International Journal of Drug Policy 63 (2019) 111–112

Contents lists available at ScienceDirect

International Journal of Drug Policy

journal homepage: www.elsevier.com/locate/drugpo

Response

Take-home naloxone is a global issue, in practice and in research: A response to Heavey et al.

Andrew McAuley[a,b,*], Sheila M. Bird[c]

[a] Health Protection Scotland, Glasgow, UK
[b] School of Health and Life Sciences, Glasgow Caledonian University, Glasgow, UK
[c] MRC Biostatistics Unit, Cambridge, UK

Dear Editor,

The recent qualitative study by Heavey et al. (2018) provides new insights into naloxone experience by people who use drugs (PWUD). Working with a small number (20) of a young (18–40 years) inpatient treatment population, they reported five main themes: good awareness overall of naloxone among PWUD; naloxone intersection with drug selling; variation in naloxone availability at overdose events; changes in opioid-related behaviours associated with naloxone access; and naloxone behaviours which may or may not alter mortality risk. Whilst acknowledging the bias associated with setting and sample, these findings are novel and could be important, not least the potential for naloxone to increase risky behaviours among some PWUD, a theory which has largely been debunked in the literature until now.

However, several statements in the paper should be challenged to ensure readers are not misled about the current international evidence-base for take-home naloxone. Take-home naloxone is not universally available internationally, nor even sufficiently available in the USA (Bird, Parmar, & Strang, 2015); and its advocates rely increasingly on empirical evidence to champion their cause. Take-home naloxone is at an important juncture in countries which have invested heavily in it, such as in the UK and Scandinavia. Specifically, Scotland and Norway have some of the most comprehensive coverage of naloxone among PWUD globally (Information Services Division, 2017; Madah-Amiri, Clausen, & Lobmaier, 2017) but also some of the highest DRD rates in the world which, as anticipated, have persisted since take-home naloxone was implemented (Bird et al., 2015; EMCDDA, 2018; Millar & McAuley, 2017). As a result, questions are being asked about the effectiveness of take-home naloxone programmes in reducing the mortality associated with opioid use. The answers to such questions are not straightforward and we, in the academic community, have a responsibility to ensure that the evidence is conveyed accurately to mitigate the risk of misinterpretation about effectiveness.

For example, on page 28, Heavey et al. (2018) argue that, *"There is a serious gap in knowledge around how naloxone affects opioid use behaviours and its associated health and social consequences"*. The greatest effect naloxone can have on health and social consequence is to save lives. Yet, Heavey et al. failed to reference the work of Walley et al. (2013) wherein higher cumulative rates of naloxone implementation in selectively high-risk areas were associated with greater reductions in mortality; and the strong before/after evidence on the effectiveness and cost-effectiveness of Scotland's National Naloxone Programme during 2011–13 (Bird, McAuley, Perry, & Hunter, 2016) and in 2011–15 (Bird, McAuley, Munro, Hutchinson, & Taylor, 2017). The proportion of Scotland's opioid-related deaths (ORDs) with a 4-week antecedent of prison-release reduced from 10% of 1970 ORDs in 2006–2010 to 6.3% of 1212 ORDs in 2011–13 and to 3.9% of 942 ORDs in 2014 + 2015. More recently, Irvine and colleagues estimated that almost 300 deaths were averted through a rapid scale up of naloxone supply in British Columbia, despite the overall trend in deaths increasing as a result of a synthetic opioid epidemic (Irvine et al., 2018). Participants in at least two US studies self-reported using less heroin when prospectively followed- up after their naloxone training and supply (Seal et al., 2005; Wagner et al., 2010). By contrast, in England's prison-based randomized N-ALIVE trial of naloxone-on-release (Parmar, Strang, Choo, Meade, & Bird, 2017), recidivists who had received naloxone-on-release had behaved more riskily with opioids than had been their perception.

Another disputed issue, derived from Heavey, Burstein, Moore, and Homish (2017), is the claim that: *"'concerned others,' such as family members and friends of opioid users, are accessing opioid education and naloxone distribution (OEND), but it is not permeating to the drug users themselves"* (Heavey et al., 2018: pg. 28). That may be the case in Erie County, New York, but there is irrefutable evidence that take-home naloxone is reaching PWUD in many countries across the world and at increasing rates. In the USA alone, over 150,000 take-home naloxone kits were provided between 1996 and 2014, around 80% to PWUD (Wheeler, Jones, Gilbert, & Davidson, 2015). By the end of March 2017, Scotland's National Naloxone Programme had distributed naloxone kits to over 20,000 unique individuals at risk of overdose (Information Services Division, 2017). Our most recent estimate indicates that over 50% of people who inject drugs (PWID) in Scotland have accessed a kit in the past year with rates increasing over time (McAuley et al., 2016).

