Proper vaccine storage has never been more important. To ensure continued efficacy, vaccine storage conditions must follow strict and consistent temperature requirements. All vaccines must be stored and administered following the vaccine manufacturer’s specifications. While these requirements are often similar for different brands of the same vaccine, this is not always the case. This informational guide provides an overview of storage temperature requirements for COVID vaccines currently approved for Emergency Use Authorization in the U.S.¹ and answers some frequently asked questions about storage for COVID-19 and other vaccines.

This document is intended as a recommendation and is based on storage guidelines available at the publication time for emerging vaccines associated with COVID-19.²³

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Pfizer</th>
<th>Moderna</th>
<th>Janssen (J&amp;J)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaccine Type, Brand Name</td>
<td>mRNA, BNT162b1</td>
<td>mRNA, mRNA-1273</td>
<td>Viral Vector, Ad26.COV2.S</td>
</tr>
<tr>
<td>Shipment Storage</td>
<td>-80°C to -60°C</td>
<td>-25°C to -15°C</td>
<td>+2°C to +8°C</td>
</tr>
<tr>
<td>On-Site Storage</td>
<td>Freezer: -80°C to -60°C</td>
<td>Freezer: -25°C to -15°C</td>
<td>Do not store frozen</td>
</tr>
<tr>
<td></td>
<td>Biomedical Freezer: -25°C to -15°C for up to 2 weeks</td>
<td>Refrigerator: +2°C to +8°C for up to 30 days</td>
<td>Refrigerator: +2°C to +8°C</td>
</tr>
<tr>
<td></td>
<td>Refrigerator: +2°C to +8°C for up to 120 hours (5 days)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time to Use After Thaw</td>
<td>Up to 120 hours (five days) refrigerated</td>
<td>Up to 30 days refrigerated</td>
<td>See carton QR code for expiration information when refrigerated</td>
</tr>
<tr>
<td></td>
<td>Up to 2 hours (including thaw time) room temperature, up to +25°C</td>
<td>Up to 12 hours room temperature, +8°C to +25°C</td>
<td>Up to 12 hours room temperature, +9°C to +25°C</td>
</tr>
<tr>
<td>Time to Use After Thaw, Reconstituted</td>
<td>6 hours</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Dose</td>
<td>Multi, 6 doses per vial</td>
<td>Multi, 10 doses per vial</td>
<td>Multi, 5 doses per vial</td>
</tr>
<tr>
<td>Doses Required, Wait Time</td>
<td>Two, 21-day wait</td>
<td>Two, 28-day wait</td>
<td>Single-dose</td>
</tr>
</tbody>
</table>

Please note that all requirements and dosing information shown are based upon information available at the time of publication and are therefore subject to change. Shelf-life information is based on unpunctured vials. Do NOT refreeze thawed vaccine, regardless of brand.

¹. As of 03/2021. Visit cdc.gov/vaccines/hcp/admin/storage/toolkit/storage-handling-toolkit.pdf for more information.
³. Advisory Committee on Immunization Practices (ACIP). cdc.gov/vaccines/acip/
Pfizer Packaging

**Primary Packaging**
- 2ml type 1 glass preservative free multi-dose vial (MDV)
- 0.45 ml frozen liquid drug
- 6 doses per vial

**Secondary Packaging**
- Tray: 229 × 229 × 40 mm
- Holds 195 vials (1,170 doses)

**Tertiary Packaging**
- Internal Carton: 245 × 245 × 241 mm
- External Carton: 400 × 400 × 560 mm
- Holds 5 trays (5,850 doses)

Modernina Packaging

**Primary Packaging**
- Multi-dose vial (MDV)
- 10 doses per vial

**Secondary Packaging**
- 10 vials per carton
- Carton: 5.5" × 2.2" × 2.5" (L × W × D)

**Tertiary Packaging**
- 12 cartons per case (1,200 doses)

Janssen Packaging

**Primary Packaging**
- 2.5ml preservative free multi-dose vial (MDV)
- 0.5 ml liquid drug
- 5 doses per vial

**Secondary Packaging**
- 10 vials per carton
- Carton: 3.66" × 1.59" × 2.13" (L × W × D)

**Tertiary Packaging**
- 48 cartons per case (2,400 doses)
- Case: 15.31" × 9.56" × 4.75" (L × W × D)

4. Advisory Committee on Immunization Practices (ACIP) cdc.gov/vaccines/acip/
5. moderna.com/covid19vaccine-providers/storage-handling
6. Advisory Committee on Immunization Practices (ACIP) cdc.gov/vaccines/acip/
## PHCbi Brand Vaccine Storage Solutions

The below chart provides suggestions for storage volume needs based on existing market information.

