NALOXONE TYPES

SUPPLIED BY UMSL-MIMH ADDICTION SCIENCE

4 mg Nasal Naloxone

Narcan is the nasal naloxone spray most commonly recognized. While 4 mg is the original prescription strength dosage, when naloxone became available over-the-counter in 2024, many 4 mg generics entered the market, such as Padagis and Teva (shown here). UMSL-MIMH supplies Narcan, Padagis, and Teva 4 mg nasal naloxone sprays.

3 mg Nasal Naloxone

RiVive 3 mg nasal naloxone spray is a compassionate dose naloxone product. RiVive is strong enough to save lives with the lowest dose of over-the-counter nasal naloxone available in the United States, and it reduces the risk of precipitated withdrawal. It's also manufactured by the only 501(c)(3) non-profit pharmaceutical company that manufactures naloxone and is available through UMSL-MIMH.

Intramuscular (IM) Naloxone

The vials of injectable naloxone UMSL-MIMH supplies are 0.4mg/1ml, which means there is 0.4mg of naloxone suspended in 1ml of fluid. This is 1/10th the amount of naloxone in Narcan and generics by Padagis and Teva which contain 4 mgs of Naloxone in 0.1ml of fluid. IM naloxone is also considered a compassionate dose naloxone product and is often preferred by people who use drugs because of it's ability to be titrated.

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TYPE & DOSAGE	BENEFITS	CHALLENGES
IM NALOXONE 0.4MG/1ML 	• Lowest dose needed • Least withdrawal symptoms • Ability to titrate doses • Often preferred by people who use drugs • Higher bioavailability than nasal naloxone • Adaptable kits (as many doses as requested) • Inexpensive • Preparing injection creates natural pause between dosing, decreasing the chance of excessive administration of naloxone • Available through ethical low-barrier, harm reduction-informed distribution source • Underscores need for safe disposal of syringes	• IM kits require multiple components and assembly • Stigma and paraphernalia laws can make carrying injectable medication riskier for people who use drugs • Requires more training for individuals new to IM naloxone vs nasal • Provider bias and misinformation re: injectable form of naloxone • Vials are glass and can be subject to breakage • Lack of access to safe disposal of syringes • Can feel clinical or medical and be intimidating to laypersons
3 MG NASAL NALOXONE 	• Pre-packaged and labeled kits • No assembly required • Easy to use with little instruction • Compassionate dose • Less of a chance of causing problematic, precipitated withdrawal that can complicate overdose reversal • Less stigma than IM naloxone • Extensive input from harm reductionists including on package design • Available through ethical low-barrier, harm reduction-informed distribution source	• High cost per 2 dose box • Cost prohibitive for scaling to saturation • Participant preference for IM • Newer nasal naloxone on the market; unfamiliarity • Cannot titrate, less autonomy • Opportunity for excessive administration • Plastic applicator can be subject to breakage or other damage

Naloxone is an over-the-counter medication which can be administered as a nasal spray or by intramuscular injection and is effective in rapidly reversing overdose from both legal and illegal forms of opioids. Naloxone can be administered by first responders such as law enforcement officers and paramedics, or by friends, family or bystanders and is the standard treatment for opioid overdose.

The ideal dose of naloxone is one that restores breathing without inducing withdrawal.

NALOXONE TYPES

SUPPLIED BY UMSL-MIMH ADDICTION SCIENCE

TYPE & DOSAGE	BENEFITS	CHALLENGES
4 MG NARCAN NASAL NALOXONE 	• Pre-packaged and labeled kits • No assembly required • Most commonly recognized • Easy to use with little instruction • Less stigma than IM naloxone • Widely available	• High cost per 2 dose box • Cost prohibitive for scaling to saturation • Participant preference for IM naloxone • Participant preference for compassionate dose nasal naloxone spray • Cannot titrate, less autonomy • Opportunity for excessive administration • Plastic applicator can be subject to breakage or other damage
4 MG GENERIC (PADAGIS & TEVA) NASAL NALOXONE 	• Pre-packaged and labeled kits • No assembly required • Easy to use with little instruction • Less stigma than IM naloxone • Widely available	• High cost per 2 dose box • Cost prohibitive for scaling to saturation • Participant preference for IM naloxone • Participant preference for compassionate dose nasal naloxone spray • Unfamiliarity with generic(s) • Cannot titrate, less autonomy • Opportunity for excessive administration • Plastic applicator can be subject to breakage or other damage

All formulations and potencies of naloxone take 1-3 minutes on average to begin to take effect and any form of naloxone may require a subsequent dose after the first few minutes, depending on the overdose. If you give 4 doses of nasal naloxone spray (16 mgs) in rapid succession during an overdose, it does not make it work any faster than if you give 1 dose of nasal naloxone spray (4mg) or 1 dose of injectable naloxone (0.4mg), wait, perform rescue breathing, and administer additional dose(s), if needed after several minutes.

