

Overdose Prevention Programming: Education and Naloxone Distribution

Practical Guide

March 2016

Introduction & outline

Canada is the world's second-largest per capita consumer of prescribed pharmaceutical opioids (International Narcotics Control Board, 2013). There are an estimated 321,000 to 914,000 people who use non-prescribed pharmaceuticals¹ in the general population and approximately 72,000 of the country's street-involved drug-consuming population use non-prescribed pharmaceutical opioids and/or heroin (Popova, Patra, Mohapatra, Fischer, & Rehm, 2009). Non-prescribed pharmaceutical opioids are increasingly the most commonly injected drug in most parts of the country (Fischer & Rehm, 2007; Fischer, Patra, Firestone-Cruz, Gittins, & Rehm, 2008). As such, it seems relevant to establish and expand effective programming that addresses opioid overdoses so as to reduce harm and save lives.

One possible intervention is the distribution of naloxone among opioid users and to their friends and families. Naloxone is an opioid antagonist that temporarily reverses the effects of opioids and can be administered to restore respiratory function to someone experiencing an overdose. It is considered an essential medicine by the World Health Organization (WHO) which has recently produced a document containing guidelines and recommendations that support the development of naloxone distribution programs (see the Additional Resources section at the end of this document). The present document is intended for Canadian health care and public health practitioners within health authorities, not-for-

profit organizations, pharmacists, clinicians, and any other peers and professionals who are interested in establishing a naloxone distribution program to address opioid overdose in their communities. It provides a basic outline of how naloxone works, ways a naloxone program can be set up and the forms of collaboration it may take, ideas for the content to include in any associated risk-reduction training, and considerations to keep in mind to assure a comprehensive and effective overdose prevention program adapted to the particular context.

Opioids and naloxone

Opioids are a class of drugs that includes heroin, opium, and pharmaceutical pain killers such as codeine, fentanyl, hydrocodone, hydromorphone, methadone, buprenorphine, and oxycodone. Pharmaceutical opioids (POs) are increasingly used in both prescribed and non-prescribed ways, both of which can lead to overdoses that cause long term effects or death. Naloxone, commonly known by its trade name Narcan™, is an opioid antagonist.

Overdose-related deaths occur through a variety of mechanisms. High doses of opioids may saturate the brain's opioid receptors, causing respiratory depression (difficulty breathing). When opioids are taken with other prescribed or illegal drugs, or alcohol, they may lead to life-threatening respiratory, neurological, or cardiac abnormalities. These effects may be more severe in people with other underlying health conditions.

Naloxone works by displacing opioids from their receptors and thereby reversing the physiological effects of opioids. Naloxone is fast-acting, works for about 45 minutes, and has minimal side effects. Naloxone has virtually no effect on the action of other drugs or alcohol. It has no pharmacological or adverse effects in the

¹ Terminology is imperfect: in this document we refer to opioid drugs (both legally made and counterfeited) as pharmaceutical opioids. When such drugs are used by an individual in doses as prescribed by a physician, we refer to that as prescribed use; when they are consumed not as prescribed, either through consumption modes or in doses other than prescribed, or by someone who was not prescribed the drug, we refer to that as non-prescribed use. For data that counts the two forms of use together, we use the term opioid-related. At times these lines can be difficult to distinguish.



absence of exogenous opioids, and therefore has virtually no potential to be diverted for other uses, nor will it aggravate symptoms or cause adverse effects if mistakenly given to someone who is not overdosing on an opioid (Baca & Grant, 2005; Maxwell, Bigg, Stanczykiewicz, & Carlberg-Racich, 2006).

Naloxone is available in various formats depending on one's jurisdiction and its prescription drug legislation. The most common format is a glass ampoule or vial filled with liquid; it is drawn into a syringe and administered via intramuscular injection (into the fatty parts of the body such as the thigh, upper arm, or buttocks). It can also be administered intravenously (into the vein), or subcutaneously (under the skin). Syringe-free administration can be done intranasally with a nose spray; this is seen by many as a safer alternative because it is easier to manipulate and reduces the possibility of needle-stick injuries but still reacts quickly (Corrigan, Wilson, & Hampton, 2015; McDermott & Collins, 2012; Robertson, Hendey, Stroh, & Shalit, 2009; Robinson & Wermeling, 2014). In one study, people who use heroin cited a preference for intranasal administration because it is easier to use, poses less risk of transmitting blood-borne viruses, does not require using a needle/syringe, preserves vein integrity, is less painful, and is less alarming if used in public (Kerr, Dietze, Kelly, & Jolley, 2008). It should be noted, however, that evidence shows intranasal naloxone can be less effective when administered to people who have nasal abnormalities, such as those with prior nasal drug use (e.g., cocaine; Ashton, 2006). Intranasal sprays for Canadian distribution may become available.

DISTRIBUTION OF NALOXONE TO PEOPLE WHO USE OPIOIDS, AND THEIR FAMILIES AND FRIENDS

Naloxone distribution is an increasingly popular initiative to combat opioid overdose-related morbidity and mortality. These programs may be operated by or in collaboration between not-for-profit groups, needle exchanges, municipal and regional health authorities, pharmacies, emergency health services, health services within prisons, and/or physicians. Participants are those who are considered at-risk for opioid overdose as well as their friends or family who are likely to witness an overdose if it occurs. People considered at risk are: those with known or

suspected prescription opioid dependence; those with a history of emergency care for opioid overdose, opioid use with known or suspected use of alcohol or benzodiazepines, or other drugs known to increase overdose risk; those who have been released from prison with a history of opioid dependence; those discharged from a treatment program for opioid dependence; those enrolled in opioid dependence treatment with methadone during specific times such as induction or discharge (Orkin et al., 2015).

Participants are generally recruited by invitation through services that they already access. Training typically consists of information around the risks of opioid use, the signs and symptoms of an overdose, and first response measures including the proper administration of naloxone. Participants are then provided naloxone, usually under a blanket distribution protocol in accordance with the pharmaceutical regulations of the given jurisdiction. They can then keep it at home or carry it on their person to be used in case of an opioid-associated resuscitative emergency ('overdose'). Such programs exist in many parts of the world, including the USA, the UK, parts of Europe and Central Asia.

Guidelines and best practices from existing Canadian programs

The following sections describe some possible considerations in formulating a naloxone distribution program, such as information to include in high-risk use training, the contents of an overdose intervention kit, different collaborative possibilities between healthcare stakeholders, funding costs, some common barriers to implementing a program and ideas for overcoming them, and special considerations for programming in rural areas. Rather than presenting a list of rules, we have gathered suggestions drawn from the experiences of existing programs. Any intervention must be adapted to its specific opioid landscape, the proposed participant population, and the local political, geographic, and economic contexts.

At the time of writing and to the best of our knowledge, provincial naloxone programs existed in Alberta, British Columbia, and Ontario; programs were deployed or in development by

municipal, local, or regional authorities in Edmonton, Montréal, Ottawa, Thunder Bay, and Toronto.

