

Benefits and barriers to expanding the availability of take-home naloxone in Australia: a qualitative interview study with service providers

Robyn Dwyer^{1,2}, Suzanne Fraser¹ and Paul Dietze^{3,4}

1. Social Studies of Addiction Concepts (SSAC) Research Program, National Drug Research Institute (Melbourne Office), Faculty of Health Sciences, Curtin University, Fitzroy, Victoria, Australia
2. Centre for Cultural Diversity and Wellbeing, College of Arts, Victoria University, Footscray, Victoria, Australia
3. Centre for Population Health, Burnet Institute, Melbourne, Victoria, Australia
4. School of Public Health and Preventive Medicine, Monash University, Melbourne, Victoria, Australia

Corresponding author

Robyn Dwyer

National Drug Research Institute (Melbourne Office)

Suite 6, 19-35 Gertrude St

Fitzroy, Victoria

Australia 3065

T: +61 3 9079 2205

E: r.dwyer@curtin.edu.au

Running head: Benefits and barriers to take-home naloxone

Abstract

Aims: To investigate the perspectives and experiences of service providers regarding provision of take-home naloxone to people who use opioids in Victoria, Australia.

Methods: Content analysis of qualitative semi-structured interviews with 15 service providers who are either involved with take-home naloxone programs or whose work brings them in contact with people who use opioids.

Findings: Statements about take-home naloxone were universally positive. Both direct and indirect benefits of take-home naloxone were described. Alongside potential reductions in opioid overdose-related harms, service providers highlighted the empowering effects of providing people who use opioids with take-home naloxone. No significant risks were described. Service providers supported the expansion of naloxone availability, but also identified several intertwined barriers to doing so. Key among these were costs, current regulations and scheduling, availability of prescribers and stigma related to illicit and injecting drug use.

Conclusions: Expanding the availability of naloxone is a key component of strategies to reduce harms associated with opioid overdose. Our article provides Australian evidence of the successful operational implementation of peer-to-peer THN delivery within a range of drug primary health services and needle syringe programs. Further research is required to better understand the implications of and impediments to scale-up of this potentially life-saving public health intervention.

Key words: Australia, opioid overdose, peer-based, take-home naloxone, qualitative research

Benefits and barriers to expanding the availability of take-home naloxone in Australia: a qualitative study

Introduction

Opioid overdose remains a significant global public health concern (World Health Organization, 2014). North America, the United Kingdom and other parts of Europe are presently experiencing increases in rates of heroin and other opioid overdose (Chen, Hedegaard and Warner, 2015; EMCCDA, 2015a; Jones et al., 2015; Wise, 2015) and epidemiological data suggest rates of opioid overdose may be increasing in Australia. Recently the Australian National Coronial Information System (NCIS) reported on all opioid deaths (accidental and intentional) reported to an Australian coroner from 2007 to 2011. In this five year period, 4,102 opioid-related deaths were reported. Of these opioid-related deaths, heroin was the opioid most frequently involved (27% of the deaths), followed by methadone (21%) and oxycodone (19%). There was a 14 per cent increase in the number of opioid-related deaths between 2007 to 2010 (National Coronial Information System, 2014).

Naloxone, an opioid-antagonist, has been used for over 40 years in emergency medicine to reverse the effects of opioids (Lenton et al., 2015). Over the last two decades, measures have been implemented to extend the availability of naloxone to non-medical personnel who may witness opioid overdose. These take-home naloxone (THN) programs typically involve people who use opioids and their partners, families and friends. They have been implemented in jurisdictions in north America, the United Kingdom, Europe, Asia and Australia to reduce opioid overdose-related harm (Coffin, Sherman and Curtis, 2010; Curtis and Guterman, 2009;; Lenton et al., 2015; Strang et al., 2014). A substantial body of evidence has now accumulated demonstrating that providing THN to people who use opioids and other potential overdose witnesses is a safe and effective intervention which can result in successful opioid overdose reversals (Clark, Wilder and Winstanley, 2014; EMCDDA, 2015b; Giglio, Li and DiMaggio, 2015; Lenton et al., 2015; Mueller et al., 2015; Strang et al., 2014). Mathematical modelling highlights that distributing THN to heroin consumers is a cost-effective overdose prevention strategy (Coffin and Sullivan, 2013) while recent research from Scotland provides the first population-level evidence of the effectiveness of THN in reducing overdose deaths among people recently released from prison (Bird, McAuley, Perry and Hunter, 2016).

Most THN initiatives have been implemented within specialist drug services such as needle and syringe programs (NSPs), harm reduction programs and drug treatment services (McAuley et al., 2012; Mueller et al., 2015). International research suggests low awareness of THN and inconsistent levels of support for THN among health professionals (e.g., General

Practitioners, pain specialists, emergency department clinicians, pharmacists) and first responders (paramedics, police) working outside specialist drug services (Banta-Green et al., 2013; Beletsky et al., 2006; Binswanger et al., 2015; Matheson et al. 2014; Zaller et al., 2013). According to Mueller et al., (2015) potential barriers to expansion of THN to wider settings include: health professionals' concern that non-medical personnel would be unable to appropriately recognise an opioid overdose and administer naloxone; a 'moral hazard' concern that THN would encourage increased opioid consumption as having naloxone available would provide a 'safety net'; medico-legal concerns; and the cost of naloxone to patients. International research also suggests that the stigma attaching to drug use and corresponding negative attitudes to people who use or inject drugs may constitute a barrier to expansion of THN from specialist drug services to wider settings (Beletsky et al., 2006; Matheson et al., 2014). This literature also indicates that logistical issues such as medical provider time and resources, may serve as impediments to expansion of THN (Binswanger et al., 2015; Matheson et al., 2014).

