



Vaccine Storage Readiness Guide

Rising to the
challenge of safe
and effective
vaccine storage

Vaccine demand is rising.

Is your healthcare facility ready?

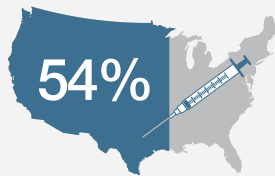
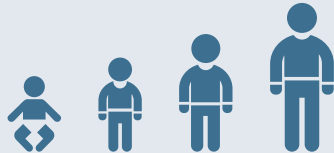
According to the CDC, COVID-19 has caused a decrease in preventive medical care, including vaccinations.¹ However, “ensuring that routine vaccination is maintained or reinitiated during the COVID-19 pandemic is essential for protecting individuals and communities from vaccine-preventable diseases and outbreaks.”¹ Routine vaccination prevents illnesses that can further strain our healthcare system during this critical time.¹

Being prepared to deliver vaccines is more important than ever due to increased demand for influenza vaccines and COVID-19 vaccines. As a provider of vaccination services, your healthcare facility is on the front line for helping patients catch up with routine vaccines, receive their annual flu vaccines and, receive vaccination against COVID-19. Together, we can rise to the challenge to provide safe and effective vaccine storage for all.

Unprecedented vaccine demand:

2021-22 flu vaccinations

CDC guidelines encourage flu vaccination for all Americans ages 6 months+.²

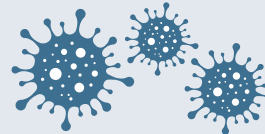


54% of U.S. adults received the flu vaccine last year.²
- This is higher than the 2019-2020 flu season, where only 48% of adults received the flu vaccine.³

Vaccine manufacturers anticipate delivering more than 190 million doses of flu vaccine this year.⁴

190+ MILLION

COVID-19 vaccine



COVID-19 vaccination began in December 2020.

Up to 200 million Americans may need vaccination.⁶

- Just under 50% of Americans have received complete vaccination against Covid-19.⁶

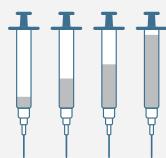


Over 300 million doses have been administered.⁶

- Initial vaccines are expected to require two doses.⁶

Routine vaccine catch-up

The CDC noted a precipitous decline in routine childhood vaccinations starting with declaration of the U.S. national emergency for COVID-19 on March 13, 2020.⁵



Routine vaccine demand is expected to increase as in-person school resumes and children receive the COVID-19 vaccine.

» Now is the ideal time to evaluate your vaccine storage strategy.

An effective plan for proper vaccine storage can help get your healthcare facility ready for increasing inventory and growing demand, so you can meet the public health needs of your community efficiently and safely.

Every vaccine dose must count.

3 steps to safeguard your vaccine inventory

1 Meet existing CDC guidelines for safe vaccine storage

The CDC warns that failure to maintain the cold chain (proper vaccine storage from the time of manufacture to administration) can result in a useless vaccine supply.⁷

The CDC's Vaccine Storage and Handling Toolkit states:

"Exposure to any inappropriate conditions can affect potency of any refrigerated vaccine, but a single exposure to freezing temperatures (0°C [32°F] or colder) can actually destroy potency. Liquid vaccines containing an adjuvant can permanently lose potency when exposed to freezing temperatures."⁸



CDC checklist

Make sure your facility's vaccine storage meets CDC guidelines and recommendations, including:

✔ Store vaccines at manufacturer recommended temperatures to maintain efficacy.	»» <i>Coming COVID-19 vaccines may have different temperature requirements based on the manufacturer and type of vaccine.</i>
✔ Use purpose-built units specifically designed to store vaccines.	»» <i>Providers must ensure storage units have temperature performance required to safeguard vaccines.</i>
✔ Ensure your vaccine storage has adequate room for inventory.	»» <i>Providers should provide cold storage for maximum expected doses. Crowding and heavy capacity loads may affect the temperature performance of some cold storage units.</i>
✔ Monitor temperatures in your storage unit to ensure cold chain stability.	»» <i>Providers are responsible for maintaining the vaccine cold chain.</i>