FORMAT OF RISK REDUCTION TRAINING

There is no one format for naloxone administration training. Some programs consider flexibility and brevity to be important principles (15-45 minutes). They suggest intake and training be done the moment someone shows interest rather than scheduling a follow-up for a later date, since people may forget or otherwise be unable to attend the training later. Having scheduled group training at an established, fixed site may not be the most effective way to reach desired participants, but this all depends on the dynamics of the population in question (Wagner et al., 2014). Programs that target populations with more stable schedules or which are run through physicians' offices and clinics where scheduled appointments are the norm, may find participants more amenable to longer, organized training sessions. There are also a number of training videos available (see the *Additional Resources* section) that can be used for training purposes.

Particularly when resources are limited, health authorities may find it cost-effective to execute naloxone programs in conjunction with existing not-for-profit harm reduction services such as mobile or fixed-site needle exchange programs, safe injection sites, or drug therapy centres, meaning people would be trained within community centres with which they are already familiar (Bennett, Bell, Tomedi, Hulse, & Kral, 2011). Clinics, pharmacies, and physicians who have experience with opioid use are all important potential stakeholders in building a naloxone program. It may be ideal to include high-risk institutions (such as prisons and withdrawal management/ rehabilitation centres, where people are more at risk for overdose upon discharge) in naloxone provision networks by establishing naloxone training and prescription as part of the release process for those at elevated risk of overdose. Emergency departments have recently been identified as locales where high risk users can be easily identified (since prior overdose is an important risk factor) and given access to naloxone (Dwyer et al., 2015).

CONTENTS OF RISK REDUCTION TRAINING

The information provided in this section was taken from the two following resources:

The DOPE Project 'Quick & Dirty' Narcan Training Checklist. Retrieved from:
<http://harmreduction.org/wp-content/uploads/2012/02/dope-quick-dirty-training.pdf>

Toward the Heart's Overdose Survival Guide: Tips to Save a Life. Retrieved from:
http://towardtheheart.com/assets/uploads/files/OD_Survival_Guide_Tips_to_Save_a_Life_2012.08.29_upright_for_website.pdf

Table 1 Opioid overdose risk factors and prevention strategies

Risk factors	Prevention strategies
<i>Prescription dose:</i> Taking a prescribed opioid, especially if over 100mg/day (morphine equivalent)	Use only as prescribed and stay in dialogue with your prescribing physician
<i>Drug mixing:</i> opioids with alcohol/pills, or cocaine	Use one drug at a time, especially opioids with alcohol or benzodiazepines
<i>Tolerance:</i> exiting jail, hospital, detox; especially methadone detox	Use less at these times when tolerance is low; take test shots
<i>Quality:</i> unpredictability of composition, especially when counterfeit Rx drugs are circulating	Take tester shots, use reliable/consistent dealer when possible
<i>Using alone:</i> behind closed, locked door, where you cannot be found	Always use with a friend or acquaintance (but without sharing equipment)
<i>Health status:</i> compromised liver, renal and pulmonary functions (difficulty breathing, reduced excretion, etc.)	Treat existing conditions if possible and find individually appropriate ways to help reduce their occurrence/severity

- 1) How to recognize **risk factors** for overdose and primary prevention strategies: see table 1 above.
- 2) How to recognize the **symptoms of an overdose** or other life-threatening or health-threatening emergency. This could involve asking a few questions to ascertain the participant's baseline knowledge and beliefs regarding the signs of and ways to intervene during an overdose, and correcting any faulty information before going on to discuss the signs and symptoms of an overdose. These symptoms can vary widely among different people and with different kinds of opioids, so one may simply discuss the general symptoms of respiratory or cardiac distress. The use of visual aids may be helpful – sample videos can be found in the Additional Resources section.
- 3) **Emergency response intervention** and naloxone administration. This involves discussing the steps taken in identifying and intervening in an overdose and administering naloxone:
 - Identify the opioid-associated resuscitative emergency and confirm that the person has no signs of life using verbal and painful stimuli.
 - Call 911.
 - Administer naloxone by drawing the naloxone into the syringe and injecting it into a fatty area like the upper arm or buttocks (if using the liquid ampoule); or by spraying it into the nostrils (if using intranasal delivery).
 - Initiate standard CPR according to their level of training, with or without mouth-to-mouth ventilations.
 - People may often resist calling 911 for fear of legal repercussions related to illegal drug use – training should include context-specific information on protections extended by good samaritan laws, if locally applicable (See below: “Supportive Changes in Drug Policy”).
- 4) Discuss possible **side effects and follow-up**: patients waking up from a naloxone overdose reversal can be extremely agitated and irritable, as the drug's effects have been interrupted abruptly. It is crucial they do not consume again right away, as the half-life of naloxone is shorter than that of opioids, and the overdose can “come back” once the naloxone has worn off in about 45 minutes. A second dose may therefore be necessary. Training should include some crisis management and the importance of calling 911, and then staying with someone after they have been revived.
- 5) In addition, some research has shown that naloxone participants' **drug use may decrease** with training as they become more aware of risks and more health-conscious (Maxwell et al., 2006; Wagner et al., 2014). This lessened drug use and/or stress caused by responding to overdoses can result in a network of drug-users losing some of its overall capacity to respond to overdoses. Trained participants may socialize less with people who are high-risk for an overdose or be more likely to use alone. Consuming alone may mean they would be less likely to be revived by a trained responder, or may not be present to respond to overdoses in others. This can be addressed by ensuring the program incorporates a venue for psychosocial support of trainees and by expanding the scope of training so as to buffer against the loss of some trained individuals over time (Wagner et al., 2014).

Program implementation logistics

NALOXONE KIT CONTENTS

While kit contents will depend on available funds and resources and the needs of the local opioid user population, reviews of existing Canadian programs show kits to often include:

- 2 doses of naloxone (0.4 mg/mL)²;
- Needles and syringes;
- Alcohol wipes;
- Rescue breathing barrier mask;
- Latex gloves;

² Other programs have used larger vials, to ensure sufficient drug is available in the event of responding to multiple simultaneous overdoses; however prescribing less helps ensure program participants will return more frequently for refills, which allows for more regular surveillance and follow-up. Additionally, single-use vials minimize the potential for bacterial and viral contamination with agents like hepatitis and HIV. Both distribution systems offer advantages and disadvantages to be assessed according to the population of interest.

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- Cue cards with a reminder of the necessary response steps;
- Wallet card with Rx for the person carrying naloxone;
- Information booklet on overdose risks.



Figure 1 Common contents of a naloxone kit. The kit initially distributed in British Columbia (Canada)

Source: Toward the Heart, 2014. Retrieved from: <http://towardtheheart.com/naloxone/>

THE ROLES OF MEDICAL PROFESSIONALS, HEALTH AUTHORITIES AND NOT-FOR-PROFIT ORGANIZATIONS

Each province has different rules about what drugs can be prescribed by physicians, nurse practitioners, and pharmacists and these regulations are routinely updated. Prescription practices are overseen by the colleges of physicians and the colleges of pharmacists in each province so they are also a source of information. To speak with your provincial colleges, see the following websites for their contact information: <http://www.fmrac.ca/members/> <http://www.pharmacists.ca/index.cfm/pharmacy-in-canada/directory-of-pharmacy-organizations/provincial-regulatory-authorities1/>

Physicians can be involved in opioid overdose prevention and naloxone distribution in a few ways. They can partner with a not-for-profit group to distribute naloxone, since such groups require a prescribing physician to obtain naloxone and rarely have physicians on staff. A physician can also monitor their opioid patients for high-risk use and prescribe naloxone as a preventive measure

(resources for this can be found in the *Additional Resources* section).