In Australia, drug user representatives, service providers and researchers have advocated for the implementation of THN programs since the mid-1990s (Lenton and Hargreaves, 2000; Strang et al., 2014). However, it was only in April 2012 that the first THN program commenced in Australia in the Australian Capital Territory (Lancaster and Ritter, 2014; Olsen et al., 2015). Since this time, THN programs have been established in all but two Australian jurisdictions (Dietze et al., 2015; Lenton et al., 2015). In Australia, naloxone has been listed as a prescription-only medicine but will be available over the counter from February 2016 (Lenton, Dietze and Jauncey, 2015). All current Australian THN programs include a training component (overdose recognition and response and naloxone administration) and provide a mechanism for naloxone prescription and dispensation. These initiatives have developed via collaborations between diverse stakeholders and vary considerably in size and the mechanisms for prescription and dispensing. Programs also vary by training delivery models, including peer-to-peer training, nurse and physician training, as well as delivery by drug or other health and welfare workers (Chronister et al., 2015; Lancaster and Ritter, 2014; Lenton et al., 2015; Olsen et al., 2015).

In the Australian state of Victoria, two parallel THN strategies have been implemented. One strategy comprises a peer-based THN program led by Victoria's drug user organisation, Harm Reduction Victoria (HRV), in collaboration with specialist drug-related primary health services and needle syringe programs (NSP). This initiative commenced in August 2013. The HRV peer-to-peer program primarily involves training small groups (5-10 people) of people who use opioids in opioid overdose recognition and response, including administration of naloxone. The THN training component is designed and delivered by the HRV peer educator. The collaborating services recruit participants for training, host the group training sessions

and provide access to a General Practitioner (GP) for prescription of naloxone. Duration of group training sessions ranges from one to two hours. The HRV peer educator also opportunistically conducts brief (15-20 minute) individual training sessions. Upon satisfactory completion of training, a GP writes a prescription for each program participant. Service staff take the prescriptions to a local pharmacy and return to the service with the naloxone. Program participants are then provided with a 'naloxone kit'. This contains naloxone in the form of five 400 ug/mL pre-filled syringes (Minijets®), needles for intramuscular injection, alcohol swabs, gloves to minimise potential blood exposure during administration, a face-shield mask to use for mouth-to-mouth resuscitation if necessary and an information sheet on resuscitation and naloxone administration.

The second Victorian THN strategy is the Community Overdose Prevention and Education (COPE) program led by Penington Institute. This program conducts group sessions to train alcohol and other drug (AOD) workers and other community workers (e.g., housing, welfare) in the use of naloxone in order that they may then provide this training to people who use opioids. The COPE website also provides written materials for GPs and pharmacists. These detail procedures for conducting brief interventions on overdose recognition, response and reversal with naloxone (www.copeaustralia.com.au). The COPE strategy does not involve direct provision of THN.

Reports are beginning to emerge on the feasibility and successful implementation of THN programs for people who use opioids in the Australian Capital Territory, New South Wales and Western Australia (Chronister et al., 2015; Lancaster and Ritter, 2014; Lenton et al., 2015; Olsen et al., 2015). Overall, however, the literature on THN in Australia, including key issues for expanding THN availability, remains scant. In this article, we focus on the Victorian peer-based THN direct distribution strategy led by HRV. This article contributes to the literature by describing and analysing the perceptions and experiences of service providers regarding provision of THN to people who use opioids in Victoria. In particular, we describe the benefits and risks of THN discussed by service providers, and their perceptions of barriers to expanding the availability of THN.

Method

Data for this article are drawn from an independent evaluation accompanying the HRV-led THN initiatives. The evaluation was conducted by the first and third authors (at Victoria University and Burnet Institute, respectively). The evaluation comprised: pre- and post-training assessment of opioid consumer program participants' knowledge regarding overdose recognition and response and naloxone administration; structured follow-up interviews with program participants; and brief semi-structured qualitative interviews with service providers. Here we report on the service provider interview data. Approval for the evaluation study was

granted by the Alfred Hospital Human Ethics Research Committee. All participants provided written consent to be involved in the study.

Service providers were selected using a purposive recruitment strategy involving a combination of selection of critical cases and participant selection aiming for maximum variation (Marshall, 1996). Critical cases were participants with special expertise, in this case the co-ordinating staff member at every service facilitating the HRV-led initiatives (n=8). A maximum variation strategy selects a distributed range of participants to gather a range of views on an issue. In this case, service providers whose work brings them into contact with people who use opioids were approached from a range of service types and occupational roles – AOD treatment workers, crisis accommodation services, outreach health services, pharmacotherapy (opiate substitution) program. All service providers who were approached agreed to participate in the study.

Interviews were conducted between December 2014 and July 2015. The majority of service providers worked in urban and peri-urban areas of Melbourne, the capital city of Victoria. Two participants worked in regional areas outside the city. Interviews were conducted by a Victoria University research assistant either over the telephone or in person at the participant's place of work. They ranged in length from 20-45 minutes. All service providers were asked if they were aware of the THN initiatives in Victoria and then asked for their views on THN provision to people who use opioids. They were also asked to describe the benefits and risks of providing THN to people who use opioids, and to describe (or consider) the impact on their service or organisation of expanding the availability of naloxone. Service providers involved in the HRV peer-to-peer THN initiatives were additionally asked to describe their experiences implementing THN and asked whether they had experienced any unintended consequences from implementing these programs. All interviews were digitally recorded and professionally transcribed. Transcripts were entered into QSR International's NVivo 10 for organisation and analysis. Transcripts were read and systematically compared and coded to identify key analytic categories and themes. Basic content analysis was performed, guided by the broad interest areas of benefits, risks, and barriers (Silverman, 2011). Pseudonyms have been used to preserve participant anonymity. Some interview extracts have been edited for clarity or in order to combine related comments made at different times during the interview.

