

## Vaccines: Storage and Handling

Storage/Handling	Moderna (mRNA-1273) <sup>1-3</sup>	Pfizer-BioNTech (BNT162b2) <sup>3-7</sup>
Dry ice	Do not use	Thermal shipping container may be used as temporary storage for up to 30 days from delivery with proper dry ice replenishment.
Freezer storage	-25°C to -15°C <ul style="list-style-type: none"> <li>Protect from light until ready to use</li> <li>Keep in original packaging</li> <li>Do not store below -40°C</li> </ul>	-80°C to -60°C <ul style="list-style-type: none"> <li>Protect from light until ready to use</li> <li>Keep in original packaging</li> <li>Expires 6 months from manufacturing</li> </ul>
Refrigerator storage	2°C to 8°C for up to 30 days	2°C to 8°C for up to 5 days <ul style="list-style-type: none"> <li>Minimize room light exposure and avoid exposure to direct sunlight/ultraviolet light</li> </ul>
Refrigerator thawing	<ul style="list-style-type: none"> <li>Thaw in refrigerator (2°C to 8°C) for 2.5 hours</li> <li>After thawing, let vial stand at room temperature for 15 minutes prior to administering.</li> </ul>	<ul style="list-style-type: none"> <li>Thaw in refrigerator (2°C to 8°C); may take up to 3 hours depending on number of vials</li> <li>Must be at room temperature at least 30 minutes prior to diluting</li> <li>Must dilute within 2 hours of removal from refrigerator or freezer</li> </ul>
Room temperature thawing	<ul style="list-style-type: none"> <li>Thaw at room temperature (15°C to 25°C) for 1 hour</li> <li>After thawing, let vial stand at room temperature for 15 minutes prior to administering.</li> <li>Unpunctured vials may be stored between 8°C to 25°C for up to 12 hours.</li> </ul>	<ul style="list-style-type: none"> <li>Thaw at room temperature (up to 25°C) for 30 minutes</li> <li>Must be at room temperature at least 30 minutes prior to diluting</li> <li>Must dilute within 2 hours of removal from refrigerator or freezer</li> </ul>
In vial	<ul style="list-style-type: none"> <li>Stable for up to 6 hours from initial vial piercing at 2°C to 25°C</li> <li>Discard after 6 hours</li> </ul>	<ul style="list-style-type: none"> <li>Stable for up to 6 hours from dilution at 2°C to 25°C</li> <li>Discard after 6 hours</li> </ul>
In syringe	<ul style="list-style-type: none"> <li>Stable for up to 6 hours from initial vial puncture</li> <li>Store in refrigerator (2°C to 8°C) or at room temperature (15°C to 25°C)</li> <li>Keep out of direct sunlight</li> </ul>	<ul style="list-style-type: none"> <li>Stable for up to 6 hours from dilution at 2°C to 30°C ± 2°C in polycarbonate and polypropylene syringes with stainless steel needles</li> <li>Discard after 6 hours</li> </ul>
Notes	<ul style="list-style-type: none"> <li>Never refreeze vaccines after thawing.</li> <li>CDC states that pre-drawing vaccines may result in waste if more are drawn up than necessary, so they state that vaccines should be drawn only in preparation for immediate administration.</li> </ul>	