Not-for-profit organizations seeking to collaborate with their health authority should contact their province's health ministry to see what opportunities may be available and what legal processes may be required. Health authorities looking to partner with not-for-profits may wish to review the services offered by groups they currently fund or collaborate with, or otherwise seek out local listings, to see what programming exists that would make for an ideal partnership.

Typically, programs that are overseen by public health receive certain exceptions to more restrictive prescription protocols, and many existing naloxone programs operate with funding from and in partnership with provincial, regional, and/or municipal public health bodies. A summary of how these public health bodies are organized and their various mandates can be found here: <http://www.ccnpps.ca/en/structuralprofile.aspx>

Public health departments may provide funding and logistical support for programs that are then run by existing not-for-profit harm reduction services such as needle exchanges, methadone treatment, or mobile outreach units. Such programs would need to have the cooperation of a physician, either on staff or as a partner, who is willing to write prescriptions for naloxone. Opportunities for government funding and partnerships vary across provinces.

COORDINATION WITH LAW ENFORCEMENT AND EMERGENCY MEDICAL STAFF

In all cases and regardless of how the naloxone program is run, it is ideal to inform local law enforcement of an emerging naloxone program. Some programs have found that uninformed police officers will confiscate naloxone kits, thinking it is an illegal substance. In Pennsylvania, 12% of participants who renewed their prescriptions cited police confiscation as their reason (Bennett et al., 2011). A San Francisco program also found a 12% rate of renewal for reasons of police confiscation on the street or upon admission into prison (Enteen et al., 2010). As of 2013, one such incident had been recorded in the Toronto program (Leece et al., 2013). For this reason, it is crucial to develop cooperative relations with local law enforcement by informing them of the program

before it is launched and explaining its justification. Involving a member of the police department as a committee, council, or board member may further increase law enforcement buy-in and collaboration. Since law enforcement officers may not understand naloxone or the principles of harm reduction, it may be ideal to provide a brief training session or distribute a short informative document to police in the area, an example of which can be found in the *Additional Resources*.

First responders in the area should similarly be made aware of and educated on the program. Ideally, first responders and police should be authorized to carry and use naloxone so as not to create a legal situation where a professional cannot intervene while a civilian can.

PROGRAMMING WITH PEER IMPLICATION

For programs targeting people who use opioids in a non-prescribed (illegal) manner, it is ideal to involve them in the planning and implementation of the program, provided the context is appropriate and there is sufficient interest among the target population. User-driven interventions are not only feasible, but can increase program reach and effectiveness because they allow for greater contact with and recruitment of participants, they have an in-depth understanding of local usage patterns and practices and they increase participant comfort (Broadhead et al., 1998; Cottler et al., 1998; Grund et al., 1992; Hayashi, Wood, Wiebe, Qi, & Kerr, 2010; Kerr, Douglas, Peeace, Pierre, & Wood, 2001; Kerr, Oleson, Tyndall, Montaner, & Wood, 2005; Small et al., 2012; Wood et al., 2003).

Not-for-profit organizations as well as health authorities may therefore wish to involve local residents who use drugs. This involvement may entail from as little as having a committee representative right up to the establishment of fully user-driven initiatives. Other possibilities are recruiting people who formerly used or currently use drugs to serve as program staff and volunteers, ensuring user membership on boards and councils, or engaging users for secondary distribution of materials and information. A case study of VANDU (Vancouver Area Network of Drug Users) (Kerr et al., 2001) and a guide from the Québec peer-group ADDICQ (Association pour la défense des droits et l'inclusion des personnes qui consomment des drogues du Québec – the

association for the defense of Québec drug users' rights and inclusion) (ADDICQ, 2012) illuminate some crucial guiding philosophies behind effective user-driven or user-involved initiatives:

- Do not include people who use drugs as figureheads or tokens – be prepared to value peer input.
- Before designing an initiative, canvass areas where people who consume drugs congregate and invite them to join discussion meetings to establish pressing concerns, ideas for action points, and input into ideal strategies for naloxone programs specifically.
- If staff of the organization/governing body are not themselves users or former users, adopt a process whereby local users can democratically elect or otherwise participate in the selection of their “representatives” and have an ongoing role in organizational decisions (i.e.: requiring that a minimum percentage of the Board of Directors be current or former drug users).
- Adopt a low-threshold format: requiring sobriety of users to participate in planning committees or meetings will limit who can participate and when they can participate;
- Similarly, be prepared to adapt to users' daily realities in terms of communication methods and scheduling (i.e.: Internet access may not be possible, make meetings short and informal, be prepared to reschedule, provide a lunch, etc).
- Involve a minimum of two users to spread out the workload, to ensure they have peer-support within working groups, and to avoid monopolizing user-input from one person.
- Prioritize volunteer recruitment among those who are new to the organization in order to democratize participation and avoid elitism.
- Adopt a peer-mentoring policy by pairing employees and volunteers who have certain knowledge and skills with current and past users who would like to learn those skill sets.
- Give peer-users the means to effectively contribute, not just in opinion but in completing concrete tasks.
- Highlight and appreciate people's accomplishments and contributions. As much as possible, compensate users for their time with money, food, or other things they may need.

TYPICAL FUNDING COSTS

Costs are ever fluctuating and therefore these cases are intended simply as a means to gauge a general estimate. Naloxone vials cost an average of \$12-\$15 each. One must then consider additional materials provided in a naloxone kit, operational costs, and whether or not one must pay a physician or pharmacist for prescription and distribution, according to local regulations.

Street Works reports spending an estimated \$7,800 per year on their naloxone program: approximately \$1,800 on naloxone per year (estimated 80 doses at a cost of \$20-\$25 per dose) and about \$6,000 per year to print overdose prevention handbooks (Canadian Aids Treatment Information Exchange [CATIE], 2010).

Toronto's POINT program estimates the average cost of naloxone to be \$11.35 per dose, and about \$25 dollars per kit (which includes two 1 mL doses of naloxone, three syringes, a naloxone prescription identifier card, a simplified instruction pamphlet of the intervention steps, and alcohol swabs) (Leece et al., 2013).

In some cases, not-for-profit groups may secure funding from public health departments and/or fold new programming into their existing mandates. A sample funding application is available in the *Additional Resources* section.

COMMON BARRIERS TO IMPLEMENTATION

- *Obtaining sufficient ongoing funding to maintain a steady supply of naloxone to maintain the program.* Successful programs have generally partnered with the provincial or municipal public health department and harm reduction services, sharing funding and resources. The best justification for the cost-effectiveness of the program comes from emphasizing the potential savings in costs to paramedics, emergency room services, and long-term morbidity.
- *Prescribing regulations.* Each province has different protocols around who can prescribe and distribute naloxone and under what circumstances. This can present challenges and requires discussion and agreement between health ministries and professional orders. At the time of writing, Health Canada was reviewing the prescription-only status of naloxone (Branswell, 2015).