Findings

Fifteen service providers were interviewed, eight of whom were directly involved in the HRV-led initiatives (Table 1).

Table 1. Service provider participants and THN involvement

Participant*	THN program	
	Age	provider
Laura	49	Yes
Patti	37	Yes
Lydia	48	Yes
Debbie	28	Yes
Joe	40	Yes
Tom	34	Yes
Richard	48	Yes
Joey	41	Yes
Suzy	28	No
Joan	38	No
Poly	51	No
Ari	57	No
Donita	54	No
Sid	69	No
Dave	52	No

* Other sociodemographic characteristics of participants are not reported in order to protect participant anonymity

At the time of interview, individual services', and consequently study participants', experience with THN distribution ranged from three to 20 months. Three of the agencies running THN programs also provided individual naloxone training to people who use opioids in addition to the HRV-led training. Two participants from these agencies had undertaken the COPE program training (overdose recognition and response and naloxone administration) and were training people who use opioids. These service providers had mechanisms in place to allow immediate prescription and dispensing of naloxone to trainees. Among the seven service providers not involved in THN programs, two had also undertaken the COPE training but were yet to provide training to any people who used opioids. Neither of these participants had established prescribing or dispensing mechanisms to enable direct provision of naloxone. Participants worked at a range of health and welfare agencies, comprising specialist drug-related primary health care, needle and syringe programs (NSPs), Victoria's drug user organisation, as well as community health, crisis accommodation and youth services. Their occupational roles comprised community development, NSP work, health work, general practice, nursing, peer education, program management and team leadership.

Statements about THN distribution to people who use opioids were universally positive, with service providers describing THN as an important initiative and a valuable addition to harm reduction strategies. Several services providers said that naloxone should be made more broadly available, including to people on pharmacotherapy (opioid substitution treatment), people being discharged from detoxification and residential rehabilitation services or released from prison, as well as to the partners, family and friends of people who use opioids. Richard (THN program provider), for instance, stated, ‘it should be a standardised part of basic first aid training’. Participants described several benefits of providing people who use opioids with THN, and identified few significant risks or unintended consequences. A number of potential barriers to expanding the availability of naloxone were also discussed. While not every participant noted or discussed each and every benefit, risk or barrier identified in analysis, none of the participants expressed disagreement or contrary views regarding the benefits, risks and barriers reported here. There were no differences between the views of service providers who were, and those who were not, involved with THN distribution. We begin with discussion of the benefits of THN. These have been separated into direct and indirect benefits.

Benefits of THN

The key direct benefit of THN described by service providers was the potential reduction in opioid overdose-related deaths and other harms. All participants described the potential for THN to ‘save lives’ and reduce opioid overdose deaths. Several of the service providers involved in THN programs also described feedback they had received from program participants regarding opioid overdose reversals using naloxone. As Debbie, a service provider involved with the THN program, notes:

I think we’ve given out about 190 individual scripts, almost 200 individual scripts [...] [and] we’ve had, anecdotally, probably about ten or fifteen per cent of people saying that they have used it.

Other participants said that providing naloxone to people who use opioids had the potential to reduce other harms associated with opioid overdose, such as acquired brain injury or compartment syndrome, as well as indirect harms. Suzy explains:

something that I see pretty regularly, which is really sad [...] is that a lot of them have acquired brain injuries and things from having a lack of oxygen to their brain when they’ve been in overdose. So it’s not even just about the deaths, is it. It’s about all of the other impacts of overdose.

The key indirect benefit of THN described by service providers was its empowering effect on people who use opioids, who can use the naloxone in the event of an opioid overdose

emergency. Several participants explicitly described THN as ‘empowering’ while others employed words and phrases synonymous with concepts of empowerment. *The Oxford Dictionary* (Stevenson, 2010) defines empowerment as both granting people the ‘authority or power [...] to do something’ or as ‘the process of becoming stronger and more confident, especially in controlling one’s life and claiming one’s rights’. Participants invoked both senses of empowerment. For example, Debbie describes THN as giving people who use opioids the power to act:

it’s been really great in terms of, I guess, people having just ... being empowered to take action themselves and having the resources to be able to respond to their own and their friends and their peers’ overdoses.

She also discusses the second sense of empowerment:

the benefits are huge in terms of people feeling much more in control of their drug use, and much more able to respond to emergencies around them. And not just being at the will and at the hands of the professionals or the medical world and waiting for ambos [ambulance paramedics] or waiting for GPs to respond to these things [...] I just think it’s great in terms of a shift in self-determination and being able to control and have the resources to be able to be safe.

Comments made by other service providers similarly referenced the second sense of empowerment. For instance, in the quotations below, Suzy highlights the ways THN programs increase people’s confidence and self-esteem and Richard anticipates an increase in consumer activism to access naloxone.

[THN is] really good for their [clients’] confidence and their self-esteem [It indicates] that we’re actually looking to them and recognising that they’re, kind of, experts.
(Suzy)

As the training rolls out [...] then hopefully we’ll start to see that cultural shift, where people expect and demand naloxone. So it’s not us [services] pushing but, rather, the clients demanding. (Richard)

Participants involved in THN provision also described other indirect benefits of THN initiatives. Several observed that the program had enhanced service provision by adding a useful service they could offer clients. Others said the program had served to increase and enhance their engagement with clients.

