

Naloxone Availability in Nevada Public Schools

Overview

The rapid acceleration of opioid addiction has become a formidable public health emergency in the United States. Current estimates suggest that 1.2 percent of Nevadans over the age of 12 are addicted to opioids, compared to the national average of 0.7 percent. Similarly, 3 percent of Nevadans aged 18-25 are addicted to opioids (SAMHSA, 2017). In 2019, approximately 18.5 percent of high school seniors in Nevada reported having taken “prescription pain medicine without a doctor’s prescription or differently than prescribed” in their lifetime, while 7.4 percent reported abusing and/or misusing prescription drugs in the past 30 days (Diedrick et al., 2019). In 2018, there were 370 total overdose deaths in Nevada that involved opioids – more than the number of deaths caused by motor vehicle accidents (n = 331) or homicides (n = 205). Of these 370 total overdose deaths, 16 were among those in the 15-24 year age range, which is a decrease from the 40 overdose deaths in 2017 (Table 1).

In an effort to combat opioid overdoses, many states (including Nevada) have increased the availability of the medication **naloxone, a safe “opioid antidote” that quickly reverses the effects of opioid drug overdoses.** Opioids include prescription drugs such as oxycodone, morphine, and fentanyl, as well as the illegal drug heroin. **Naloxone is an extremely safe medication** that only has a noticeable effect on people with opioids in their system (Wermeling, 2015).

Naloxone in Schools

In a growing effort to prevent overdoses among school-aged children, some states such as Pennsylvania, Maryland, and Rhode Island have started to require that naloxone be stocked in public and private schools. These mandates are supported by the National Association of School Nurses (NASN; 2015), which published an opinion paper supporting the use of naloxone in schools.

However, because no state or federal organizations track these data, it is unclear how frequently school nurses in these states actually administer naloxone. One study, conducted in Pennsylvania, **found that 5.2% of school nurses with a naloxone supply had administered the opioid antidote in their school or at a school sponsored activity.** Based on this single study, the frequency with which naloxone might be administered in Nevada schools cannot be determined; however, it is notable that the Nevada’s youth are more likely to use opioids compared to Pennsylvania (Table 2).

Currently, Nevada has no laws mandating that schools carry naloxone. **Assembly Bill 428** (AB 428; passed in 2017) permitted pharmacies to issue naloxone without a prescription and attempted to mandate that Nevada schools carry opioid antagonists (such as naloxone); however, this mandate was removed during revisions of AB 428. There are several reasons why mandating naloxone in public schools would be beneficial for the public health of Nevada:

1. There is a high rate of substance use in youth. Compared to national and regional averages, Nevada youth of all ages are more likely to abuse and/or misuse opioids. For example, Diedrick and colleagues (2019) found that a larger percentage high school seniors in Nevada misuse prescription painkillers

Table 1. Opioid-Related Deaths by Age Group, Nevada Residents, 2010-2019*

Year	0-14	15-24	25-34	35-44	45-54	55-64	65+
2010	0	46	72	93	122	81	23
2011	3	55	84	89	126	80	23
2012	0	36	71	80	134	88	28
2013	0	33	76	65	112	80	30
2014	1	33	62	61	95	74	40
2015	3	31	81	75	97	94	38
2016	1	37	72	71	98	97	33
2017	0	40	73	75	103	77	47
2018	0	16	78	64	83	80	49
2019*	1	26	57	60	65	64	36

*2019 Data is preliminary

Courtesy of *Opioid Surveillance 2019 Report*, Office of Analytics Department of Health and Human Services.

(18.5%) as compared to youth in Utah (9.6%), California (12.7%), and Arizona (14.8%) (Centers for Disease Control and Prevention et al.). Similarly, Nevada’s young adults (aged 18-25) are more likely to be addicted to opioids when compared to most states throughout the country, including states that already mandate that naloxone be stored in schools; however, **it is unclear how school-aged (5-17 years) substance use disorder rates vary because no federal organizations track these data.** Thus, school nurses advocate for more education efforts regarding opioid misuse targeted for their students (Pattison-Sharp et al., 2017).