- *The sometimes illegal status of opioid use makes it difficult to reach the target clientele.* The context of illegal opioid use may be such that partnering with needle exchanges or focusing on non-prescribed drug use may negatively affect community buy-in. In addition, a substantial number of opioid overdoses occur from the prescribed therapeutic use of opioids to treat chronic pain. Those programs developed with a regional health authority and pharmacies, rather than through not-for-profit harm reduction groups, may find it beneficial to target the latter population in particular with their naloxone programs, but to also open the program to drug users. Emphasizing the broad use of opioids in society and blurring dichotomous understandings of drug use as either "legitimate" or "abusive" can help to support community acceptability, to reach more people who are potentially at risk and to start a conversation around illegal drug use that may reduce stigma. These programs can emphasize the emergency resuscitation training (CPR and AR) aspects of the program rather than focusing on the naloxone component if this may incur more support. Such an approach facilitates and is facilitated by partnerships with physicians and pharmacists, who can help counsel high-risk prescribed opioid patients. There are precedents for layperson administration of emergency prescriptions (e.g., for use of the Epipen™) and procedures (e.g., use of public defibrillators) and highlighting this may help garner public support.

Special considerations for programming in rural contexts

Drug use, particularly injection drug use, is often considered an urban issue because of its relatively hidden nature in rural communities (Wardman & Quantz, 2006). The majority of rural drug use occurs in private homes, and is rarely visible in public areas (Parker, Jackson, Dykeman, Gahagan, & Karabanow, 2012). Drug use may be rendered invisible when users do not fit the stereotype of the young, unemployed, transient male. Further invisibility is created when there are fewer health services enacting drug use and overdose surveillance (Gustafson, Goodyear, & Keough, 2008).

A number of considerations should be taken into account when developing programs in rural and small urban areas.

REMOTENESS

Rural opioid users are often alienated from harm reduction services, which tend to be located in urban centres. Transportation is often expensive, unreliable, or unavailable. Sufficient public transit is typically non-existent. One possible solution is to establish secondary distributors: drug users who do have transportation can collect a greater volume of materials and distribute them in an informal manner to other drug users who do not have access to transit. Integrating this 'satellite' system into the program's model may extend its reach (Snead et al., 2003; Klein, 2007; Rich, Wolf, & Macalino, 2002), and has been suggested for rural areas in particular (McCutcheon & Morrison, 2014). Other options that have been used to

distribute sterile injection materials are mobile services and vending machines, and these could be an option to consider when resources are limited (Islam & Conigrave, 2007). Telehealth systems can also be incorporated into care and monitoring; a recent trial using basic telephones for automated symptom monitoring, algorithm-guided treatment adjustment, and nurse contact showed promising results for chronic pain patients who, after a twelve-month intervention, reported lower pain scores without increased opioid use (Kroenke et al., 2014).

In smaller urban centres where there are some established health services, public health nurses, prisons, hospitals, walk-in clinics and pharmacies make good collaborative partners for programs run by the Health Authority. Schools, local shops, community centres, and places of worship may also double as ideal points of contact with geographically dispersed communities.

Medical interventions	Preventive interventions	Health care system interventions
Methadone maintenance treatment (MMT) ³	Prevention of/diversion from injection as mode of consumption ⁴	Prescription monitoring programs (PMPs) ⁵
Buprenorphine treatment ⁶	Community overdose prevention and intervention with naloxone⁷	Physician training in alternative pain management ⁸
Combination buprenorphine-naloxone treatment (MMT) ⁹	Low-barrier housing programs ¹⁰	Physician training on opioid harm and tool provisions to identify and monitor high-risk patients ¹¹
Sustained-release naltrexone implant ¹²	Low-barrier services for intravenous drug users (IDU) ¹³	Policies to limit pharmaceutical industry involvement in medical field ¹⁴

Figure 2 Protective interventions to reduce opioid overdose-related harms

³ (Brugal, 2005; Connock et al., 2007; Darke, Williamson, Ross, & Teesson, 2005; Degenhardt et al., 2011, 2014; Gibson et al., 2008; Kimber et al., 2010; Kinner et al., 2012; Milloy et al., 2008; Soyka, Apelt, Lieb, & Wittchen, 2006);

⁴ (Brugal et al., 2002; Darke & Hall, 2003; Degenhardt et al., 2011);

⁵ (Albert et al., 2011; El-Aneed et al., 2009; Feldman, Williams, Coates, & Knox, 2011; Mello et al., 2013; Simeone & Holland, 2006; Strang et al., 2012);

⁶ (Auriacombe, Franques, & Tignol, 2001; Bell, Butler, Lawrance, Batey, & Salmelainen, 2009; Gibson et al., 2008; Kakko, Svanbord, Kreek, & Hellig, 2003; Luty, O'Gara & Sessay, 2005; Soyka et al., 2006; Umbricht, Huestis, Cone, & Preston, 2004);

⁷ (Albert et al., 2011; Bennett et al., 2011; Clark, Wilder, & Winstanley, 2014; United Nations Commission on Narcotic Drugs, 2012; Eggertson, 2013; Enteen et al., 2010; Green, Heimer & Grau, 2008; Kim et al., 2009; Maxwell et al., 2006; Mello et al., 2013; Piper et al., 2008; Walley et al., 2013; Wheeler et al., 2012);

⁸ (Darke & Hall, 2003; Darke, Mills, Ross, & Teesson, 2011; Kahan, Wilson, Mailis-Gagnon & Srivastava, 2011);

⁹ (Fudula et al., 2003);

¹⁰ (Havinga, van der Velden, de Gee, & van der Poel, 2014; Moore, 2004; Rhodes, 2002);

¹¹ (Dhalla et al., 2011; Jovey et al., 2003; Krebs, Ramsey, Milosheff, & Bair, 2011);

¹² (Hulse et al., 2005);

¹³ (Hedrich, Kerr, & Dubois-Arber, 2010; Marshall, Milloy, Wood, Montaner, & Kerr., 2011; Poschade, Hoger, & Schnitzler, 2003);

¹⁴ (Dhalla & Laupacis, 2008; Dhalla et al., 2011; Goldacre, Carrol, & t Hall, 2013; Persaud, 2013; Spielmans & Parry, 2010; Van Zee, 2009)

CONFIDENTIALITY

Smaller communities do not offer the anonymity provided by the highly concentrated populations of urban centres, meaning everyone ‘*knows each other’s business*’ (McCutcheon & Morrison, 2014; Wardman & Quantz, 2006). Coupled with the stigma of drug use, especially injection drug use, this makes it difficult to obtain pipes, syringes, services, medical aid, etc. In rural communities people are more likely to get needles from pharmacies, but may also obtain consumption equipment from peers and secondary distributors who are able to access harm reduction services. Urban drug users tend to get consumption equipment more exclusively – and for free – from harm reduction services like needle exchanges (Day, Conroy, Lowe, Page, & Dolan, 2006; McCutcheon & Morrison, 2014). Combining and marketing naloxone with services for licit prescription opioid use can help ‘disguise’ the program and offer some confidentiality to users. Family physicians who are comfortable with harm reduction interventions may also be a potential point of service as they are bound by patient confidentiality agreements.

