

Evaluation of the St John WA (SJWA) emergency service's 'Leave Behind' Take Home Naloxone Dispensing/Distribution Pilot: a summary of the main findings

Introduction

This bulletin summarises the main results of the *Evaluation of the St John WA (SJWA) emergency service's 'Leave Behind' Take Home Naloxone Dispensing/Distribution Pilot*, hereafter called the 'SJWA THN Pilot'. The pilot involved training SJWA paramedics, ambulance officers and volunteer ambulance officers in dispensing/distributing intranasal naloxone (Nyxoid®) for later use to people who have experienced or witnessed an opioid overdose at scenes attended by SJWA. This pilot, which commenced in September 2021, was a joint initiative of SJWA and the Mental Health Commission of Western Australia.

According to the World Health Organization (2023), opioid overdose rates have been steadily increasing worldwide and are a significant concern for public health. In 2021, the majority of opioid overdose deaths in Australia were unintentional (763 deaths) and accounted for 76% of the total number of overdose deaths involving opioids (1008 deaths) (Chrzanowska et al., 2023). Fatalities resulting from opioid use have increased from 2.5 fatalities per 100,000 individuals in 2002 to 5.0 fatalities per 100,000 individuals in 2019 (Chrzanowska et al., 2023). However, many opioid users refuse to be transported to a hospital for further treatment after having been administered naloxone by paramedics following an opioid overdose (Bissonette, 2021). This refusal is associated with increased risks of future encounters with emergency services due to subsequent non-fatal opioid overdoses (Zozula et al., 2022). Furthermore, research conducted in Western Australia suggests that the cost of ambulance transport can act as a deterrent for marginalized individuals agreeing to be transported to hospital after an overdose (Agramunt & Lenton, 2023).

Naloxone, an opioid antagonist, has the ability to reverse the effects of an opioid overdose while causing minimal adverse side effects (e.g., Binswanger et al., 2022; Hill, Zagorski, & Loera, 2022). It is widely recognized as a safe drug (Lurigio et al., 2018) and has been endorsed by the World Health Organization as a means to reduce opioid-related deaths (World Health Organization, 2014). Paramedics around the world have routinely been administering intravenous naloxone to people who have experienced opioid overdose before they are admitted to hospital (Hillen et al., 2022).

KEY FINDINGS

The evaluation results suggest that:

- The naloxone training was well-received by SJWA staff members. Overall, 63% of participants were satisfied with the quality of the training, rating it as 'good' (50%) or 'excellent' (13%).
- Participants reported they had acquired the necessary knowledge and competency regarding overdose response and were now able to distribute/dispense naloxone.
- Overall, the SJWA THN Pilot was feasible in terms of workload and logistics.
- Several respondents noted that the devices were very easy to use, most opioid users were already familiar with them, and were overall grateful to receive them.
- Many respondents believed that dispensing and distributing 'Leave Behind' naloxone provided an additional safety net to patients who might refuse transport to hospital.
- The SJWA 'Leave Behind' Take Home Naloxone Dispensing/Distribution Pilot should be rolled out at a larger scale and made available to all paramedics, ambulance officers, and volunteer ambulance officers statewide.

For example, since 2000, SJWA paramedics have been given authority to administer intravenous naloxone to people who have experienced an opioid overdose and in 2020, this was extended to some SJWA service locations staffed by volunteers. Initiatives to make naloxone available to the wider community, by distributing naloxone to individuals at risk and train potential overdose witnesses on how to respond to overdose situations, have been implemented in Australia since 2012 (Dietze et al., 2018). The pilot evaluated in the current project has been conducted in the context of these Australian developments.

Recent research indicates that 'Leave-Behind' naloxone programs implemented by emergency medical services are effective in reducing opioid-related deaths and future overdose events (LeSaint et al., 2022). However, the attitudes and beliefs of providers towards naloxone programs can influence the utilisation of naloxone within the community and, consequently, the effectiveness of these programs (Bessen et al., 2019; Montoy et al., 2022). Research indicates that emergency medical services, police officers, and fire officers tend to have higher *risk compensation beliefs* compared to health and social service providers both before and after receiving naloxone training (Winograd et al., 2020a). Risk compensation beliefs refer to the belief that access to naloxone may encourage drug use and discourage seeking treatment (Winograd et al., 2020a), even though these beliefs are not supported by evidence (Colledge-Frisby et al., 2023). Despite this, recent studies suggest that naloxone training can significantly reduce risk compensation beliefs and enhance knowledge about opioid overdose and response (Winograd et al., 2020a).