Risks of THN

When asked to describe any risks associated with THN, several participants raised the possibility that people might increase consumption of opioids because naloxone would

provide a ‘safety net’ in the event of overdose. However, this concern was raised only to refute it. For example, as Tom (THN program provider) explains:

I know there’s concerns about, if you give people naloxone, will they use more than they would otherwise? I don’t know that any of the evaluations or research so far have really borne that out. I think it’s a bit contrary to generally [the consumer’s] aim, which is to get stoned [intoxicated], not to be administered with naloxone. So it doesn’t really ... I know it’s a concern, but I don’t know that it, A, really makes sense and, B, is borne out.

Some participants raised the issue of violence or abuse on administration of naloxone, suggesting that any aggression was related to the volume of naloxone administered – higher doses could put consumers into precipitated withdrawal – and that the HRV-led THN program recommended lower doses so as to minimise this possibility. A few also remarked that any aggression encountered by emergency workers could be explained by consumer fear and anxiety on returning to consciousness while surrounded by people in uniforms. These participants considered such anxiety (and any associated aggression) far less likely to occur when people were revived in familiar environments in the company of people they knew. Suzy noted aggression as a theoretical risk but qualified her response with the remark: ‘I don’t know how much of a myth this is’. One participant mentioned a concern that people who use opioids would not have the capacity to recognise overdose. As with the concern over increased consumption, this was dismissed as neither borne out by her experience nor by research.

Other risks were also discussed. Several participants noted the shorter half-life of naloxone in comparison with opioids such as heroin and therefore a risk that overdose would recur once the naloxone had worn off. All of these participants argued that this risk could be minimised through appropriate education and training, and Tom further pointed out that it is also present when people are revived by paramedics. Some participants noted the risk of infection or blood-borne virus transmission via injection of naloxone. Others raised the issue of precipitated withdrawal (unintentional or intentional) and the concomitant physical distress and suffering people revived with naloxone might experience. As with the risk of overdose recurrence, the risks of blood-borne virus transmission or precipitated withdrawal were seen as reducible through education and training. No adverse or unintended consequences of implementing THN were described by the eight service providers directly involved in THN provision.

In sum, service providers discussed some risks associated with THN. All were dismissed, however, as ‘myths’, ‘not borne out’ by the evidence or experience, or minor in comparison to the potential gains of reducing overdose harms. As Debbie points out:

And most of those people, that community [THN program participants], are people that we know fairly regularly. So I guess those sorts of myths or concerns have been debunked in just this process over the last twelve months, fourteen months.

Making a different point, Sid offers a cost-benefit analysis, remarking, ‘if someone’s going to die, I think they’re small risks’.

Barriers to expanding availability of THN

Service providers identified several issues likely to act as barriers to expanding the availability of naloxone. These comprised cost, availability of prescribers, regulations and scheduling, legal concerns, burden on services, and stigma associated with heroin use and injecting drug use. Below we separate these for presentation purposes, but participants described them as intertwined such that addressing one barrier could exacerbate the effects of another barrier.

Price was identified as a significant potential barrier to increasing the availability of naloxone to people who use opioids. During our data collection period naloxone was only available through prescription and subsidised under Australia’s Pharmaceutical Benefits Scheme (PBS). Under the PBS, the price for up to five 400 ug/mL naloxone Minijets® is \$36.10. This reduces to approximately \$6 for welfare recipients in possession of a government concession card entitling them to health care (and other) concessions (Lenton et al., 2015). However, as noted by some participants, even this small sum can be prohibitive for some people who use opioids who may rely on welfare benefits for income. These participants also drew attention to the added financial burden for welfare recipients who are on pharmacotherapy. The following comments from Ari and Laura provide examples:

six bucks [dollars] to somebody who is using drugs, on Centrelink [government welfare agency] and has a whole other range of bills, six dollars is a lot. I mean, you know, that’s your dose of methadone or bupe [buprenorphine] for a day. (Ari)

we run [a service], with people wanting money for methadone and stuff. Every day they’re ringing up for just five bucks to, you know, get their dose so they’re not hanging [in withdrawal]. So I just can’t see people putting their hand in their pocket to pay for naloxone. (Laura)

Service providers involved in the HRV-led THN programs explained that in recognition of the potentially prohibitive financial burden for people who use opioids, the costs of the Minijets® were borne by the agency, or sometimes by HRV. Participants also described other costs associated with the HRV-led THN programs. Ari’s comment is typical:

Yeah, so there’s the financial thing, and it’s like staff coverage and all that, but also there’s a thing that HRV give out, this little pack [...] and there’s things like a mask

[resuscitation face-shield mask] [...] gloves, and a little pack to carry it all in. I mean, that's a financial burden that we can't actually do.

As described earlier, all participants in the THN programs led by HRV receive a 'naloxone kit' – a pencil case containing the THN Minijets®, needles, swabs, gloves and face-shield mask. The needles required for intramuscular injection do not incur costs for agencies as they are available through the Victorian needle and syringe program. However, according to the HRV peer educator, costs of the other equipment in the naloxone kit, and the pencil case itself, are borne by HRV.

Ari's comment also makes clear that hosting the HRV-led naloxone training carries a further financial cost associated with staffing. Most agencies needed to roster an additional staff member on THN training days. Participants discussed the challenges of finding the financial resources to cover these costs for the small-scale THN initiatives currently running, given the lack of specific THN 'budget' (Patti) or 'direct funding' (Richard). Several service providers stated that in the absence of specific funding, while training of opioid consumer clients in the use of naloxone would remain feasible, these costs could well become prohibitive for further scale-up of direct naloxone provision.

