The University of Texas at Austin
PhARM Program

Naloxone Stability

A resource for harm reduction programs, first responders, and community partners

Bottom Line

Naloxone is more stable than its labeled expiration date suggests. Research consistently shows that both chemical potency and device performance are preserved well beyond FDA-required dating, across a wide range of storage conditions. While proper storage remains advisable, expired or heat-exposed naloxone is unlikely to be clinically ineffective.

Practical Guidance for Distribution Programs

- Do not discard expired naloxone if no replacement is available. An expired kit is better than no kit.
- Store at room temperature, away from direct sunlight. Vehicle storage is acceptable as a secondary location but should not be the only kit a person carries.
- Prioritize distribution over expiration management. An expired product reaching a person in need is preferable to held inventory awaiting replacement.

Evidence Summary

Finding	Key Detail	Source
Shelf life beyond labeled expiration	Minimal degradation up to 30+ years from manufacture; expired first responder kits retained potency.	Pruyn et al., 2019
Heat stability (chemical)	No significant degradation after 28 days at 80°C (176°F); freeze-thaw cycling did not reduce potency.	Lai et al., 2019
Heat stability (device function)	Nasal spray devices at 71°C (160°F) for 10 hours dispensed consistent volumes; performance unchanged.	Estephan et al., 2020

Expiration Dating

FDA expiration dates reflect the minimum period a manufacturer has tested and guaranteed potency, not the point at which a product becomes unsafe. Naloxone degrades slowly under standard conditions. In a study of expired kits collected from first responder supplies, all samples retained substantial potency, with some products viable more than 30 years after manufacture.

Temperature Exposure

In another study, extreme heat (80°C / 176°F) sustained over 28 days did not produce significant chemical degradation in laboratory testing. Freeze-thaw cycling, relevant for cold-climate storage, also did not meaningfully reduce potency.

Nasal Device Performance

Nasal spray devices exposed to 71°C (160°F) for 10 hours dispensed consistent naloxone volumes per use. The primary concern with vehicle storage is access, not stability: a kit in a car is unavailable when the overdose occurs elsewhere. Clients should carry naloxone on their person whenever possible.

References

1. *Pruyn S, et al. Quality Assessment of Expired Naloxone Products from First-Responders' Supplies. Prehosp Emerg Care. 2019;23(5):647-653. doi:10.1080/10903127.2018.1563257*
2. *Lai D, et al. The effects of heat and freeze-thaw cycling on naloxone stability. Harm Reduct J. 2019;16(1):17. doi:10.1186/s12954-019-0288-4*
3. *Estephan M, et al. Effect of Extreme Temperature on Naloxone Nasal Spray Dispensing Device Performance. Prehosp Disaster Med. 2020;35(3):272-275. doi:10.1017/S1049023X20000400*