It was anticipated that assessing the effectiveness of the SJWA THN Pilot would identify the program's strengths, barriers, and concerns; enhance the quality of services and training provided to better meet the community's needs and reduce opioid-related deaths and harms; and inform decisions about the pilot's potential expansion and continuation. It was anticipated that if the pilot was shown to be feasible and effective, it could also be used as a model for other Australian emergency services to roll out similar programs.

Method

The aims of this evaluation were to:

1. Determine whether the SJWA THN Pilot training was helpful and effective;
2. Determine the feasibility of the SJWA THN Pilot in terms of workload and logistics;
3. Identify potential barriers/concerns and facilitators to the SJWA THN Pilot; and
4. Identify attitudes and beliefs towards emergency services' naloxone dispensing/distribution programs.

This evaluation, which employed a survey research design, was undertaken between the 11th of April and the 8th of May 2023. All SJWA staff who had completed, or were about to complete, the naloxone training were invited by an internal email to complete a quantitative and qualitative online survey to assess their knowledge and attitudes regarding naloxone training, and the distribution of naloxone. Overall, 131 SJWA staff completed the online survey.

At the end of the online survey, participants who reported that they had distributed naloxone at an overdose scene since the start of the pilot were invited to participate in a subsequent 30 minute face-to-face or phone qualitative interview. The purpose of the interview was to collect more detailed information about their last witnessed overdose, and their experience of distributing/dispensing naloxone. Ten participants completed a subsequent phone interview.

To be eligible, participants needed to be current SJWA staff. At the request of SJWA, staff who had not yet completed the naloxone training were also eligible to participate in the evaluation. Participants who completed the evaluation did not receive any financial reimbursement. This study was approved by the Curtin University Human Research Ethics Committee (HRE 2023-0132) and the SJWA Research Governance Committee.

“So, I feel that it has improved [...] our ability to be able to save someone because we can confidently leave them with a means to assist if they do deteriorate after we leave.”

Results

Online survey

Among the 131 online respondents, 48 reported having provided 'Leave Behind' naloxone since the start of the pilot. The majority of participants were male (57%; n=72) and married (63%; n=71). Just under half were volunteer ambulance officers (47%; n=61), followed by paramedics (42%; n=55), and ambulance officers (5%; n=6). Participants were mainly based in the metro (49%; n=64), or regional (45%; n=59), rather than remote (6%; n=8), areas. The largest proportion of the sample belonged to the 36-55 age group (42%; n=53), while the mean age of respondents was 47 years (SD=15; range 22-78 years), and a mean length of service of 125 months (SD=105 months).

An overview of the main results obtained by the online survey are illustrated in Tables 1 to 4.

Table 1: Main results: naloxone training (n=103)

Quality of the training (n=103)	n	% Respondents
Excellent	13	13
Good	52	50
Fair	33	32
Poor	5	5
Most valuable aspects of the training (n=103)	n	% Respondents ^a
Learning about prescription opioid	31	30
Learning about illicit opioids (e.g. heroin and fentanyl)	33	32
Learning about naloxone	57	55
Learning how to use naloxone	58	56
Learning about WA naloxone programs	35	34
Other	5	5
I'd prefer not to say	5	5

Note: These questions were only asked to the participants who had completed naloxone training (n=103);

^aThe total number of answers exceeds the total number of participants (n=103) as multiple answers were allowed.