2. Effectiveness of Naloxone. Since 1971, naloxone has been approved by prescription in the United States (Wermeling, 2015). Studies have shown that naloxone is effective in counteracting the symptoms of opioid overdose, and mortality (Chimbar & Moleta, 2018; Giglio et al., 2015). Walley and colleagues (2013) found that having naloxone in

Table 2. Prevalence of Drug Use among Young Adults in the United States

	% of High School Seniors that have misused prescription medications (e.g. opioids) at least once	Addiction rate of adults aged 18-25
Nevada	18.5%	3%
Rhode Island	10%	1.2%
Maryland	15%	1.6%
Pennsylvania	14%	1.5%
National	17%	N/A

non-medical settings, such as in homes, decreases overdose deaths in communities, as compared to homes that do not have a supply of the opioid antagonist. These results also reflect school settings. Though there are few studies that assess for the efficacy of having naloxone in schools, those that exist advocate for its effectiveness and/or support administration of the drug for suspected overdoses in their schools or at school-sponsored activities (King, 2016; McDonald et al., 2020). On the other hand, school nurses report that some of the biggest reasons for not having naloxone kits in their schools are lack of school board and administration support, disbelief about its importance, lack of school funds, and lack of knowledge (McDonald et al., 2020). Therefore, there is a need for education and outreach targeted to school policy makers advocating for naloxone to be available in schools.

3. Naloxone is cost effective. The average price of a naloxone kit at a typical pharmacy in Nevada is \$150; however, wholesale and/or discount rates may be negotiated for large orders at a cost of approximately \$75 per kit. Furthermore, because naloxone is easy to use and harmless if accidentally administered, training costs are minimal. Equipping Nevada's 112 high schools with naloxone kits would have an initial minimum cost of \$8,400 to \$16,800. Because naloxone has a two-year expiration date, maintaining naloxone supplies in Nevada schools would likely cost between \$4,200 and \$8,400 per year. Moreover, the manufacturers of Narcan, a naloxone brand, have programs that allow high schools, colleges, universities, and other community organizations to obtain naloxone for free (ADAPT Pharma Operations Limited).

4. It will reduce overdose response times in rural areas. While 90% of Nevada's total population lives in urban areas, it is largely a rural state. In total, 14 counties are considered "rural" or "frontier." In these counties, which sometimes rely on volunteer EMS staff, 911 response times vary drastically. Moreover, according to a 2018 report, all 14 rural counties lack an opioid treatment program, and some rural towns do not have access to pharmacies with standing orders for naloxone (DHHS, 2018). Therefore, Nevada's rural schools are particularly at risk of experiencing a fatal drug overdose in the future. **Currently, there are 30 Nevada high schools located in rural counties.**

5. Naloxone is relatively safe if accidentally administered to someone not experiencing an overdose. Naloxone is an opioid antagonist that binds to opioid receptors to block the effects of the drug. It does not produce a feeling of euphoria, a "high," or alleviate pain. Because naloxone is an opioid blocker, it has virtually no effects on individuals without opioids in their system. For the most part, naloxone will not harm anyone who is accidentally administered the drug, which includes accidental administration to youth of any age (National Institute on Drug Abuse, February 2020). However, as with any medication, some people may have an allergic reaction to naloxone. This may be characterized by hives or swelling in the face, lips, or throat (SAMSHA, 2020). Individuals experiencing an allergic reaction must seek medical help immediately and should not drive or perform other potentially risky activities (SAMSHA, 2020). However, these cases are extremely rare and outweigh the risk of death from an opioid overdose.

6. Access to naloxone does not increase drug use. There is no evidence to suggest that naloxone access encourages individuals to participate in drug use. Many studies have shown that receiving training and/or access to naloxone does not increase the likelihood that individuals will use opioids (Doe-Simkins et al., 2014; Jones et al., 2017; Kerenskey and Walley, 2017). Therefore, fears that stocking naloxone surmounts to government encouragement of opioid use are unfounded. **Using naloxone is highly stigmatized.** Individuals are hesitant to carry it, even when it is prescribed, fearing that they will be perceived as a drug addict and/or social deviant (Stuart, 2019). Individuals who argue naloxone access encourages drug use or overdose only increase this stigma.