### References

1. Moderna COVID-19 Vaccine. *Storage & Handling*. <https://www.modernatx.com/covid19vaccine-eua/providers/storage-handling.pdf>. Updated December 2020. Accessed January 21, 2021.
2. Moderna. Provided in email communication with Moderna Medical Information.
3. At-a-glance: mRNA COVID-19 Vaccines. APhA. [https://www.pharmacist.com/sites/default/files/audience/APhACOVIDataglacemRNA\\_010721\\_web.pdf](https://www.pharmacist.com/sites/default/files/audience/APhACOVIDataglacemRNA_010721_web.pdf). Updated January 7, 2021. Accessed January 21, 2021.
4. Pfizer-BioNTech COVID-19 Vaccine. <http://labeling.pfizer.com/ShowLabeling.aspx?id=14471>. Updated January 2021. Accessed January 21, 2021.
5. Pfizer-BioNTech COVID-19 Vaccine. *Thermal Shipping Container Dry Ice Replenishment Instructions*. <https://www.cvdvaccine-us.com/images/pdf/DryIceReplenishment.pdf>. Updated January 15, 2021. Accessed January 21, 2021.
6. Pfizer-BioNTech COVID-19 Vaccine. *Questions and Answers About Pfizer-BioNTech COVID-19 Vaccine*. <https://www.cvdvaccine-us.com/faqs>. Accessed January 21, 2021.
7. Pfizer-BioNTech COVID-19 Vaccine. *Storage and Handling of DILUTED VIALS Outside of Recommendations in the EUA Prescribing Information*. Provided in email communication with Pfizer Medical Information.

**Vaccine Differences & Practical Considerations**

	<b>Moderna (mRNA-1273)<sup>1-2</sup></b>	<b>Pfizer-BioNTech (BNT162b2)<sup>3-5</sup></b>
Age minimum	18 years	16 years
Dose	0.5 mL	0.3 mL
Dosing interval between dose 1 & 2	1 month	3 weeks
Dilution required?	No	Yes Dilute with 1.8 mL of 0.9% Sodium Chloride Injection, USP after vial reaches room temperature. Must be diluted within 2 hours from the time the vial was removed from refrigerator or freezer.
Number of doses per vial per fact sheet	10	6
Number of full doses per vial based on experience	10-11	6-7 If using low dead-volume syringes with pre-attached needles, 6-7 doses can usually be obtained from the vial. If not, the average number of full-doses/vial is ~5.4
Determining number of vials to thaw	Consider 'no shows' and vials currently stored and/or thawing in the refrigerator.  Example Calculation: ▶ 609 vaccinations scheduled*1 (100% show rate)/10 = 60.9 vials (round up) ▶ 61 – 2 vials from previous clinic – 10 vials thawing in refrigerator = 49 vials need to be removed from the freezer	Consider 'no shows' and vials currently stored and/or thawing in the refrigerator.  Example Calculation: ▶ 609 vaccinations scheduled*1 (100% show rate)/5.5 = 110.7 vials (round up) ▶ 111 vials - 2 vials remaining in refrigerator = 109 vials need to be removed from freezer
If vaccine is defective, damaged, or mishandled	Call Moderna Medical Information: 1-866-663-3762	Call Pfizer Medical Information: 1-800-438-1985
Needle length <sup>6</sup>	For intramuscular injection in adults 19 years of age and older who weigh ≥260 lbs (men) or ≥200 lbs (women), a 1.5 inches needle should be used.	

**References:**

1. Moderna COVID-19 Vaccine. Fact Sheet for Healthcare Providers Administering Vaccine. Revised 12/2020. Available at: <https://www.modernatx.com/covid19vaccine-eua/eua-fact-sheet-providers.pdf> Accessed: 1/22/2021
2. Nebraska Medicine. Moderna COVID Vaccination Clinic Procedures (1-15-2021).
3. Pfizer-BioNTech COVID-19 Vaccine. Fact Sheet for Healthcare Providers Administering Vaccine. Revised 1/2021. Available at: <http://labeling.pfizer.com/ShowLabeling.aspx?id=14471> Accessed: 1/22/2021
4. Nebraska Medicine. Pfizer COVID Vaccination Clinic Procedures (1-15-2021).
5. Nebraska Medicine Employee Vaccination Clinic Experience. Email Communication. 1/22/2021.
6. You Call the Shots. Vaccine Administration: Needle Gauge and Length. 08/04/20. Available at: <https://www.cdc.gov/vaccines/hcp/admin/downloads/vaccine-administration-needle-length.pdf> Accessed: 1/22/2021

**For the latest information, see the Fact Sheet for Healthcare Providers  
Version 1, January 25, 2021**