2 Meets NSF/ANSI 456 vaccine storage standard

The CDC Vaccine Storage and Handling Toolkit provides guidance that improves on the safety and efficiency of vaccine storage. However, the CDC Toolkit does not provide specific performance criteria for cold storage. The NSF Joint Committee has published testing protocols and requirements for certification of vaccine storage to help clinicians understand the true performance of their vaccine storage equipment. The NSF Joint Committee on Vaccine Storage, which comprises a diverse group of stakeholders representing public health (including the CDC), regulatory bodies, healthcare providers, equipment manufacturers, and vaccine suppliers, has finalized this new standard for vaccine refrigeration engineering controls to help ensure vaccines are stored safely under real-world conditions.



This new standard is designed to ensure vaccine storage equipment has appropriate temperature performance to safeguard vaccines in all potential storage locations and under varying load conditions.

Testing protocols for meeting the new standard include:

- **Steady-state evaluations:** Temperature measurements with the refrigerator door closed for the entire evaluation period
- **Short duration door opening evaluations:** Simulating routine, brief door openings to replace or dispense products
- **Long duration door opening evaluations:** To simulate loading in and counting inventory

Not all refrigerators and freezers are designed to meet requirements in this standard.

3 Monitor temperature to avoid costly excursions

When vaccines are stored at the wrong temperatures, they may no longer be effective and re-vaccination may be necessary. Having an effective temperature monitoring program supports maintaining vaccines at proper temperatures. This can help:

- ✓ Maximize patient vaccination rate
- ✓ Eliminate the need to re-vaccinate (due to temperature excursion)
- ✓ Reduce time spent troubleshooting temperature excursions and determining if product has been compromised
- ✓ Avoid possible administration of ineffective product
- ✓ Reduce vaccine wastage
- ✓ Save time and money

Helmer Scientific vaccine storage solutions can help you meet current guidelines, prepare for new standards and eliminate costly temperature excursions.



Appropriate cold storage is vitally important.

GX Solutions help your facility rise to the challenge.

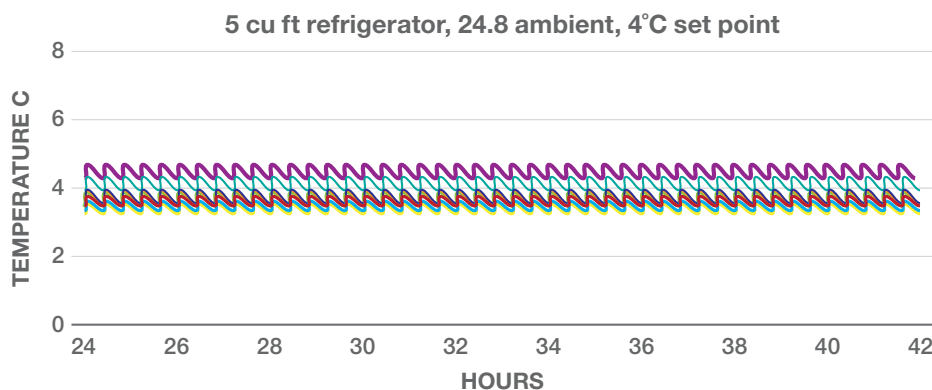
The right cold storage solution helps your facility address vaccine demands and requirements. Helmer Scientific is prepared to support your facility with innovative refrigeration solutions, **as we rise to these new vaccine challenges together.**

3 ways GX Solutions provide safe and effective vaccine storage:

1 GX Solutions help eliminate costly temperature excursions with performance and reliability.

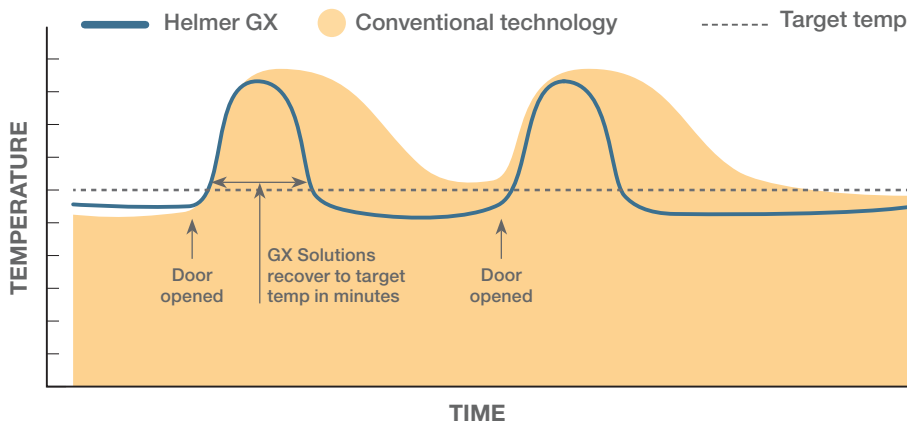
GX Solutions professional medical-grade cold storage units achieve superior temperature uniformity, keeping temperatures within $\pm 1^{\circ}\text{C}$ throughout the unit; offer faster recovery after prolonged door openings; and create fewer deviations from the set point, avoiding rapid, significant changes in temperature which could put vaccines at risk for temperature excursions.

✓ Temperature uniformity



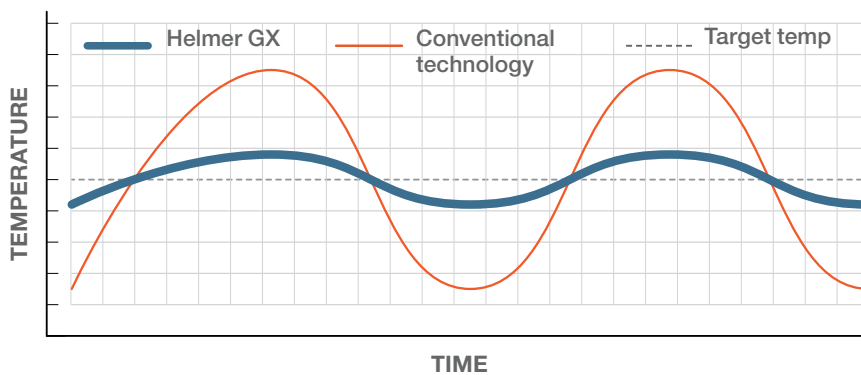
Helmer GX Solutions maintain temperatures within $\pm 1^{\circ}\text{C}$ throughout the storage chamber, eliminating hot and cold spots that could put your contents at risk of temperature excursions.

✓ Temperature recovery



Helmer GX Solutions recover faster than conventional technologies after door openings, ensuring your contents are stored at the right temperature.

✓ Temperature stability



The OptiCool™ cooling system runs at optimized speeds based on operating conditions. This maintains the set temperature, increasing confidence that vaccines are safely stored.

✓ Reliability

Built to last: reliability starts with design. GX Solutions are designed and built to ensure they last for the long term, to limit downtime and interruption to workflow.

Each GX Solutions product is also tested for performance and reliability through our Accelerated Life Testing (ALT) process to limit downtime and workflow interruption. The ALT process:

- Identifies and addresses possible failure modes prior to equipment release for general use
- Exposes units to very high levels of stress to challenge the system down to the subassembly and component levels
- Ensures the unit's design can withstand the rigors of daily use through a 10-year life

2 Powered by OptiCool™, GX Solutions support current CDC guidelines for vaccine storage.

GX Solutions help you address current guidelines for even more rigorous requirements.



GX Solutions refrigerators are powered by the OptiCool™ cooling system, which pairs a variable capacity compressor (VCC) and natural hydrocarbon (HC) refrigerants to:

- Ensure optimal temperature uniformity, recovery and stability
- Efficiently manage energy consumption
- Reduce noise output from the system

The OptiCool™ cooling system uses R600a, a naturally occurring, environmentally friendly refrigerant.