Other areas of intervention for an integrated harm reduction strategy

Depending on the availability of necessary resources and the level of political and community support, additional programs and policy changes can be undertaken to help prevent opioid overdoses. Figure 2 summarizes how naloxone programs may fit into a larger ensemble of policy initiatives.

SUPPORTIVE CHANGES IN DRUG POLICY

The institution of ‘Good Samaritan’ laws might be a protective factor to reduce fatalities from overdose. These laws grant immunity from possession charges to people calling emergency services in the case of an overdose involving a controlled substance – a key factor preventing people from calling 911 in an overdose emergency (Bennett et al., 2011; Davidson, Ochoa, Hahn, Evans, & Moss, 2002; Davis, Webb, & Burris, 2013; Kim, Irwin, & Khoshnood, 2009; Mello et al., 2013; Straus, Ghitza, & Tai, 2013; Tobin, Davey, & Latkin, 2005; Wagner et al., 2014). If policy

change is not possible, consultation with the local chief of police may allow for the establishment of informal agreements with and cooperation among police officers.

CHANGING PHYSICIAN PRACTICE

There is increasing debate over whether or not it is ever safe to prescribe opioids for chronic non-cancer pain, with suggestions that what is needed is a fundamental shift in prescribing practices (Alexander, Kruszewski, & Webster, 2012; Ballantyne & Shin, 2008; Chaparro et al., 2013; Chou, Ballantyne, Fanciullo, Fine, & Miaskowski, 2009; Coffin & Banta-Green, 2014; Dhalla, Persaud, & Juurlink, 2011; Dowell, Kunins, & Farley, 2013; Fischer, Jones, & Rehm, 2013; Kissin, 2013; Noble, Tregear, Treadwell, & Schoelles, 2008; Nüesch, Rutjes, Husni, Welch, & Jüni, 2009). In addressing patients, physicians can suggest alternative chronic pain management, prescribe opioids only when absolutely necessary (Wheeler, Davidson, Jones, & Irwin, 2012), and screen for and counsel high-risk chronic pain patients, co-prescribing naloxone to all opioid patients or those considered at most risk (Albert et al., 2011; Coffin & Banta-Green, 2014; Davis et al., 2013). Text box 1 offers one example of high-risk opioid patient identification, and the Additional Resources section includes links to recent guidelines and risk assessment tools for opioid prescribing.

Box 1. Example of naloxone priority groups and risk factors for opioid overdose related harms (from *Project Lazarus*)

- Recent medical care for opioid poisoning/intoxication/overdose
- Suspected or confirmed history of heroin or nonmedical opioid use
- High-dose opioid prescription (≥ 100 mg/day morphine equivalence)
- Any methadone prescription for opioid naive patient
- Recent release from jail or prison
- Recent release from mandatory abstinence program or drug detox program
- Enrolled in methadone or Buprenorphine detox/maintenance (for addiction or pain)
- Remoteness from or difficulty accessing medical care
- Voluntary patient request
- Any opioid prescription and known or suspected:
 - Smoking, COPD, emphysema, asthma, sleep apnea, or other respiratory system disease
 - Renal or hepatic disease
 - Alcohol use
 - Concurrent benzodiazepine use
 - Concurrent antidepressant prescription

(Albert et al., 2011)

CHANGING PRESCRIPTION PROTOCOLS

Unlike Canada, Italy has approved naloxone for over-the-counter sale, which has made it easily accessible without incurring any reported negative consequences in terms of improper administration or other problems (Campana, 2000). Other possible interventions at the level of prescribing infrastructure include establishing or utilizing an existing Controlled Substances Reporting System (CSRS), Electronic Health Record (EHR),

pharmacy network, and/or Prescription Drug Monitoring Program (PDMP) to limit adverse medical interactions and drug diversion (channelling medications to individuals to whom those medications were not prescribed, at any point in the chain from manufacturer to dispensing pharmacist). Common forms of drug diversion are theft, prescription forgery, and 'doctor shopping' (Albert et al., 2011; El-Aneed et al., 2009; Mello et al., 2013; Strang et al., 2012; Straus et al., 2013; Wheeler et al., 2012).

INTERSECTORAL COLLABORATION

Collaboration between pertinent parties helps to reach more people and creates more consistency and communication between related health sectors. A network of overdose prevention may include: not-for-profit organizations, pharmacies and health care service facilities, schools and youth centres, detention centres and drug treatment facilities, local media, et cetera. The Lazarus project in North Carolina (Albert et al., 2011) offers a successful case study of a community wide, multisectoral intervention.

Conclusion

Opioid use in Canada is of growing concern. It is important to expand the reach of interventions that show promising results. Overdose prevention programs using naloxone have demonstrated efficacy in increasing risk awareness and saving lives. This is especially the case when naloxone programs involve the cooperation of multiple stakeholders and are part of a broader set of protective interventions. This document offers potential points of departure for establishing and guidelines for operating a naloxone program. Any program, however, will need to be adapted and evaluated to meet the needs of specific communities. Below, the *Additional Resources* section and the literature sources contained in the references provide further avenues to gain expertise from existing programs and sources of information.

Additional Resources

World Health Organization

- Program guidelines and recommendations:
http://www.who.int/substance_abuse/publications/management_opioid_overdose/en/

Toward the Heart Program

- BC program *Toward the Heart*, with copies of training manuals, videos, and sample kits:
<http://towardtheheart.com/naloxone/>
- Sample overdose prevention pamphlet:
http://towardtheheart.com/assets/uploads/files/OD_Survival_Guide_Tips_to_Save_a_Life_2012.08.29_upright_for_website.pdf
- Resources for establishing cooperative relationships with law enforcement and first responders:
<http://towardtheheart.com/naloxone/law-enforcement/>
- Possible training video includes naloxone procedure and tips to avoid overdose:
<http://www.youtube.com/watch?v=U1frPJoWtkw>
- Peer-reviewed publication of program outcomes:
<http://www.cmajopen.ca/content/2/3/E153.full>

Canadian Aids Treatment Information Exchange (CATIE)

- Best Practice Recommendations for Canadian Harm Reduction Programs that Provide Service to People Who Use Drugs and are at Risk for HIV, HCV, and Other Harms, Part 1, Chapter 11 - Opioid overdose prevention: education and naloxone distribution:
<http://www.catie.ca/en/programming/best-practices-harm-reduction>
- Description/case study of *Street Works*, the Edmonton, AB naloxone program:
<http://www.catie.ca/en/pc/program/overdose-prevention-project>
- Sample funding application:
<http://www.catie.ca/sites/default/files/Drug%20Education%20and%20Overdose%20Prevention.pdf>

Naloxone Info

- Annotated bibliography, case studies, fact sheets, advice on starting a program, etc.:
<http://www.naloxoneinfo.org/>