Limited availability of medical practitioners and current regulations and scheduling were also identified as potential barriers to expanding the availability of THN. Each of the services currently running the HRV-led THN programs employ GPs who are able (and willing) to prescribe naloxone. However, as participants noted, these GPs are available only for a limited time each week. This means missed opportunities when consumers request naloxone when a doctor is not on site. Some service providers involved in the HRV-led THN programs also commented that naloxone prescribing added to the workload of their already over-burdened GPs. Others said that efforts to increase uptake of naloxone prescribing among community or 'mainstream' GPs were needed. As Debbie explains:

people will come in five or six times asking for it and they've just always seemed to come in on a time when there's no GP there, [so we're] always missing that opportunity to be able to provide it [naloxone] then and there on the spot [...] we have [GPs with us for a] limited time [and they] are also spending moments of their time with people that really could be accessing it in [the] mainstream but it's just that they don't know who to go to or GPs aren't aware or ... that's the biggest next step, is the GPs in the community getting on board.

Likewise, Richard comments:

[a] doctor's time is very short and valuable and the time when a doctor is available and the time when a person's walking in the door and saying, 'I want naloxone', may not correlate. The doctors that work here, have very high caseloads [...] If we find it a

challenge here, and we've got doctors on board, then I imagine it would only be even worse for services that don't have GPs on side. How on earth do they make sure that the naloxone gets into the hand of the person who's rocking up asking for it? So addressing the fact that it needs to be prescription only, I think that's a pretty big thing that we need to get across really quickly. Really quickly.

In relation to these barriers, several participants suggested re-scheduling naloxone to allow the drug to be obtained without a prescription over the counter at pharmacies. They also acknowledged, however, that re-scheduling naloxone might affect its PBS listing and associated subsidy, which could then increase its price. Other participants suggested retaining naloxone under its current schedule but loosening the regulations around prescribing in order to make naloxone available to partners and family members of people who use opioids, to health and welfare workers and to first responders such as the fire brigade.

Legal concerns around THN were also mentioned. Issues raised here were doctors' concerns around the medico-legal aspects of prescribing naloxone and the legal implications of administering naloxone to someone other than the person to whom it was prescribed. Service providers who raised the latter concern did also comment that 'Good Samaritan laws' would likely provide protection. Good Samaritan civil liability legislation exists across Australian jurisdictions. Such legislation holds that a person who acts in good faith to render assistance in a medical emergency without expectation of payment is not liable for any damage caused by their act.

Logistical demands and challenges were also described by participants involved with THN programs. These included promotion of training workshops and telephone contact reminders to clients to ensure attendance, patient record administrative tasks, ensuring the local pharmacy had naloxone in stock, rostering sufficient staff and coordinating the GP. In the light of such challenges, participants discussed the importance and necessity of collaboration and partnerships for the successful implementation of THN programs in the current regulatory context.

Stigma associated with heroin use and injecting was also identified as posing a barrier to expanding availability and uptake of THN. This stigma was perceived to constrain the willingness of community GPs to prescribe naloxone, and people who use opioids' willingness to request naloxone from community GPs or pharmacotherapy (opioid substitution) prescribers. Some participants also suggested, given the current naloxone Minijet® delivery system which requires use of a needle, that stigma associated with injecting drug use and needles may pose a barrier to uptake and administration of THN by people who are unfamiliar with injecting.

Discussion

Service providers in the Australian evaluation study described here were overwhelmingly supportive of THN provision to people who use opioids. Both direct and indirect benefits of THN were described. These included potential reductions in overdose-related harms, enhanced service provision and important empowerment effects of providing people who use opioids with the resources to respond in overdose emergency situations. In this respect, our findings are consistent with the small body of international literature on the perspectives of service providers involved with THN distribution programs (Banjo et al., 2014).

The international literature on attitudes to THN among health professionals not directly involved with such programs (or where levels of involvement are not detailed) shows greater ambivalence to THN than was seen among the service providers in this study who were not directly involved with THN provision (Binswanger et al., 2015; Green et al., 2014; Hill and McAuley, 2012; Matheson et al., 2014; Mueller et al., 2015). Importantly, ours was a study of service providers who have experience providing services to people who use or inject drugs. This familiarity may account for their awareness and support for THN in contrast to other health professionals described in the literature. Some service providers did discuss ‘objections’ to THN previously identified in the literature: moral hazard as THN would encourage increased opioid consumption; that lay people, particularly those who use opioids, would not have the capacity to recognise and respond to an opioid overdose; and that people revived by naloxone may become abusive or violent (Bazazi et al., 2010; Mueller et al., 2015). These concerns were raised only in order to refute them. Overall, participants in this study described no significant risks associated with THN. In general, participants supported the expansion of THN distribution initiatives to enhance Australia’s response to opioid overdose. Importantly, service providers directly involved in THN programs described no adverse or unintended consequences of providing people who use opioids with naloxone.