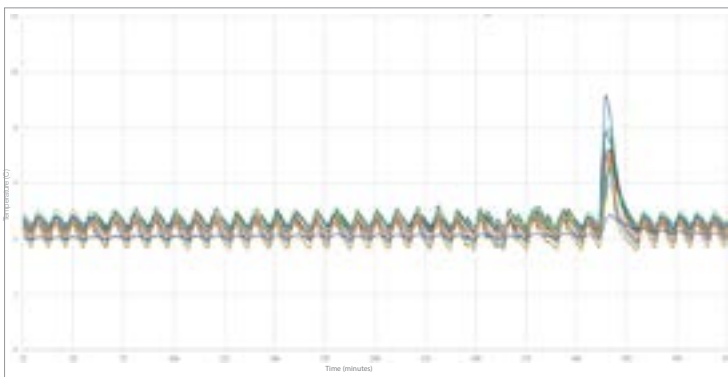
Temperature performance you can rely on for your most important vaccines.

3 GX Solutions are designed and certified to meet the NSF/ANSI 456 standard

GX Solutions are purpose-built for vaccine storage and were designed to meet the requirements of the NSF/ANSI 456 vaccine storage standard. In third-party testing, the performance of Helmer Scientific vaccine refrigerators and freezers met performance requirements that simulate real-world, clinical vaccine storage conditions and have been certified to the standard by ETL. Certified models are listed on the Helmer website.

NSF protocol testing: uniformity, stability and recovery

✓ GX Solutions undercounter unit



- Test parameters**
- Aluminum weighted probes
 - Weighted probes at edge of usable space
 - NSF door openings
 - Empty cabinet

Tight uniformity and stability across locations; fast recovery after openings.

Let's be ready to meet new vaccine challenges, together.

Helmer Scientific Vaccine Storage Portfolio

Helmer Scientific offers a full range of vaccine storage units to help you meet your vaccine storage demands.

- ✔ Complete range of cold storage solutions, including +5°C vaccine refrigerators, -20/-30°C vaccine freezers, and -86°C ultra-low temperature freezers
- ✔ Solutions designed to meet CDC guidelines for vaccine storage and NSF/ANSI 456 vaccine storage standard
- ✔ Quality and reliability you can trust to safeguard sensitive vaccines

Vaccine & Pharmacy Refrigerators



+5°C | 5 - 56 cu ft

Vaccine Freezers



-20/-30°C | 5 - 25 cu ft

Ultra-low Temperature Freezers



-86°C | 18 - 26 cu ft

To learn more about getting your facility ready for new vaccine demands, contact us at: helmerinc.com/vaccine-refrigerators

References

- ¹ "Interim Guidance for Immunization Services During the COVID-19 Pandemic." CDC.gov. Updated June 9, 2020. <https://www.cdc.gov/vaccines/pandemic-guidance/index.html>.
- ² Humer, Caroline and Julie Steenhuisen. "Fears of coronavirus second wave prompt flu push at U.S. pharmacies, drugmakers." Reuters. Published May 26, 2020. <https://www.reuters.com/article/us-health-coronavirus-flu-focus/fears-of-coronavirus-second-wave-prompt-flu-push-at-u-s-pharmacies-drugmakersidUSKBN2321F0>.
- ³ "Flu Vaccination Dashboard". <https://www.cdc.gov/flu/fluview/dashboard/vaccination-dashboard.html>
- ⁴ "Information About Vaccine Supply for the 2021-2022 Season". CDC.gov. <https://www.cdc.gov/flu/prevent/vaxsupply.htm>
- ⁵ Santoli, Jeanne, et al. "Effects of the COVID-19 Pandemic on Routine Pediatric Vaccine Ordering and Administration — United States, 2020." *MMWR Morbidity and Mortality Weekly Report* 2020. 69:591–593. DOI: <http://dx.doi.org/10.15585/mmwr.mm6919e2>.
- ⁶ "How is the COVID-19 Vaccination Campaign Going in Your State?" <https://www.npr.org/sections/health-shots/2021/01/28/960901166/how-is-the-covid-19-vaccination-campaign-going-in-your-state>
- ⁷ "Vaccine Storage and Handling Toolkit." CDC.gov. Accessed August 31, 2020. <https://www.cdc.gov/vaccines/hcp/admin/storage/toolkit/index.html>.

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