. CDC recommends stand-alone units that either refrigerate or freeze (but not both).



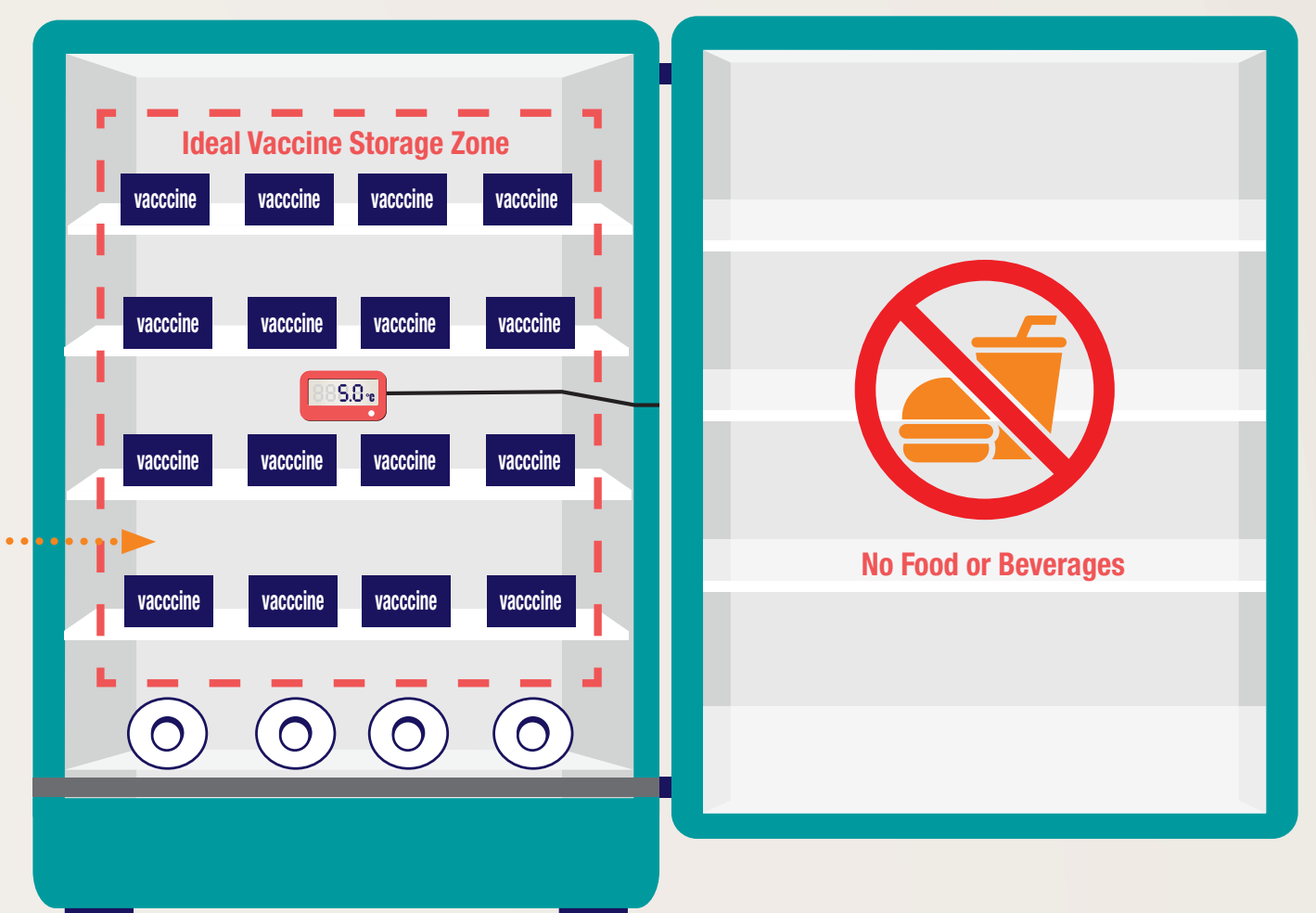
Medical-grade Units

Medical-grade units are strongly recommended and have

- Digital thermostat for **precise temperature control**, often within 1°C throughout unit
- Tremendously more storage area for a given size compared to domestic units
- Port for data logger-probe cord



Leave a 2- to 3-inch gap along the rear wall to allow optimal circulation



When using a medical-grade refrigerator, consider ordering extra shelves from the manufacturer to optimize vaccine accessibility.

Vaccine Monitoring

- Use only **calibrated temperature-monitoring devices** with a current Certificate of Traceability and Calibration Testing. They should be re-certified or replaced per manufacturer every **1-2 years.**
- The CDC recommends, and state/local immunization programs may require, **having a back-up thermometer.**
- The CDC recommends using **digital data loggers.**
 - Staff should be **trained** and understand how to set up, read, and analyze temperature data provided by the data logger.