However, several potential barriers to scale-up and expansion were described. Costs associated with THN were identified as a potentially significant impediment to expanded availability. Although naloxone is relatively inexpensive in Australia, in particular for concession card holders (\$6), service providers expressed concern that price would be a barrier to uptake of THN if people who use opioids were required to bear this cost themselves. To our knowledge, the extent to which this would constitute a barrier has not been investigated because existing THN programs all provide naloxone to participants at no cost (e.g., Banjo et al., 2014; Chronister et al., 2015; McAuley et al., 2012; Olsen et al., 2015; Walley et al., 2013). However, given the evidence that similarly priced opioid pharmacotherapy fees constitute a major barrier to pharmacotherapy treatment access and retention in Australia (Chalmers and Ritter, 2012), it is not unreasonable to suppose that price

may pose a significant barrier to uptake of THN if participants were required to bear the cost themselves. The organisations running THN programs in this study were able to redirect some existing service funds in order to provide naloxone to program participants at no cost. As service providers explained, this was sustainable for the small-scale programs described in this study. However, in the absence of specific THN funding, costs could well become prohibitive for further scale-up. In particular, cost issues need to be addressed in order to ensure that people on low incomes and organisations providing THN programs continue to be able to access and distribute naloxone (Lenton et al., 2015).

Existing regulations and scheduling of naloxone were also described as impediments to THN expansion. During the study period, naloxone was scheduled as a prescription-only medicine, but this will change in early 2016. As our participants noted, prescription means that the limited availability of medical practitioners trained and willing to prescribe naloxone also remains a barrier to expanding its availability. Although the scheduling change potentially addresses this barrier, the over the counter co-scheduling proposed means that pharmacists will be needed to provide the drug to participants who obtain it over the counter. The impediments and challenges attendant on pharmacists selling naloxone similarly require investigation. Moreover, consumers are likely to pay much less for naloxone obtained on prescription than over the counter, meaning prescription will still be important for many service users.

Service provider accounts also shed light on additional elements limiting availability of prescribers here. Participants suggested that there was limited knowledge of naloxone, concerns over medico-legal implications of prescribing and uncertainty relating to protections provided by Good Samaritan laws among medical practitioners. Service providers also suggested that the willingness of medical practitioners to prescribe may be constrained by stigma associated with heroin use, injecting drug use and people who inject drugs. A similar dynamic has been noted in relation to expanding needle and syringe programs (Treloar et al., 2015). Stigma as an impediment to THN is also suggested in some international literature (Beletsky, et al., 2006; Matheson et al, 2014; Mueller et al., 2015). However, the role of stigma in shaping uptake and diffusion of THN has not been explored in-depth and warrants further investigation. Expanding the number of medical practitioners prescribing naloxone is one issue the Victorian COPE THN initiative aims to address. COPE strategies include raising awareness and increasing knowledge of THN among health professionals – pharmacists, GPs and Emergency Services. The COPE website includes ‘fact sheets’ on prescription and administration of naloxone and guides for the incorporation of THN into a medical practice or pharmacy. However, questions remain as to the uptake of this information by health professionals, and further research is needed to better understand their knowledge and attitudes towards THN, as well as potential barriers to implementation.

Given the stigma associated with injecting drug use and needles, service providers also suggested that the naloxone delivery system which requires use of a needle may pose a barrier to uptake of THN by people unfamiliar with injecting. Naloxone administration via an intranasal delivery system might address this issue. While several THN programs in the US have been using intranasal naloxone since 2006, further research is required to develop and validate this route of administration (Strang et al., 2014). Moreover, naloxone is not currently approved in Australia for intranasal use.

Considerable logistical challenges associated with running THN programs were also described by participants. Implicit in these descriptions was the considerable energy, enthusiasm and commitment of the service providers involved in setting up and continuing to facilitate THN to people who use opioids, because they demonstrated a willingness to engage with the HRV-led THN program in spite of the challenges. Researchers reporting on THN in other Australian jurisdictions have similarly observed that provision of THN to people who use opioids relies on goodwill, the energy and enthusiasm of THN advocates and supporters and strong partnership relationships between stakeholders – people who use opioids, peer-based organisations, health and community workers, GPs and pharmacists (Lancaster and Ritter, 2015; Lenton et al., 2015). In Australia, THN provision has been confined primarily to people who inject drugs. These initiatives have been facilitated by existing structures and a supportive experienced workforce with a harm reduction background (Lancaster and Ritter, 2015; Lenton et al., 2015). Other people who use opioids, such as people on opioid substitution therapy and the substantial numbers of people who are prescribed opioids for pain management would also likely benefit from access to naloxone (Roxburgh et al., 2011; Strang et al., 2014). Research suggests provision of THN to people on methadone is feasible (Chronister et al., 2015; Walley et al., 2013). However, literature on the views of THN among medical prescribers (of methadone and opioids for pain management) is scant and questions remain regarding the potential challenges and barriers to THN provision to other people who use opioids who may benefit.

Conclusions

Expanding the availability of naloxone is a key component of strategies to reduce harms associated with opioid overdose (Strang et al., 2014; WHO, 2014). A substantial proportion of people who use opioids report witnessing an opioid overdose. Providing this group with naloxone, and therefore with the means to reverse the overdose, is a practical technological intervention with significant potential to reduce harm. Research indicates that THN programs are safe and can result in successful opioid overdose reversals (Clark et al., 2014; Giglio et al., 2015) and there is recent evidence demonstrating that THN programs reduce opioid-related deaths at a population level (Bird et al. 2015). Our exploratory study of the views and

experiences of service providers involved in the first THN program in Victoria contributes to the evidence base for take-home naloxone in Australia. By highlighting service provider willingness and understanding of the issues related to THN programs, our study adds to growing evidence of their feasibility for people who use opioids in Australia (Chronister et al., 2015; Lancaster and Ritter, 2014; Lenton et al., 2015; Olsen et al., 2015). The study provides Australian evidence of the successful processes of implementing and incorporating peer-to-peer THN delivery within a range of specialist drug primary health services and needle syringe programs. Our article also adds to the literature on key issues for THN provision to people who use opioids in Australia. It describes implementation issues experienced within the particular circumstances obtaining in Australia – particular policies, laws, service structures and attitudes to drug use and drug users. Some of these circumstances are specific to Australia while others will be shared with other jurisdictions. As such, the study contributes to international literature on THN and its delivery in different settings. However, it has also highlighted several issues requiring further investigation in order to better understand the implications of, and impediments to, expanding naloxone availability in Australia.