Table 2: Main results: dispensing/distribution of intranasal naloxone (n=131)

Have you provided 'Leave Behind' naloxone since the start of the pilot (September 2021)? (n=131)	n	% Respondents ^a
Yes	48	37
No	81	62
I'd prefer not to say	2	2
How many times have you distributed naloxone since the start of the pilot? (n=46) ^b	n	% Respondents
1	14	30
2	9	20
3	8	17
4	1	2
5	5	11
6	4	9
More than 6	5	11
Who did you provide brief education and 'Leave Behind' naloxone to? (n=48) ^c	n	% Respondents ^a
Patient	19	40
Witness/bystander	13	27
Peer	2	4
Family	7	15
Friend	7	15

Note: ^aThe total percentage of respondents is greater than 100% as values were rounded to the first digit; ^bThis question was only asked to the participants who reported they had provided 'Leave Behind' Naloxone since the start of the pilot (n=48). Two participants among the 48 participants who had provided 'Leave Behind' naloxone since the start of the pilot did not answer the question; ^cThis question was only asked to the participants who reported they had provided 'Leave Behind' Naloxone since the start of the pilot (n=48).

Table 3: Main results: opinions about distribution of naloxone (n=131)

Paramedics, ambulance officers and volunteer ambulance officers should dispense/distribute naloxone (n=131)	n	% Respondents
Completely agree	49	37
Agree	47	36
Unsure	18	14
Disagree	7	5
Completely disagree	10	8
Drug use is illegal and paramedics, ambulance officers and volunteer ambulance officers should not be dispensing/distributing naloxone (n=131)	n	% Respondents ^a
Completely agree	9	7
Agree	8	6
Unsure	11	8
Disagree	49	37
Completely disagree	54	41
It would frustrate me to dispense/distribute intranasal naloxone to the same people again and again (n=131)	n	% Respondents
Completely agree	24	18
Agree	43	33
Unsure	16	12
Disagree	26	20
Completely disagree	22	17
Everyone at risk of witnessing an overdose should be given an intranasal take home naloxone supply (n=131)	n	% Respondents ^b
Completely agree	23	18
Agree	44	34
Unsure	30	23
Disagree	25	19
Completely disagree	9	7
Paramedics, ambulance officers, and volunteer ambulance officers should train people who use opioids to administer intranasal naloxone (n=131)	n	% Respondents
Completely agree	22	17
Agree	34	26
Unsure	29	22
Disagree	37	28
Completely disagree	9	7
Paramedics, ambulance officers, and volunteer ambulance officers should be trained to teach opioid users about overdose prevention by using intranasal naloxone (n=131)	n	% Respondents ^b
Completely agree	26	20
Agree	38	29
Unsure	23	18
Disagree	30	23
Completely disagree	14	11
Intranasal naloxone should automatically be distributed to people who use prescribed opioid pain relievers in order to reduce their risk of overdose (n=131)	n	% Respondents ^a
Completely agree	26	20
Agree	32	24
Unsure	25	19
Disagree	36	27
Completely disagree	12	9

^aNote: The total percentage of respondents is smaller than 100% as values were rounded to the first digit; ^bThe total percentage of respondents is greater than 100% as values were rounded to the first digit.

Table 4: Main results: beliefs about the effectiveness of an ambulance service intranasal dispensing/distributing naloxone program (n=131)

How effective do you think an ambulance service intranasal dispensing/distribution program would be in reducing drug use? (n=131)	n	% Respondents
Not effective	109	83
Somewhat effective	17	13
Very effective	3	2
I'd prefer not to say	2	2
How effective do you think an ambulance service intranasal dispensing/distribution program would be in reducing drug overdose events? (n=131)	n	% Respondents
Not effective	31	24
Somewhat effective	70	53
Very effective	28	21
I'd prefer not to say	2	2
How effective do you think an ambulance service intranasal dispensing/distribution program would be in reducing drug overdose deaths? (n=131)	n	% Respondents
Not effective	9	7
Somewhat effective	77	59
Very effective	42	32
I'd prefer not to say	3	2
How effective do you think an ambulance service intranasal dispensing/distribution program would be in reducing 000 calls? (n=131)	n	% Respondents
Not effective	67	51
Somewhat effective	51	39
Very effective	8	6
I'd prefer not to say	5	4
How effective do you think an ambulance service intranasal dispensing/distribution program would be in increasing utilisation of drug treatment programs? (n=131)	n	% Respondents
Not effective	72	55
Somewhat effective	45	34
Very effective	8	6
I'd prefer not to say	6	5

Phone interviews: qualitative accounts of witnessed overdoses and dispensing/distributing naloxone

Excerpts from some of the main themes highlighted by the participants are presented below: the unwillingness to go to hospital; the familiarity with the device; the lack of adverse effects; the opportunity to save lives; and the need to increase awareness about naloxone and the availability of naloxone.