* Corresponding author at: Health Protection Scotland, Glasgow, UK.
E-mail address: andrew.mcauley@nhs.net (A. McAuley).

https://doi.org/10.1016/j.drugpo.2018.08.003
Received 30 January 2018; Received in revised form 16 July 2018; Accepted 9 August 2018

In British Columbia, of 19,000 naloxone kits supplied between 2012 and 2016, almost half were supplied to at-risk clients (Klaasen & Buxton, 2018). Similarly in Wales, of 10,500 naloxone kits supplied between 2009 and 2016, almost all were supplied to PWUD (Morgan & Smith, 2016).

Finally, in their discussion, Heavey et al. (2018: pg. 34) reflect on their 20 interviewees' variation in naloxone-related attitudes, beliefs and practice, in particular the preference by some not to carry or use naloxone appropriately. They suggest that, *"descriptive epidemiological research could begin to address these questions and provide information on longitudinal trends with larger sample populations. Exploring how naloxone awareness, access, and attitudes change over an extended period of time may provide important insights into changing opioid use behaviours."* We agree strongly on the need to use quantitative and qualitative research complementarily. Indeed, we wish to highlight an example of the kind of published, descriptive epidemiological evidence from large representative samples that Heavey and colleagues recommend. Access to naloxone is reliant *either* on carriage i.e. having naloxone on one's person when required to use it; *or* on the naloxone being kept in the location where the client is most likely to use opioids. Our research in Scotland supports Heavey et al.'s (2018) finding that some PWUD prefer not to carry naloxone: carriage rates of take-home naloxone by PWID in Scotland have been persistently low and decreasing over time to less than 10% (McAuley et al., 2016). We previously speculated as to the reasons, one theory being size as a factor in limiting the portability of kits. Interestingly, Heavey et al. (2018: pg. 32) provide a specific example of an individual who found carrying naloxone impractical because it wouldn't fit within "tight pockets". In the N-ALIVE trial, whose naloxone-kit was fitted into a neat wallet, carriage rate in the first two weeks after prison-release was 71% (95% CI: 63%–79%) (Parmar et al., 2017). Carriage is less of an issue if opioid use occurs within a domestic environment where naloxone can also be stored. However, for people who use drugs in public places, accessibility is vital to naloxone's effectiveness as an overdose prevention tool. Complementary research such as the studies by Heavey et al. (2018) on 20 interviewees and McAuley et al. (2016) on over 2000 per era should encourage companies who manufacture naloxone to improve and tailor their product for PWUD to boost carriage and, ultimately, access when it is needed.

Take-home naloxone remains one of the most important developments in overdose prevention in recent years; and there is a growing, quantitatively robust evidence-base, including on cost-effectiveness (Coffin & Sullivan, 2013), which needs to be heeded in countering potential barriers to more widespread adoption. Important experiential evidence about the management and use of naloxone-kits, such as that provided by Heavey et al. (2018), is also growing but must reflect properly the wider quantitative evidence-base beyond their own setting because, as Heavey et al. (2018: pg. 28) acknowledge, "opioid overdose is a global issue".

References

Bird, S. M., Parmar, M. K. B., & Strang, J. (2015). Take-home naloxone to prevent fatalities from opiate-overdose: Protocol for Scotland's public health policy evaluation, and a new measure to assess impact. *Drugs: Education, Prevention and Policy, 22*, 66–76.

Bird, S. M., McAuley, A., Perry, S., & Hunter, S. (2016). Effectiveness of Scotland's National Naloxone Programme for reducing opioid-related deaths: A before (2006-10) versus after (2011-13) comparison. *Addiction, 111*, 883–891.

Bird, S. M., McAuley, A., Munro, A., Hutchinson, S. J., & Taylor, A. (2017). Prison-based prescription of take-home naloxone for persons who inject drugs contributes to the effectiveness of Scotland's National Naloxone Policy, 2011–2015. *The Lancet, 389*, 1005–1006.