Declaration of interest

RD is a member of the Harm Reduction Victoria (HRV) Board of Management. This is an unpaid volunteer role. SF reports no conflicts of interest. PD has been the recipient of an untied educational grant from Reckitt Benckiser and investigator-driven research funding from Gilead Sciences Inc. for unrelated work.

Acknowledgements

This research was funded through the Centre for Research Excellence in Injecting Drug Use [NHMRC ID: GNT1001144] and the Victoria University Out-of-Cycle Collaborative Grants Scheme. Renae Fomiatti conducted the interviews. We thank the individuals who participated in the interviews and contributed their experiences. We also thank the anonymous reviewers for comments on earlier drafts of this article. SF is supported by an ARC Future Fellowship PD is supported by an NHMRC Senior Research Fellowship.

References

- Banjo, O., Tzemis, D., Al-Qutub, D., Amlani, A., Kesselring, S. & Buxton, J.B. (2014) A quantitative and qualitative evaluation of the British Columbia Take Home Naloxone program. *CMAJ Open* 2(3), e153-e161.
- Banta-Green, C.J., Beletsky, L., Schoeppe, J.A., Coffin, P.O. & Kuszler, P.C. (2013). Police officers' and paramedics' experiences with overdose and their knowledge and

- opinions of Washington State's Drug Overdose–Naloxone–Good Samaritan Law, *Journal of Urban Health*, 90(6), 1102-1111.
- Bazazi, A. R., Zaller, N. D., Fu, J. J. & Rich, J. D. (2010). Preventing opiate overdose deaths: Examining objections to take-home naloxone. *Journal of Health Care for the Poor and Underserved*, 21(4), 1108-1113. doi:10.1353/hpu.2010.0935
- Beletsky, L., Ruthazer, R., Macalino, G.E., Rich, J.D., Tan, L. & Burris, S. (2006). Physicians' knowledge of and willingness to prescribe naloxone to reverse accidental opiate overdose: challenges and opportunities. *Journal of Urban Health*, 84 (1), 126-136.
- Binswanger, I.A., Koester, S., Mueller, S.R., Gardner, E.M., Goddard, K. & Glanz, J.M. (2015). Overdose education and naloxone for patients prescribed opioids in primary care: a qualitative study of primary care staff, *Journal of General Internal Medicine*, 30(12), 1837-1844
- Bird, S.M., McAuley, A., Perry, S. & Hunter, C. (2015). Effectiveness of Scotland's National Naloxone Programme for reducing opioid-related deaths: a before (2006-10) versus after (2011-13) comparison. *Addiction*, In press doi: 10.1111/add.13265.
- Chalmers, J. & Ritter, A. (2012). Subsidising patient dispensing fees: The cost of injecting equity into the opioid pharmacotherapy maintenance system, *Drug and Alcohol Review*, 31(7), 911-917.
- Chen, L.H., Hedegaard, H. & Warner, M. (2015). Quickstats: Rates of deaths from drug poisoning and drug poisoning involving opioid analgesics – United States, 1999-2013. *Morbidity and Mortality Weekly Report*, 64 (32).
- Chronister, K., Lintzeris, N., Jackson, A., Ivan, M., Dietze, P., Lenton, S., et al. (2015). Findings and lessons learnt from implementing Australia's first health service based take-home naloxone program. *Drug and Alcohol Review*, Accepted for publication Dec 2015.
- Clark, A. K., Wilder, C. M. & Winstanley, E. L. (2014). A systematic review of community opioid overdose prevention and naloxone distribution programs. *Journal of Addiction Medicine*, 8(3), 153-163.
- Coffin, P., Sherman, S. & Curtis, M. (2010). Underestimated and overlooked: A global review of drug overdose and overdose prevention. In C. Cook (Ed.), *Global State of Harm Reduction 2010: Key Issues for Broadening the Response* (pp. 113–119). London: International Harm Reduction Association. Retrieved from: http://www.ihra.net/files/2010/06/29/GlobalState2010_Web.pdf.
- Coffin, P. O., & Sullivan, S. D. (2013). Cost-effectiveness of distributing naloxone to heroin users for lay overdose reversal. *Annals of Internal Medicine*, 158, 1–9.
- Curtis, M. & Guterman, L. (2009). *Overdose Prevention and Response: A Guide for People Who Use Drugs and Harm Reduction Staff in Eastern Europe and Central Asia*.