Data loggers

should include the following features:

- Alarm for out-of-range temperatures
- Display of current temperature with maximum and minimum since last reset
- A/C optional with low-battery indicator but functional on battery alone
- Accuracy of $\pm 0.5^\circ\text{C}$ ($\pm 1^\circ\text{F}$)
- Memory to store 4,000 readings (some store up to 525,000 readings—1 every minute x 1 year!)
- User-programmable logging interval (or reading rate) from 1 to 30 minutes
- Temperature probe buffered in glycol and among the vaccines

Minimum characteristics of refrigerators and freezers used for vaccine storage include enough room to store

- The **year's largest inventory** without crowding (flu season)
- Water bottles to provide **thermal mass** and reduce cycling

Non Medical-grade Units

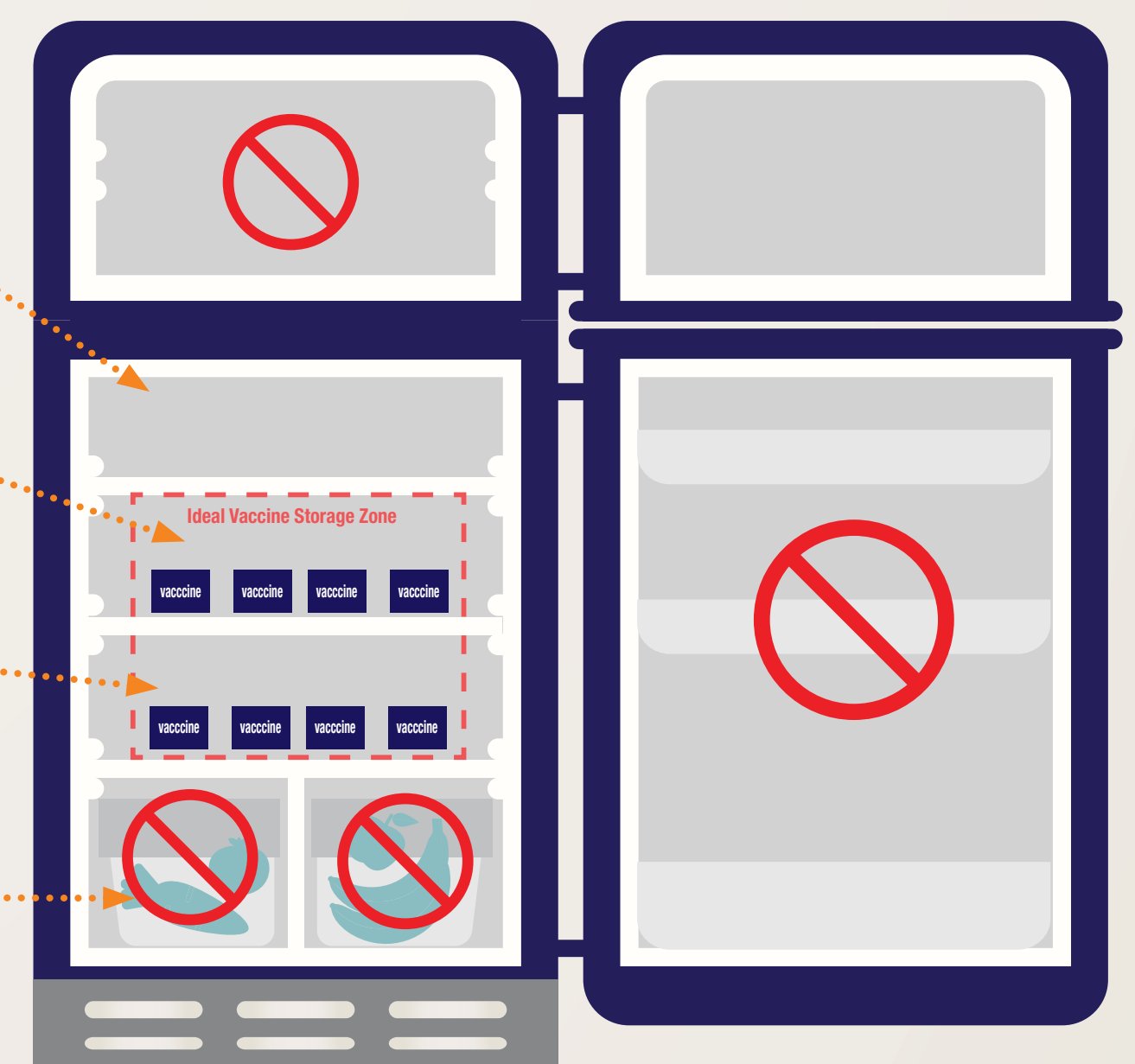
If using a non medical-grade refrigerator, plan on replacing it soon!

Do not store vaccines on top shelf

Keep vaccines 2 to 3 inches from walls, and allow space between rows of vaccines and diluents

Do not place vaccine near top and rear vents or pack unit too tightly

Do not store vaccines in deli, fruit, and vegetable drawers or on floor



Many VFC programs are disqualifying combination units (household freezer/refrigerator) for storing vaccines.

Vaccine Storage Plans

- Develop a detailed written **Routine Vaccine Storage and Handling Plan** and **Emergency Vaccine Retrieval and Storage Plan**, to be updated annually. (Scan the QR code for access to the Routine Vaccine Storage and Handling Plan Worksheet.)
- An alarm dialer can notify you and your staff of temperature excursions and power failures beyond office hours. **Protect your vaccine investment as well as your ability to vaccinate!**



For more resources, see the "AAP Vaccine Storage" Web page:

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