European Monitoring Centre for Drugs and Drug Addiction

- Preventing overdose deaths overview:
<http://www.emcdda.europa.eu/topics/pods/preventing-overdose-deaths>
- Best practice portal: Harm reduction interventions for opioid injectors:
<http://www.emcdda.europa.eu/best-practice/harm-reduction/opioid-injectors>
- Systematic review of the effectiveness of take-home naloxone:
<http://www.emcdda.europa.eu/publications/emcdda-papers/naloxone-effectiveness>

Canadian Centre on Substance Abuse

- Prescription Opioids in Canada: Overview:
<http://ccsa.ca/Resource%20Library/CCSA-Canadian-Drug-Summary-Prescription-Opioids-2013-en.pdf>
- Misuse of Opioids in Canadian Communities:
<http://ccsa.ca/Resource%20Library/ccsa-CCENDU-Opioid-Bulletin-2013-en.pdf#search=naloxone>
- First Do No Harm: Responding to Canada's Prescription Drug Crisis:
<http://www.ccsa.ca/resource%20library/canada-strategy-prescription-drug-misuse-report-en.pdf>

Hungarian Civil Liberties Union (HCLU) / Drug Reporter

- Animated training video:
http://drogriporter.hu/en/Bunny_and_wolf-fight_overdose_animated_guide

Canadian Drug Policy Coalition

- Opioid Overdose Prevention & Response in Canada: http://drugpolicy.ca/wp-content/uploads/2014/05/CDPC_Overdose-Prevention-Policy.pdf

Canadian Guideline for Safe and Effective Use of Opioids for Chronic Non-Cancer Pain.

Includes:

- Extensive guidelines for opioid prescribers: <http://nationalpaincentre.mcmaster.ca/opioid/>
- Easy to use tools for physicians and patients to assess and manage opioid overdose risk: <http://nationalpaincentre.mcmaster.ca/tools.htm>

References

- Albert, S., Brason, F.W. 2nd, Sanford, C.K., Dasgupta, N., Graham, J., & Lovette, B. (2011). Project Lazarus: Community-based overdose prevention in rural North Carolina. *Pain Medicine*, 12(Suppl 2), S77–S85.
- Alexander, G.C., Kruszewski, S.P., & Webster, D.W. (2012). Rethinking opioid prescribing to protect patient safety and public health. *JAMA*, 308, 1865–1866.
- Ashton, R. (2006). Intranasal naloxone in suspected opioid overdose. *Emergency Medicine Journal*, 23, 221-223.
- Association pour la Défense des Droits et l'Inclusion des personnes qui Consomment des drogues du Québec [ADDICQ]. (2012). *Guideline for the inclusion of drug users*. Montréal (Québec): ADDICQ. Retrieved from: <http://linjecteur.ca/addicq/PDF/Guideline%20for%20the%20inclusion%20of%20drug%20users-web.pdf>
- Auriacombe, M., Franques, P., & Tignol, J. (2001). Deaths attributable to buprenorphine versus methadone in France. *JAMA*, 285, 45.
- Baca, C.T. & Grant, K.J. (2005). Take-home naloxone to reduce heroin death. *Addiction*, 100, 1823–1831.
- Ballantyne, J.C. & Shin, N.S. (2008). Efficacy of opioids for chronic pain: A review of the evidence. *Clinical Journal of Pain*, 24, 469-478.
- Bell, J.R., Butler, B., Lawrance, A., Batey, R., & Salmelainen, P. (2009). Comparing overdose mortality associated with methadone and buprenorphine treatment. *Drug and alcohol dependence*, 104(1), 73-77.
- Bennett, A.S., Bell, A., Tomedi, L., Hulsey, E.G., & Kral, A.H. (2011). Characteristics of an overdose prevention and response and naloxone distribution program in Pittsburgh and Allegheny County, Pennsylvania. *Journal of Urban Health*, 88, 1020–1030.
- Branswell, H. (2015). Naloxone's prescription-only status to get Health Canada review. CBC. July 24. Retrieved from: <http://www.cbc.ca/news/health/naloxone-s-prescription-only-status-to-get-health-canada-review-1.3166867>
- Broadhead, R.S., Heckathorn, D.D., Weakliem, D.L., Anthony, D.L., Madray, H., Mills, R.J., & Hughes, J. (1998). Harnessing peer networks as an instrument for AIDS prevention: Results from a peer-driven intervention. *Public Health Reports*, 113, 42–57.
- Brugal, M., Barrio, G., De, L.F., Regidor, E., Royuela, L., & Suelves, J.M. (2002). Factors associated with non-fatal heroin overdose: Assessing the effect of frequency and route of heroin administration. *Addiction*, 97, 319–327.

Physicians for Responsible Opioid Prescribing

- Cautious, Evidence-Based Opioid Prescribing Guidelines: Additional information on safer prescribing practices: http://www.supportprop.org/educational/PROP_OpioidPrescribing.pdf

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- Brugal, M., Domingo-Salvany, A., Puig, R., Barrio, G., García de Olalla, P., & de la Fuente, L. (2005). Evaluating the impact of methadone maintenance programmes on mortality due to overdose and AIDS in a cohort of heroin users in Spain. *Addiction, 100*, 981–989.
- Campana, M. (2000). *Overdose mortality and naloxone distribution in Italy*. Paper presented at the “Preventing Heroin Overdose: Pragmatic Approaches” conference. Seattle, Washington, January 13-14, 2000.
- Canadian Aids Treatment Information Exchange [CATIE]. (2010). *Programming Connection case study: Overdose prevention project, StreetWorks*, Edmonton: CATIE. Retrieved from: <http://www.catie.ca/en/pc/program/overdose-prevention-project>
- Chaparro, L.E., Furlan, A.D., Deshpande, A., Mailis-Gagnon, A., Atlas, S., & Turk, D.C. (2013). Opioids compared to placebo or other treatments for chronic low-back pain. *Cochrane Database Systematic Reviews*, 8, CD004959.
- Chou, R., Ballantyne, J.C., Fanciullo, G.J., Fine, P.G., & Miaskowski, C. (2009). Research gaps on use of opioids for chronic noncancer pain: Findings from a review of the evidence for an American Pain Society and American Academy of Pain Medicine clinical practice guideline. *Journal of Pain, 10*, 147–159.
- Clark, A., Wilder, C.M., & Winstanley, E.L. (2014). A systematic review of community opioid overdose prevention and naloxone distribution programs. *Journal of Addiction Medicine, 8*, 153–163.
- Coffin, P., & Banta-Green, C. (2014). The dueling obligations of opioid stewardship. *Annals of Internal Medicine, 160*, 207–208.
- Connock, M., Juarez-Garcia, A., Jowett, S., Frew, E., Liu, Z., [...] & Taylor, R.S. (2007). Methadone and buprenorphine for the management of opioid dependence: A systematic review and economic evaluation. *Health Technology Assessment, 11*(9), 1–171.
- Corrigan, M., Wilson, S.S., & Hampton, J. (2015). Safety and efficacy of intranasally administered medications in the emergency department and prehospital settings. *American Journal of Health-System Pharmacy, 72*(18), 1544-1554. doi: 10.2146/ajhp140630
- Cottler, L.B., Compton, W.M., Ben Abdallah, A., Cunningham-Williams, R., Abram, F., Fichtemberg, C., & Dotson, W. (1998). Peer-delivered interventions reduce HIV risk behaviors among out-of-treatment drug abusers. *Public Health Reports, 113*(S1), 31-41.
- Darke, S., Williamson, A., Ross, J., & Teesson, M. (2005). Non-fatal heroin overdose, treatment exposure and client characteristics: Findings from the Australian Treatment Outcome Study (ATOS). *Drug and Alcohol Review 24*, 425–432.
- Darke, S. & Hall, W. (2003). Heroin overdose: Research and evidence-based intervention. *Journal of Urban Health, 80*, 189–200.
- Darke, S., Mills, K.L., Ross, J., & Teesson, M. (2011). Rates and correlates of mortality amongst heroin users: Findings from the Australian Treatment Outcome Study (ATOS), 2001–2009. *Drug and Alcohol Dependence, 115*, 190–195.
- Davidson, P.J., Ochoa, K.C., Hahn, J.A., Evans, J.L., & Moss, A.R. (2002). Witnessing heroin-related overdoses: The experiences of young injectors in San Francisco. *Addiction, 97*, 1511–1516.
- Davis, C., Webb, D., & Burris, S. (2013). Changing law from barrier to facilitator of opioid overdose prevention. *Journal of Law, Medicine & Ethics, Spring*, 33–36.
- Day, C., Conroy, E., Lowe, J., Page, J., & Dolan, K. (2006). Patterns of drug use and associated harms among rural injecting drug users: Comparisons with metropolitan injecting drug users. *Australian Journal of Rural Health, 14*, 120–125.