- The unwillingness to go to hospital:

*"[...] They **didn't want to go to hospital**. So we **left some nasal sprays** with them and their friends. [...] normally I offer it when everything has calmed down and this issue has been resolved and [...] **if we have to take them to the hospital which some of these is fifty-fifty** or just, they want the information or they want to leave it in their cupboard or give it to someone."*

*"It usually **takes quite a while trying to get them to come to hospital initially**, so you spend a fair bit of time on scene."*

- The familiarity with the device:

*"[...] it was **pretty smooth** and people there **were all aware of what naloxone and intranasal naloxone was in general**, so they had had an overdose before, and they were long term users so **there were no issues. There's no issues. They were happy.**"*

*"I think **they're really happy with it**; I've been to a couple of other jobs where they have already used [...] they take home dispensable naloxone with them, and they've used that prior to our arrival [...]."*

- The lack of adverse effects:

*"I feel comfortable because **there's no real side effects with it**, and we let them know to call 000 anyway, just in case if it doesn't work and they don't respond. **It does work.** [...] like I said, if it's not a heroin overdose and you give them naloxone, **there's no real side effects to it**, so I don't think there are real barriers."*

*"I know from what I've been taught through education is that **naloxone is a very safe drug**. [...] So yeah, I think I find it a very comfortable drug to leave someone with and I know that, you know, **they can't overdose on it or it's not gonna cause them any adverse reactions** if they take it when they don't need it."*

- The opportunity to save lives:

*"[...] it **saves us being in a situation if you know the respiratory drivers have already left by the time we get there**. It obviously you know **could stop someone from dying** so it makes it a much better situation."*

*"[...] I think it's more an adjunct for us, for someone that **doesn't want to go to hospital** and then probably collapses again in which case they're [going to] call ambulance back again anyway, which is fine. [...] I think it just means if they do have a secondary drop that they've got the drug to deal with it whilst they're waiting for us to come back. [...] **It stops the person dying.**"*

*"So, I feel that **it has improved**, you know, **our ability to be able to save someone because we can confidently leave them with a means to assist if they do deteriorate after we leave.** [...] I think there's a lot of stigma [...] there that, you know, they feel they got to be judged for being drug users. [...] and not wanting to be seen at the hospital [...]."*

- The need to increase awareness about naloxone and the availability of naloxone:

*"Just **get it out more to more people in more locations, educate to a wider public**. For example, I was at a shopping centre, and I noticed some guy had overdosed and I walked into the chemist and asked to get some intranasal naloxone, but they didn't have any unless I paid for it so you know some more government initiative getting this drug out without the financial restrictions [...]."*

Discussion

The key findings against the evaluation aims:

1) Determine whether the SJWA THN Pilot training was helpful and effective

The results of this study confirm that the SJWA naloxone distribution program training is helpful and effective. Overall, the evaluation found that approximately two thirds of the sample (63%) were highly satisfied with the quality of the training and rated it as being either 'excellent' (13%) or 'good' (50%). 'Learning how to use naloxone' (56%), 'learning about naloxone' (55%), followed by 'learning about WA naloxone programs' (34%), were rated as the most valuable aspects of the training.

Our findings suggest that the training was well received by SJWA staff. Following the training, some respondents highlighted that they now 'know what to do', as they didn't have knowledge about how to distribute naloxone before the training.

It was also apparent, particularly in relation to patients who refuse transport to hospital, that having the capacity to provide naloxone for later use as well as instructing patients and overdose witnesses on its use, was of value compared to simply leaving the scene once the person refused transport.