Retrieved from:

www.opensocietyfoundations.org/sites/default/files/overdose_20090604.pdf

- Dietze, P., Cogger, S., Malandkar, D., Olsen, A. & Lenton, S. (2015). Knowledge of naloxone and take-home naloxone programs among a sample of people who inject drugs in Australia. *Illicit Drugs Reporting System. Drug Trends Bulletin* April 2015. Sydney, NSW: National Drug and Alcohol Research Centre, UNSW.
- European Monitoring Centre for Drugs and Drug Addiction (EMCDDA). (2015a). *European Drug Report. Trends and Developments 2015*. Luxembourg: Publications Office of the European Union.
- European Monitoring Centre for Drugs and Drug Addiction (EMCDDA). (2015b). *Preventing fatal overdoses: a systematic review of the effectiveness of take-home naloxone*, EMCDDA Papers. Luxembourg: Publications Office of the European Union.
- Giglio, R. E., Li, G. & DiMaggio, C. J. (2015). Effectiveness of bystander naloxone administration and overdose education programs: a meta-analysis. *Injury Epidemiology*, 2, 1-10.
- Green, T.C., Bowman, S.E., Zaller, N.D., Ray, M., Case, P. & Heimer, R. (2013). Barriers to medical provider support for prescription naloxone as overdose antidote for lay responders. *Substance Use & Misuse*, 48:558–567
- Hill, D.R., & McAuley, A. (2012). A comparative study of stakeholder views on take-home naloxone services. *Journal of Substance Use*, 17(5-6), 430-441.
- Jones, C. M., Logan, J., Gladden, R. M. & Bohm, M. K. (2015). Vital Signs: Demographic and substance use trends among heroin users - United States, 2002–2013. *Morbidity and Mortality Weekly Report (MMWR)*, 64(26), 719-725.
- Lancaster, K. & Ritter, A. (2014). Making change happen: A case study of the successful establishment of a peer-administered naloxone program in one Australian jurisdiction. *International Journal of Drug Policy*, 25(5), 985–991.
- Lenton, S., Dietze, P. & Jauncey, M. (2015). Australia to reschedule naloxone for overdose, *Medical Journal of Australia*, Accepted for publication Dec 2015.
- Lenton, S., Dietze, P., Olsen, A., Wiggins, N., McDonald, D. & Fowlie, C. (2015). Working together: Expanding the availability of naloxone for peer administration to prevent opioid overdose deaths in the Australian Capital Territory and beyond. *Drug and Alcohol Review*, 34(4), 404-411.
- Lenton, S. & Hargreaves, K. (2000). Should we trial the provision of naloxone to heroin users for peer administration to prevent fatal overdose. *Medical Journal of Australia*, 173, 260-263.
- McAuley, A., Best, D., Taylor, A., Hunter, C. & Robertson, R. (2012). From evidence to policy: The Scottish national naloxone programme, *Drugs: education, prevention and policy*, 19(4), 309–319.

- Marshall, M.N. (1996). Sampling for qualitative research, *Family Practice*, 13(6), 522-525.
- Matheson, C., Pflanz-Sinclair, C., Aucott, L., Wilson, P., Watson, R., Malloy, S., Dickies, E. & McAuley, A. (2014). Reducing drug related deaths: A pre-implementation assessment of knowledge, barriers and enablers for naloxone distribution through general practice. *BMC Family Practice*, 15(12), 1-10.
- Mueller, S.R., Walley, A.Y., Calcaterra, S.L., Glanz, J.M. & Binswanger, I.A. (2015): A review of opioid overdose prevention and naloxone prescribing: Implications for translating community programming into clinical practice, *Substance Abuse*, 36(2): 240-253.
- National Coronial Information System (Australia). (2014). Opioid deaths 2007-2011. NCIS Fact Sheet August 2014. Retrieved from: <http://www.ncis.org.au/fact-sheet-opioids-death/>
- Olsen, A., McDonald, D., Lenton, S. & Dietze, P. (2015). Independent evaluation of the 'Implementing Expanding Naloxone Availability in the ACT (I-ENAACT)' Program, 2011-2014. Final Report July 2015. Melbourne: Centre for Research Excellence in Injecting Drug Use, Burnet Institute.
- Stevenson, A. (Ed). (2010). *Oxford Dictionary of English 3rd Edition*. Online. Oxford University Press. doi: 10.1093/acref/9780199571123.001.0001
- Roxburgh, A., Bruno, R., Larance, B. & Burns, L. (2011). Prescription of opioid analgesics and related harms in Australia. *Medical Journal of Australia*, 195(5), 280-284.
- Silverman, D. (2011). *Interpreting Qualitative Data*. 4th Edition. London: SAGE.
- Strang, J., Bird, S. M., Dietze, P., Gerra, G. & McLellan, A. T. (2014). Take-home emergency naloxone to prevent deaths from heroin overdose. Now enough experience to justify it. *BMJ*, 349(g6580), 1-2. doi: 10.1136/bmj.g6580
- Treloar, C., Hopwood, M., Yates, K. & Mao, L. (2015). 'Doing the devil's work': Emotional labour and stigma in expanding Needle and Syringe Programs. *Drugs: Education, Prevention and Policy*, 22(5), 437-443
- Walley, A.Y., Doe-Simkins, M., Quinn, E., Pierce, C. Xuan, Z. & Ozonoff, A. (2013). Opioid overdose prevention with intranasal naloxone among people who take methadone, *Journal of Substance Abuse Treatment*, 44, 241-247.
- Walley, A. Y., Xuan, Z., Hackman, H. H., Quinn, E., Doe-Simkins, M., Sorensen-Alawad, A., Ruiz, S., & Ozonoff, A. (2013). Opioid overdose rates and implementation of overdose education and nasal naloxone distribution in Massachusetts: Interrupted time series analysis. *British Medical Journal*, 346, 1-12.
- Wise, J. (2015). Heroin deaths increase by two thirds in two years, UK figures show. *BMJ*, 350(h4754), 1-2.
- World Health Organization. (2014). *Community Management of Opioid Overdose*. Geneva: World Health Organization.

Zaller, N.D., Yokell, M.A., Craig Green, T., Gaggin, J. & Case, P. (2013) The feasibility of pharmacy-based naloxone distribution interventions: A qualitative study with injection drug users and pharmacy staff in Rhode Island, *Substance Use & Misuse*, 48(8), 590-599.