7. Naloxone is easy to administer. Administering naloxone to someone suspected of overdose does not require extensive training. There are three ways to administer the drug: nasal spray, auto-injectors, and injection (New York State Department of Health et al.). However, the nasal spray and auto-injector types dominate retail sales in pharmacies because they are designed for bystander use (Weiner, Murphy, & Behrends, 2019). The nasal spray is the most cost-efficient way to administer the drug and can be done in three steps: remove the device from the package, place it on one of the patient's nostrils, and press the plunger to release the dose (ADAPT Pharma Operations Limited b). Another type of nasal spray is administered through a Luer-lock system, which can be administered by assembling the device, putting the dose into it, placing it in the patient's nostril, and pressing the end of the capsule to spray and administer naloxone into the individual's system (NH Governor's Commission on Alcohol and Drug Abuse). Similarly, the auto-injector is battery-operated and is administered through the patient's lateral thigh. It instructs an individual how to administer the dose through visual and auditory commands and instructs the patient to seek further medical care (Merlin et al., 2015).

The Good Samaritan Drug Overdose Act

When emergencies, like opioid overdoses, happen, they must be able to act effectively and quickly to ensure the safety of the person whose life is at risk. However, many individuals may be reluctant to act for fear that they might be legally responsible if something were to go wrong.

Therefore, it is important to know that in Nevada, as of 2015, **healthcare professionals and anyone acting in good faith are protected by SB 459, NRS 453C or the Good Samaritan Drug Overdose Act in Nevada.** This statute provides healthcare professionals, who prescribe and/or dispense (either directly or through standing order) opioid antagonists for reasonable and legitimate medical purposes, immunity from civil and criminal liabilities. The Act also provides protection for law enforcement officers, paramedics, and EMTs. Moreover, the Act protects individuals who administer opioid antagonists to someone they believe is showing signs of an opioid-related overdose, provided that they are acting reasonably and in good faith.

Conclusion and Recommendations

Stocking naloxone in Nevada's schools appears to be a relatively cost-effective way of proactively preventing drug overdose deaths in secondary schools. Stocking naloxone is analogous to storing other emergency medications (such as epinephrine auto-injectors used in allergic reactions) with school nurses. There is no evidence that a fatal drug overdose has ever occurred in schools in Nevada; however, the state has an opioid addiction prevalence that is twice as high as the national average, suggesting that Nevada is at greater risk of experiencing fatal and/or nonfatal opioid overdoses in the future. Further, because no state or federal agencies currently track the number of non-fatal overdoses that may have occurred in schools, it is impossible to determine the number of cases in which naloxone may have improved the response to an opioid overdose.

Considering the prevalence with which other states have had to use their naloxone supplies (5.2% in Pennsylvania; McDonald et al., 2020), stocking naloxone in Nevada (prior to a fatal overdose) seems like a prudent and proactive effort to minimize the risks of a fatal opioid overdose occurring among the state's youth. Additionally, because rural communities have slower 911 response times compared to urban areas and are geographically distant from major hospitals, supplying school nurses with naloxone could make a life-saving difference during an emergency.

References

- ADAPT Pharma Operations Limited. *Community programs*. <https://www.narcan.com/community/education-awareness-and-training-resources/>
- ADAPT Pharma Operations Limited. *Key steps to administering Narcan Nasal Spray*. <https://www.narcan.com/patients/how-to-use-narcan/>
- Centers for Disease Control and Prevention, et al. *Multiple Cause of Death 1999-2018 on CDC WONDER Online Database released in 2020. Data are from the Multiple Cause of Death Files, 1999-2018, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program*. <http://wonder.cdc.gov/mcd-icd10.html>
- Chimbar, L., & Moleta, Y. (2018). Naloxone effectiveness: A systematic review. *Journal of Addictions Nursing*, 29(3), 167-171. doi: 10.1097/JAN.0000000000000230
- Diedrick, M., et al. (2019). 2019 *Nevada High School Youth Risk Behavior Survey (YRBS) Report*.
- Doe-Simkins, M., et al. Overdose rescues by trained and untrained participants and change in opioid use among substance-using participants in overdose education and naloxone distribution programs: A retrospective cohort study. *BMC Public Health*, 14(1), 297.
- Giglio, R. E., et al. (2015). Effectiveness of bystander naloxone administration and overdose education programs: a meta-analysis. *Injury Epidemiology*, 2(10), 1-9. doi: 10.1186/s40621-015-0041-8
- Good Samaritan Drug Overdose Act, SB 459 § 453C .100-110. (2015). <https://www.leg.state.nv.us/nrs/NRS-453C.html#NRS453CSec100>
- Griswold, T., et al. (2017, January). *Nevada Rural and Frontier Health Data Book – Eighth Edition*. University of Nevada Reno School of Medicine Office of Statewide Initiatives.
- Jones, J. D., et al. (2017). No evidence of compensatory drug use risk behavior among heroin users after receiving take-home naloxone. *Addictive behaviors*, 71, 104-106.
- Kerensky, T., & Walley, A. Y. (2017). Opioid overdose prevention and naloxone rescue kits: what we know and what we don't know. *Addiction science & clinical practice*, 12(1), 4.
- King, R. (2016). Science over stigma: Saving lives— implementation of naloxone use in the school setting. *NASN School Nurse*, 31(2), 96-101. doi: 10.1177/7942602X16628890
- McDonald, C. C., et al. (2020). School nurse reported supply and administration of naloxone in schools. *Public Health Nursing*, 37(3), 347-352
- Merlin, M. A, et al. (2015). Assessment of the safety and ease of use of the naloxone auto-injector for the reversal of opioid overdose. *Open access emergency medicine: OAEM*, 7(1), 21-24. doi: 10.2147/OAEM.S82133
- National Association of School Nurses. (2015). Naloxone use in the school setting: The role of the school nurse (position statement). Silver Spring, MD: Author
- Nevada Department of Public Safety. (2018). Uniform Crime Reporting. 2018 Report.