2) Determine the feasibility of the SJWA THN Pilot in terms of workload and logistics

The evaluation suggests that a SJWA 'Leave Behind' naloxone program was feasible in terms of workload and logistics. Several participants who commented on the time spent providing brief education reported that they would spend between a 'few minutes' to 'at least one hour' on scene. Despite the fact that overdose callouts are generally seen as demanding in terms of time and resources, distribution of naloxone was not generally seen as an additional burden. Several respondents highlighted that the time spent with a patient would vary from person to person. This time was related to trying to encourage patients into going to hospital to seek further medical attention and ensuring that patients understood how to use the naloxone device if they refused transport, noting the potential risk of subsequent overdose. This suggests that the program is feasible and effective.

3) Identify potential barriers/concerns and facilitators to the SJWA THN Pilot

While several participants reported that the distribution program was appropriate in its current format, others suggested changes to the SJWA training, including more practical face-to-face training sessions. In terms of barriers related to training content, some respondents suggested inclusion of additional training components, some of which were specific to the naloxone program such as information about how to better inform patients and their families about naloxone. Other suggested additions were more general to managing overdose situations or other challenging clinical situations including: a mental health section; harm reduction; strategies for managing clients in crisis; de-escalation of aggressive situations; strategies to safeguard patients, witnesses, family members and peers; skills to build rapport; and, skills to improve responses to witnesses who are present on scene. Others also suggested inclusion of further education on pharmaceuticals, pharmacokinetics, pharmacodynamics, and overdoses. Despite these suggestions, the experiences of those who had left naloxone at the scene was that there were rarely major adverse consequences, and that naloxone was often well received by patients and witnesses.

In terms of the facilitators to the program, several respondents thought that the devices were very easy to use, that most opioid users were already familiar with the devices provided to them and were overall grateful to receive them. The fact that it is a very safe drug was also highlighted. Given the naloxone devices were often well-received by patients, ensuring that the training is better tailored to SJWA staff needs, including additional training topics suggested by staff, could further enhance the training and the program.

4) Identify attitudes and beliefs towards emergency services' naloxone dispensing/distribution programs

Overall, the majority of participants (73%) thought that it was their role to dispense/distribute naloxone, about one third of respondents (35%) either 'disagreed' (28%) or 'completely disagreed' (7%) that it was their role to train people who use opioids to administer intranasal naloxone. However, nearly half of the sample (49%) were more willing to teach people who use opioids about overdose prevention by using intranasal naloxone.

There were mixed opinions about whether the program would be effective in reducing drug use, with the majority of responses being 'not effective' (83%), reducing drug overdose events ('somewhat effective'=53%), reducing drug overdose deaths ('somewhat effective'=59%), reducing 000 calls ('not effective'=51%), and increasing utilisation of drug treatment programs ('not effective'=55%). As described earlier, it has been found in the literature that risk compensation beliefs are predominant among emergency services providers, police officers and fire officers in comparison to health and social service workers (Winograd et al., 2020a). However, naloxone training can significantly reduce these beliefs and increase knowledge about drug use, overdose, and overdose response (Winograd, et al., 2020a; Winograd, et al., 2020b). Risk compensation beliefs are to be expected, especially for those who have not had much experience in these programs, however, the evidence suggests that in practice many of these beliefs are unfounded and that overwhelmingly these programs do not escalate drug use but do save lives and can be a prompt for people to seek treatment.

"[...] it saves us being in a situation if [...] the respiratory drivers have already left by the time we get there. It obviously [...] could stop someone from dying so it makes it a much better situation."

Conclusion

Overall, our results suggest that the pilot was well-received by SJWA staff. Dispensing and distributing 'Leave Behind' naloxone seems to provide an additional safety net to patients who might refuse transport to hospital. These findings support the continuation of the pilot among SJWA staff and suggest that it should be rolled out at a larger scale and made available to all paramedics, ambulance officers, and volunteer ambulance officers statewide.

Suggested citation

Agramunt, S. & Lenton, S. (2023). *Evaluation of the St John WA (SJWA) emergency service's 'Leave Behind' Take Home Naloxone Dispensing/Distribution Pilot: a summary of the main findings*. National Drug Research Institute and EnAble Institute, Curtin University, Perth, Western Australia.