- Degenhardt, L., Bucello, C., Mathers, B., Briegleb, C., Ali, H., Hickman, M., & McLaren, J. (2011). Mortality among regular or dependent users of heroin and other opioids: A systematic review and meta-analysis of cohort studies. *Addiction, 106*, 32–51.
- Degenhardt, L., Larney, S., Kimber, J., Gisev, N., Farrell, M., [...] & Burns, L. (2014). The impact of opioid substitution therapy on mortality post-release from prison: Retrospective data linkage study. *Addiction Research Report*. Epub ahead of print doi:10.1111/add.12536
- Dhalla, I., & Laupacis, A. (2008). Moving from opacity to transparency in pharmaceutical policy. *CMAJ, 178*, 428–431.
- Dhalla, I., Persaud, N., & Juurlink, D.N. (2011). Facing up to the prescription opioid crisis. *BMJ, 343*:d5142.
- Dowell, D., Kunins, H.V., & Farley, T.A. (2013). Opioid analgesics—risky drugs, not risky patients. *JAMA, 309*, 2219–2220.
- Dwyer, K., Walley, A.Y., Langlois, B.K., Mitchell, P.M., Nelson, K.P., Cromwell, J., & Bernstein, E. (2015). Opioid education and nasal naloxone rescue kits in the emergency department. *Western Journal of Emergency Medicine, 16* (3).
- Eggertson, L. (2013). Take-home naloxone kits preventing overdose deaths. *CMAJ News, 186*, 17. doi:10.1503/cmaj.109-4663
- El-Aneed, A., Alaghebandan, R., Gladney, N., Collins, K., MacDonald, D., & Fischer, B. (2009). Prescription drug abuse and methods of diversion: The potential role of a pharmacy network. *Journal of Substance Use, 14*, 75–83.
- Enteen, L., Bauer, J., McLean, R., Wheeler, E., Hurliaux, Kral, A., & Bamberger, J.D. (2010). Overdose prevention and naloxone prescription for opioid users in San Francisco. *Journal of Urban Health, 87*, 931–941.
- Feldman L., Williams K.S., Coates J., & Knox, M. (2011). Awareness and utilization of a prescription monitoring program among physicians. *Journal of Pain & Palliative Care Pharmacotherapy, 25*, 313–317.
- Fischer, B. & Rehm, J. (2007). Illicit opioid use in the 21st century: Witnessing a paradigm shift? *Addiction, 102*, 499–501.
- Fischer, B., Patra, J., Firestone-Cruz, M., Gittins, J., & Rehm, J. (2008). Comparing heroin users and prescription opioid users in a Canadian multi-site population of illicit opioid users. *Drug & Alcohol Review, 27*, 625–632.
- Fischer, B., Jones, W., & Rehm, J. (2013). High correlations between levels of consumption and mortality related to strong prescription opioid analgesics in British Columbia and Ontario, 2005 – 2009. *Pharmacoepidemiology and Drug Safety, 22*, 438–442.
- Fudula, P.J., Bridge, P., Herbert, S., Williford, W.O., Chiang, C. N., [...] & Tusel, D. (2003). Office-based treatment of opiate addiction with a sublingual-tablet formulation of buprenorphine and naloxone. *New England Journal of Medicine, 349*, 949–958.
- Gibson, A., Degenhardt, L., Mattick, R.P., Ali, R., White, J., & O'Brien, S. (2008). Exposure to opioid maintenance treatment reduces long-term mortality. *Addiction, 103*, 462–468.
- Goldacre, B., Carroll, D., & Hall, E. (2013). Guidelines for collaboration with industry should be transparent. *BMJ, 347*, f6100.
- Green, T.C., Heimer, R., & Grau, L.E. (2008). Distinguishing signs of opioid overdose and indication for naloxone: An evaluation of six overdose training and naloxone distribution programs in the United States. *Addiction, 103*(6), 979-989. doi:10.1111/j.1360-0443.2008.02182.x