- New York State Department of Health, et al. *How to use injection naloxone for opioid overdose* [Infographic]. New York State Department of Health. <https://www.health.ny.gov/publications/0161.pdf>
- NH Governor's Commission on Alcohol and Drug Abuse. *What to do if you suspect an opioid drug overdose: Intranasal naloxone*. https://www.nhms.org/sites/default/files/Pdfs/Naloxone_RxEducation_Intranasal%20v09302015FINAL.pdf
- NIDA. (2020, February 20). Opioid Overdose Reversal with Naloxone (Narcan, Evzio). <https://www.drugabuse.gov/related-topics/opioid-overdose-reversal-naloxone-narcan-evzio>
- Stuart, H. (2019, March). Managing the stigma of opioid use. In *Healthcare management forum* (Vol. 32, No. 2, pp. 78-83). Sage CA: Los Angeles, CA: SAGE Publications.
- Substance Abuse and Mental Health Services Administration. Behavioral Health Barometer: Nevada, Volume 5: Indicators as measured through the 2017 National Survey on Drug Use and Health and the National Survey of Substance Abuse Treatment Services. HHS Publication No. SMA-19-Baro-17-NV. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2019.
- Pattison-Sharp, E., et al. (2017). School nurse experiences with prescription opioids in urban and rural schools: A cross-sectional survey. *Journal of Addictive Diseases*, 36(4), 236-242. doi: 10.1080/10550887.2017.1361725
- Substance Abuse and Mental Health Services Administration. (2020). *Naloxone*. <https://www.samhsa.gov/medication-assisted-treatment/medications-counseling-related-conditions/naloxone>
- Walley, A. Y., et al. (2013). Opioid overdose rates and implementation of overdose education and nasal naloxone distribution in Massachusetts: Interrupted time series analysis. *British Medical Journal*, 346(f174), 1-13. doi: 10.1136/bmj.f174
- Weiner, J., et al. (2019). *Expanding access to Naloxone: A review of distribution strategies* (Issue Brief No. 1). University of Pennsylvania, Leonard Davis Institute of Health Economics, Center for Health Economics of Treatment Interventions for Substance Use Disorder, HCV, and HIV. <https://ldi.upenn.edu/brief/expanding-access-naloxone-review-distribution-strategies>
- Wermeling, D. P. (2015). Review of naloxone safety for opioid overdose: Practical considerations for new technology and expanded public access. *Therapeutic Advances in Drug Safety*, 6(1), 20-31. doi: 10.1177/2042098614564776

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The Nevada Institute for Children's Research and Policy (NICRP) is a not-for-profit, non-partisan organization dedicated to advancing children's issues in Nevada. As a research center within the UNLV School of Public Health, NICRP is dedicated to improving the lives of children through research, advocacy, and other specialized services. Our mission is to conduct community-based research that will guide the development of programs and services for Nevada's children. For more information regarding NICRP research and services, please visit our website at: <http://www.nic.unlv.edu>.

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