References

- Agramunt, S. and Lenton, S. (2023). Evaluation of the Expansion of the Take-Home Naloxone Project – Final Report. National Drug Research Institute, Curtin University, Perth, Western Australia. ISBN: 978-0-6487367-6-9
- Binswanger, I. A., Rinehart, D., Mueller, S. R., Narwaney, K. J., Stowell, M., Wagner, N., ... & Glanz, J. M. (2022). Naloxone co-dispensing with opioids: a cluster randomized pragmatic trial. *Journal of general internal medicine*, 1-10.
- Bissonette, S. J. (2021). Preliminary Analysis of Vermont's EMS Naloxone Leave-Behind Program. *Larner College of Medicine Fourth Year Advanced Integration Teaching/Scholarly Projects*. 17.
- Chrzanowska, A., Man, N., Akhurst, J., Sutherland, R., Degenhardt, L. & Peacock, A. (2023). Trends in overdose and other drug-induced deaths in Australia, 2002-2021. Sydney: National Drug and Alcohol Research Centre, UNSW Sydney.
- Bessen, S., Metcalf, S. A., Saunders, E. C., Moore, S. K., Meier, A., McLeman, B., ... & Marsch, L. A. (2019). Barriers to naloxone use and acceptance among opioid users, first responders, and emergency department providers in New Hampshire, USA. *International Journal of Drug Policy*, 74, 144-151.
- Colledge-Frisby, S., Rathnayake, K., Nielsen, S., Stooze, M., Maher, L., Agius, P. A., ... & Dietze, P. (2023). Injection drug use frequency before and after take-home naloxone training. *JAMA network open*, 6(8), e2327319-e2327319.
- Dietze, P. M., Draper, B., Olsen, A., Chronister, K. J., van Beek, I., Lintzeris, N., ... & Lenton, S. (2018). Does training people to administer take-home naloxone increase their knowledge? Evidence from Australian programs. *Drug and Alcohol Review*, 37(4), 472-479.
- 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.
- Hillen, P., Speakman, E., Dougall, N., Heyman, I., Murray, J., Jamieson, M., ... & McAuley, A. (2022). Naloxone in Police Scotland: Pilot Evaluation.
- LeSaint, K. T., Montoy, J. C. C., Silverman, E. C., Raven, M. C., Schow, S. L., Coffin, P. O., ... & Mercer, M. P. (2022). Implementation of a Leave-behind Naloxone Program in San Francisco: A One-year Experience. *Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health*, 23(6).
- Lurigio, A. J., Andrus, J., & Scott, C. K. (2018). The opioid epidemic and the role of law enforcement officers in saving lives. *Victims & offenders*, 13(8), 1055-1076.
- Montoy, J. C. C., Mercer, M. P., Silverman, E. C., Raven, M. C., & LeSaint, K. T. (2022). Emergency medicine services providers' attitudes toward naloxone distribution and training programs. *The American Journal of Emergency Medicine*, 51, 76-78.
- Winograd, R. P., Stringfellow, E. J., Phillips, S. K., & Wood, C. A. (2020a). Some law enforcement officers' negative attitudes toward overdose victims are exacerbated following overdose education training. *The American journal of drug and alcohol abuse*, 46(5), 577-588.
- Winograd, R. P., Werner, K. B., Green, L., Phillips, S., Armbruster, J., & Paul, R. (2020b). Concerns that an opioid antidote could "make things worse": profiles of risk compensation beliefs using the Naloxone-Related Risk Compensation Beliefs (NaRRC-B) scale. *Substance abuse*, 41(2), 245-251.
- World Health Organization. (2014). *Community management of opioid overdose*. Geneva: WHO.
- World Health Organization Opioid Overdose Fact Sheet (2023). Available at: <https://www.who.int/news-room/fact-sheets/detail/opioid-overdose> [Accessed 05.12.23]
- Zozula, A., Neth, M. R., Hogan, A. N., Stolz, U., & McMullan, J. (2022). Non-transport after prehospital naloxone administration is associated with higher risk of subsequent non-fatal overdose. *Prehospital emergency care*, 26(2), 272-279.