The ideal dose of naloxone is one that restores breathing without inducing withdrawal.

Bell, A., Bennett, A. S., Jones, T. S., Doe-Simkins, M., & Williams, L. D. (2019). Amount of naloxone used to reverse opioid overdoses outside of medical practice in a city with increasing illicitly manufactured fentanyl in illicit drug supply. Substance Abuse, 40(1), 52–55. https://doi.org/10.1080/08897077.2018.1449053

Bennett, A. S., Freeman, R., Des Jarlais, D. C., & Aronson, I. D. (2020). Reasons People Who Use Opioids Do Not Accept or Carry No-Cost Naloxone: Qualitative Interview Study. JMIR Formative Research, 4(12), e22411. https://doi.org/10.2196/22411

Carpenter, J., Murray, B. P., Atti, S., Moran, T. P., Yancey, A., & Morgan, B. (2020). Naloxone Dosing After Opioid Overdose in the Era of Illicitly Manufactured Fentanyl. Journal of Medical Toxicology, 16(1), 41–48. https://doi.org/10.1007/s13181-019-00735-w

Faul, M., Lurie, P., Kinsman, J. M., Dailey, M. W., Crabaugh, C., & Sasser, S. M. (2017). Multiple Naloxone Administrations Among Emergency Medical Service Providers is Increasing. Prehospital Emergency Care : Official Journal of the National Association of EMS Physicians and the National Association of State EMS Directors, 21(4), 411–419. https://doi.org/10.1080/10903127.2017.1315203

Geiger, C., Smart, R., & Stein, B. D. (2020). Who Receives Naloxone from Emergency Medical Services?: Characteristics of Calls and Recent Trends. Substance Abuse, 41(3), 400–407. https://doi.org/10.1080/08897077.2019.1640832

Harm Reduction Therapeutics. (n.d.) Why 3 mg of Naloxone? Harm Reduction Therapeutics. https://www.harmreductiontherapeutics.org/why-3mg-of-naloxone/

Hill, L. G., Zagorski, C. M., & Loera, L. J. (2022). Increasingly powerful opioid antagonists are not necessary. The International Journal on Drug Policy, 99, 103457. https://doi.org/10.1016/j.drugpo.2021.103457

Irvine, M. A., Oller, D., Boggis, J., Bishop, B., Coombs, D., Wheeler, E., Doe-Simkins, M., Walley, A. Y., Marshall, B. D. L., Bratberg, J., & Green, T. C. (2022a). Estimating naloxone need in the USA across fentanyl, heroin, and prescription opioid epidemics: A modelling study. The Lancet Public Health, 7(3), e210–e218. https://doi.org/10.1016/S2468-2667(21)00304-2

Krieter, P., Chiang, N., Gyaw, S., Skolnick, P., Crystal, R., Keegan, F., Aker, J., Beck, M., & Harris, J. (2016). Pharmacokinetic Properties and Human Use Characteristics of an FDA-Approved Intranasal Naloxone Product for the Treatment of Opioid Overdose. Journal of Clinical Pharmacology, 56(10), 1243–1253. https://doi.org/10.1002/jcph.759

Krotulski, A. J., Chapman, B. P., Marks, S. J., Ontiveros, S. T., Devin-Holcombe, K., Fogarty, M. F., Trieu, H., Logan, B. K., Merchant, R. C., & Babu, K. M. (2022). Sentanyl: A comparison of blood fentanyl concentrations and naloxone dosing after non-fatal overdose. Clinical Toxicology (Philadelphia, Pa.), 60(2), 197–204. https://doi.org/10.1080/15563650.2021.1948558