<table>
<thead>
<tr>
<th>Temperature Range</th>
<th>Brand</th>
<th>Chamber Type</th>
<th>High Traffic Capacity</th>
<th>Moderate Traffic Capacity</th>
<th>Low Traffic Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>-80°C to -60°C</td>
<td>Pfizer</td>
<td>MDF-DU901VHA-PA</td>
<td>29.8 cu.ft.</td>
<td>220V (115V)</td>
<td>144 Trays</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MDF-DU702VHA-PA</td>
<td>25.7 cu.ft.</td>
<td>220V (115V)</td>
<td>20 Trays</td>
</tr>
<tr>
<td></td>
<td>Pfizer</td>
<td>MDF-U731M-PA</td>
<td>24.4 cu.ft.</td>
<td>115V</td>
<td>26,520 Vials</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MDF-MUS39HL-PA</td>
<td>17.8 cu.ft.</td>
<td>115V</td>
<td>19,500 Vials</td>
</tr>
<tr>
<td></td>
<td>Moderna</td>
<td>MDF-U731M-PA</td>
<td>24.4 cu.ft.</td>
<td>115V</td>
<td>8,800 Vials</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MDF-MUS39HL-PA</td>
<td>17.8 cu.ft.</td>
<td>115V</td>
<td>5,760 Vials</td>
</tr>
<tr>
<td></td>
<td>Pfizer</td>
<td>MPR-1412-PA</td>
<td>48.2 cu.ft.</td>
<td>115V</td>
<td>43,680 Vials</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MPR-722-PA</td>
<td>24.2 cu.ft.</td>
<td>115V</td>
<td>21,840 Vials</td>
</tr>
<tr>
<td></td>
<td>Moderna</td>
<td>MPR-1412-PA</td>
<td>48.2 cu.ft.</td>
<td>115V</td>
<td>14,400 Vials</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MPR-722-PA</td>
<td>24.2 cu.ft.</td>
<td>115V</td>
<td>7,200 Vials</td>
</tr>
<tr>
<td></td>
<td>Janssen</td>
<td>MPR-1412-PA</td>
<td>48.2 cu.ft.</td>
<td>115V</td>
<td>40,000 Vials</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MPR-722-PA</td>
<td>24.2 cu.ft.</td>
<td>115V</td>
<td>20,000 Vials</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MPR-1014-PA</td>
<td>36.4 cu.ft.</td>
<td>115V</td>
<td>26,000 Vials</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MPR-514-PA</td>
<td>17.3 cu.ft.</td>
<td>115V</td>
<td>12,500 Vials</td>
</tr>
</tbody>
</table>

Note: All vial volumes listed are dependent upon storage trays

7. For up to 2 weeks
8. Must be used within 5 days
9. Must be used within 30 days
10. Do not freeze
Vaccine Storage FAQs

Q: Can Pfizer, Moderna and Janssen COVID-19 vaccines all be stored in the same model?

A: We understand that distributors don’t always have a choice when it comes to COVID vaccine shipments. You might not even know what you’re going to get until it arrives. That’s why we offer combination freezer/refrigerator units that can allow storage of vaccines across the temperature spectrums. Your PHCbi representative can assist you in making the appropriate selection for storage of COVID-19 and other vaccines.

Q: What should I look for when purchasing a vaccine storage unit?

A: Because of the tight storage temperature requirements for COVID and other vaccines, conventional refrigerators are not recommended. In fact, the CDC recommends freezers or refrigerators that are specifically designed for pharmaceutical and medical-grade storage. These purpose-built models have the superior ability to maintain precise, uniform temperatures throughout the cabinet. This is especially important for vaccines that must not be frozen.

Q: Can the vaccines be stored directly in the PHCbi brand units?

A: You can configure the unit racking to meet your needs for storage of the shipping boxes. Follow the vaccine manufacturers’ directions for storage.

Q: Can dry ice be added to the unit?

A: It is not recommended to add dry ice directly to any PHCbi brand freezer or refrigerator. Dry ice might expose the vaccines to temperatures colder than -50°C. Janssen (J&J) and Moderna vaccines should not be stored using dry ice. You should make an emergency plan that follows CDC guidelines to prepare for emergency vaccine storage in response to natural disasters or power outages.

Q: At what temperatures can the models be set?

A: We offer a range of models with temperatures suitable for vaccines that require ultra-low temperature storage between -86°C and -40°C as well as models that accommodate vaccines requiring +2°C to +8°C storage temperatures. Additionally, only PHCbi brand products offer combination units with freezer chambers to store vaccines at -30°C to -20°C and +2°C to +14°C in the same footprint.

Q: What type of power source do the models need?

A: PHCbi brand freezers and refrigerators use standard AC outlets. We have models available in 115V or 220V. Visit our website to view specifications or simply contact your local PHCbi brand representative for details.

Q: Are there energy-efficient PHCbi brand models available?

A: We offer 18 different PHCbi brand models that are ENERGY STAR® Certified for performance and energy efficiency. These include both biomedical and ultra-low temperature freezers as well as high performance refrigerators. Our refrigerators use SNAP compliant refrigerants to help you meet sustainability goals.

Not finding all of the answers you need? Your local PHCbi representative is here to help.

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11. If the Moderna vaccines are still frozen upon arrival, they can be stored in a freezer between -25°C and -15°C. The CDC Moderna Storage and Handling Summary specifically cautions against the use of dry ice for storage: cdc.gov/vaccines/covid-19/info-by-product/moderna/downloads/storage-summary.pdf

12. The Janssen (J&J) vaccine should not be frozen and should not be stored at temperatures below +2°C, as recommended in the CDC Janssen Storage and Handling Summary: cdc.gov/vaccines/covid-19/info-by-product/janssen/downloads/janssen-storage-handling-summary.pdf