Coffin, P. O., & Sullivan, S. D. (2013). Cost-effectiveness of distributing naloxone to heroin users for lay overdose reversal. *Annals of Internal Medicine, 158*(1), 1–9.

European Monitoring Centre for Drugs and Drug Addiction (2018). *European Drug Report 2018: Trends and developments*Luxembourg: Publications Office of the European Union.

Heavey, S. C., Burstein, G., Moore, C., & Homish, G. G. (2017). Overdose education and naloxone distribution program attendees: Who attends, what do they know, and how do they feel? *Journal of Public Health Management and Practice, 24*(1), 63–68. https://doi.org/10.1097/PHH.0000000000000538.

Heavey, S. C., Chang, Y.-P., Vest, B. M., Collins, R. L., Wieczoreke, W., & Homishd, G. G. (2018). 'I have it just in case'—Naloxone access and changes in opioid use behaviours. *International Journal of Drug Policy, 51*, 27–35.

Information Services Division (2017). *National Naloxone Programme Scotland monitoring report 2016/17*Retrieved 25 January, 2018 from:http://www.isdscotland.org/Health-Topics/Drugs-and-Alcohol-Misuse/Publications/2017-11-07/2017-11-07-Naloxone-Report.pdf?.

Irvine, M. A., Buxton, J. A., Otterstatter, M., Balshaw, R., Gustafson, R., Tyndall, M., et al. (2018). Distribution of take-home opioid antagonist kits during a synthetic opioid epidemic in British Columbia, Canada: A modelling study. *The Lancet Public Health, 3*(5), e218–e225.

Klaasen, D., & Buxton, J. A. (2018). *Overdose recognition and response in the BC Take-Home Naloxone Program. Review of data to July 2016.* Vancouver, BC: BC Centre for Disease Control.

Madah-Amiri, D., Clausen, T., & Lobmaier, P. (2017). Rapid widespread distribution of intranasal naloxone for overdose prevention. *Drug and Alcohol Dependence, 173*(1), 17–23.

McAuley, A., Munro, A., Bird, S. M., Hutchinson, S. J., Goldberg, D. J., & Taylor, A. (2016). Engagement in a National Naloxone Programme among people who inject drugs. *Drug and Alcohol Dependence, 162*, 236–240.

Millar, T., & McAuley, A. (2017). *EMCDDA assessment of drug-induced death data and contextual information in selected countries.* Retrieved 25 January 2018 from:http://www.emcdda.europa.eu/system/files/publications/4667/Assessment%20of%20drug-induced%20death%20data.pdf.

Morgan, G., & Smith, J. (2016). *Harm Reduction Database Wales: Take home naloxone 2015-16*Retrieved 25 January, 2018 from:https://www2.nphs.wales.nhs.uk/SubstanceMisuseDocs.nsf/0/73a04023c6b9bd9580257ee50049e202/$FILE/FINAL%20Naloxone%20HRD%20report%202015-16.pdf.

Parmar, M. K. B., Strang, J., Choo, L., Meade, A. M., & Bird, S. M. (2017). Randomized controlled pilot trial of naloxone-on-release to prevent post-prison opioid overdose deaths. *Addiction, 112*, 502–515. https://doi.org/10.1111/add.13668.

Seal, K., Thawley, R., Gee, L., Bamberger, J., Kral, A., Ciccarone, D., et al. (2005). Naloxone distribution and cardiopulmonary resuscitation training for injection drug users to prevent heroin overdose death: A pilot intervention study. *Journal of Urban Health, 82*(2), 303–311.

Wagner, K. D., Valente, T. W., Casanova, M., Partovi, S. M., Mendenhall, B. M., Hundley, J. H., et al. (2010). Evaluation of an overdose prevention and response training programme for injection drug users in the Skid Row area of Los Angeles, CA. *The International Journal of Drug Policy, 21*, 186–193.

Walley, A. Y., Xuan, Z., Hackman, H. H., Quinn, E., Doe-Simkins, M., Sorensen-Alawad, A., et al. (2013). Opioid overdose rates and implementation of overdose education and nasal naloxone distribution in Massachusetts: Interrupted time series analysis. *BMJ, 346*, f174. https://doi.org/10.1136/bmj.f174.

Wheeler, E., Jones, T. S., Gilbert, M. K., & Davidson, P. J. (2015). *Opioid overdose prevention programs providing naloxone to laypersons – United States, 2014.* Retrieved 25 January, 2018 from:http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6423a2.htm?s_cid=mm6423a2_w.