Lai, J. T., Goldfine, C. E., Chapman, B. P., Taylor, M. M., Rosen, R. K., Carreiro, S. P., & Babu, K. M. (2021). Nobody Wants to Be Narcan'd: A Pilot Qualitative Analysis of Drug Users' Perspectives on Naloxone. The Western Journal of Emergency Medicine, 22(2), 339–345. https://doi.org/10.5811/westjem.2020.10.48768

Lim, J. K., Bratberg, J. P., Davis, C. S., Green, T. C., & Walley, A. Y. (2016). Prescribe to Prevent: Overdose Prevention and Naloxone Rescue Kits for Prescribers and Pharmacists. Journal of Addiction Medicine, 10(5), 300–308. https://doi.org/10.1097/ADM.0000000000000223

Narcan Nasal Spray. (n.d.) FAQs. Emergent Biosolutions. https://narcan.com/en/frequently-asked-questions

Neale, J., & Strang, J. (2015). Naloxone--does over-antagonism matter? Evidence of iatrogenic harm after emergency treatment of heroin/opioid overdose. Addiction (Abingdon, England), 110(10), 1644–1652. https://doi.org/10.1111/add.13027

Orenstein, D. (2014, October 27). Naloxone toolkit debuts with input from Rich, Green. News from Brown. https://news.brown.edu/articles/2014/10/naloxone

Padagis Naloxone. (n.d.) FAQs. Padagis. https://www.padagisnaloxone.com/faqs/

Purssell, R., Godwin, J., Moe, J., Buxton, J., Crabtree, A., Kestler, A., DeWitt, C., Scheuermeyer, F., Erdelyi, S., Balshaw, R., Rowe, A., Cochrane, C. K., Ng, B., Jiang, A., Risi, A., Ho, V., & Brubacher, J. R. (2021). Comparison of rates of opioid withdrawal symptoms and reversal of opioid toxicity in patients treated with two naloxone dosing regimens: A retrospective cohort study. Clinical Toxicology (Philadelphia, Pa.), 59(1), 38–46. https://doi.org/10.1080/15563650.2020.1758325

Remedy Alliance/For the People. (n.d.). FAQs. https://remedyallianceftp.org/pages/faqs

Remedy Alliance/For the People. (n.d.). Injectable Naloxone: the wave of the future...and the past. https://remedyallianceftp.org/pages/all-about-naloxone

Remedy Alliance/For the People, Next Distro, Confluence HKRC, Hill, L. (n.d.). Injectable Naloxone: the wave of the future...and the past. Remedy Alliance/For the People. https://cdn.shopify.com/s/files/1/0639/2748/4637/files/IM_Naloxone_FAQ.pdf?v=1669955943

Russell, E., Hawk, M., Neale, J., Bennett, A. S., Davis, C., Hill, L. G., Winograd, R., Kestner, L., Lieberman, A., Bell, A., Santamour, T., Murray, S., Schneider, K. E., Walley, A. Y., & Jones, T. S. (2024). A call for compassionate opioid overdose response. International Journal of Drug Policy, 133, 104587. https://doi.org/10.1016/j.drugpo.2024.104587

Rzasa Lynn, R., & Galinkin, J. (2018). Naloxone dosage for opioid reversal: Current evidence and clinical implications. Therapeutic Advances in Drug Safety, 9(1), 63–88. https://doi.org/10.1177/2042098617744161

Sharpless, N.E. (2019). Statement on continued efforts to increase availability of all forms of naloxone to help reduce opioid overdose deaths. FDA; FDA. https://www.fda.gov/news-events/press-announcements/statement-continued-efforts-increase-availability-all-forms-naloxone-help-reduce-opioid-overdose

Single State Agency Systems Technical Assistance. (2025) SOTA Request for Information: Naloxone Distribution Packaging. National Association of State Alcohol and Drug Agency Directors.

Teva-Naloxone Nasal Spray. (n.d.) What is Teva-Naloxone Nasal Spray and how does it work? Teva Pharmaceuticals. https://www.tevanaloxonenasalspray.com/en-CA/what-is-teva-naloxone-nasal-spray/

Wheeler, E., Davidson, P.J., Jones, T.S., Irwin, K.S. (2012) Community-Based Opioid Overdose Prevention Programs Providing Naloxone—United States, 2010. Centers for Disease Control and Prevention. .https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6106a1.htm