Overdose Prevention Programming:
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- Grund, J.P., Blanken, P., Adriaans, N.F., Kaplan, C.D., Barendregt, C., & Meeuwse, M. (1992). Reaching the unreached: targeting hidden IDU populations with clean needles via known user groups. *Journal of Psychoactive Drugs*, 24, 41–47.
- Gustafson, D.L., Goodyear, L., & Keough, F. (2008). When the dragon's awake: A needs assessment of people injecting drugs in a small urban centre. *International Journal of Drug Policy*, 19, 189–194.
- Havinga, P., van der Velden, C., de Gee, A., & van der Poel, A. (2014). Differences in sociodemographic, drug use and health characteristics between never, former and current injecting, problematic hard-drug users in the Netherlands. *Harm Reduction Journal*, 11, 6.
- Hayashi, K., Wood, E., Wiebe, L., Qi, J., & Kerr, T. (2010). An external evaluation of a peer-run outreach-based syringe exchange in Vancouver, Canada. *International Journal of Drug Policy*, 21, 418–421.
- Hedrich, D., Kerr, T., & Dubois-Arber, F. (2010). Drug consumption facilities in Europe and beyond. In T. Rhodes & D. Hedrich (Eds.), *Harm reduction: Evidence, impacts and challenges*, (pp. 305-331). EMCDDA Monograph, Luxembourg: Publications Office of the European Union.
- Hulse, G.K., Tait, R.J., Comer, S.D., Sullivan, M.A., Jacobs, I.G., & Arnold-Reed, D. (2005). Reducing hospital presentations for opioid overdose in patients treated with sustained release naltrexone implants. *Drug and Alcohol Dependence*, 79, 351–357.
- International Narcotics Control Board. (2013). Report 2013. Vienna: United Nations. Retrieved from: https://www.incb.org/documents/Publications/AnnualReports/AR2013/English/AR_2013_E.pdf
- Islam, M.M. & Conigrave, K.M. (2007). Assessing the role of syringe dispensing machines and mobile van outlets in reaching hard-to-reach and high-risk groups of injecting drug users (IDUs): A review. *Harm Reduction Journal*, 4, 14.
- Jovey R.D., Ennis, J., Gardner-Nix, J., Goldman, B., Hays, H., Lynch M., & Moulin, D. (2003). Use of opioid analgesics for the treatment of chronic noncancer pain — A consensus statement and guidelines from the Canadian Pain Society, 2002. *Pain Research & Management*, 8, 3A–28A.
- Kahan, M., Wilson, L., Mailis-Gagnon, A., & Srivastava, A. (2011). Canadian guideline for safe and effective use of opioids for chronic noncancer pain: Clinical summary for family physicians. Part 2: Special populations. *Canadian Family Physician*, 57, 1269–1276.
- Kakko, J., Svanbord, K.D., Kreek, M.J., & Hellig, M. (2003). 1-year retention and social function after buprenorphine assisted relapse prevention treatment for heroin dependence in Sweden: A randomised, placebo-controlled trial. *Lancet*, 361, 662–668.
- Kerr, D., Dietze, P., Kelly, A-M., & Jolley, D. (2008). Attitudes of Australian heroin users to peer distribution of naloxone for heroin overdose: perspectives on intranasal administration. *Journal of Urban Health*, 85(3), 352-360.
- Kerr, T., Oleson, M., Tyndall, M.W., Montaner, J., & Wood, E. (2005). A description of a peer-run supervised injection site for injection drug users. *Journal of Urban Health*, 82, 267–275. doi:10.1093/jurban/jti050
- Kerr, T., Douglas, D., Peeace, W., Pierre, A., & Wood, E. (2001). *Responding to an emergency: Education, advocacy, and community care by a peer-driven organization of drug users: A case study of the Vancouver Area Network of Drug Users (VANDU)*. Ottawa: Health Canada Hepatitis C Prevention, Support, and Research Program. Retrieved from: <http://pubs.cpha.ca/PDF/P1/20166.pdf>
- Kim, D., Irwin, K.S., & Khoshnood, K. (2009). Expanded access to naloxone: Options for critical response to the epidemic of opioid overdose mortality. *American Journal of Public Health*, 99, 402–407.

- Kimber J., Copeland, L., Hickman, M., Macleod, J., McKenzie, J., De Angelis, D., Robertson, J.R. (2010). Survival and cessation in injecting drug users: Prospective observational study of outcomes and effect of opiate substitution treatment. *BMJ*, *341*, c3172.
- Kinner, S.A., Milloy, M.J., Wood, E., Qi, J., Zhang, R., & Kerr, T. (2012). Incidence and risk factors for non-fatal overdose among a cohort of recently incarcerated illicit drug users. *Addictive Behaviour*, *37*, 691–696.
- Kissin, I. (2013). Long-term opioid treatment of chronic nonmalignant pain: Unproven efficacy and neglected safety? *Journal of Pain Research*, *6*, 513–529.
- Klein, A. (2007). *Sticking points: Barriers to access to needle and syringe programs in Canada*. Toronto: Canadian HIV/AIDS Legal Network. Retrieved from: <http://librarypdf.catie.ca/PDF/P48/stickingpoints.pdf>
- Krebs, E.E., Ramsey, D.C., Milosshoff, J.M., & Bair, M.J. (2011). Primary care monitoring of long-term opioid therapy among veterans with chronic pain. *Pain Medicine*, *12*, 740–746.
- Kroenke, K., Krebs, E.E., Wu, J., Yu, Z., Chumbler, N.R., & Bair, M.J. (2014). Telecare collaborative management of chronic pain in primary care: A randomized clinical trial. *JAMA*, *312*, 240–248.
- Leece, P.N., Hopkins, S., Marshall, C., Orkin, A., Gassanov, M.A., & Shahin, R.M. (2013). Development and implementation of an opioid overdose prevention and response program in Toronto, Ontario. *Canadian Journal of Public Health*, *104*, e200–e204.
- Luty, J., O’Gara, C., & Sessay, M. (2005). Is methadone too dangerous for opiate addiction? *BMJ*, *331*, 1352–1353.
- Marshall, B.D., Milloy, M.J., Wood, E., Montaner, J.S., & Kerr, T. (2011). Reduction in overdose mortality after the opening of North America’s first medically supervised safer injecting facility: A retrospective population-based study. *Lancet*, *377*, 1429–1437.
- Maxwell, S., Bigg, D., Stanczykiewicz, K., & Carlberg-Racich, S. (2006). Prescribing naloxone to actively injecting heroin users: A program to reduce heroin overdose deaths. *Journal of Addictive Diseases*, *25*, 89–96.
- McCutcheon, J.M. & Morrison, M.A. (2014). Injecting on the Island: A qualitative exploration of the service needs of persons who inject drugs in Prince Edward Island. *Canada Harm Reduction Journal*, *11*, 10.
- McDermott, C. & Collins, N.C. (2012). Prehospital medication administration: a randomised study comparing intranasal and intravenous routes. *Emergency Medicine International*, *2012*(2012).
- Mello, M.M., Wood, J., Burris, S., Wagenaar, A.C., Ibrahim, J.K., & Swanson, J.W. (2013). Critical opportunities for public health law: A call for action. *American Journal of Public Health*, *103*, 1979–1988.
- Milloy, M.J., Kerr, T., Mathias, R., Zhang, R., Montaner, J.S., Tyndall, M., & Wood, E. (2008). Non-fatal overdose among a cohort of active injection drug users recruited from a supervised injection facility. *American Journal of Drug & Alcohol Abuse*, *34*, 499–509.
- Moore, D. (2004). Governing street-based injecting drug users: A critique of heroin overdose prevention in Australia. *Social Science & Medicine*, *59*, 1547–1557.
- Noble, M., Tregear, S.J., Treadwell, J.R., & Schoelles, K. (2008). Long-term opioid therapy for chronic noncancer pain: A systematic review and meta-analysis of efficacy and safety. *Journal of Pain Symptom Management*, *35*, 214–228.
- Nüesch, E., Rutjes, A.W., Husni, E., Welch, V., & Jüni, P. (2009). Oral or transdermal opioids for osteoarthritis of the knee or hip. *Cochrane Database Systematic Reviews*, *4*, CD003115.

Overdose Prevention Programming:
Education and Naloxone Distribution

- Orkin, A.M., Bingham, K., Klaiman, M., Leece, P., Buick, J.E., [...] & Hu, H. (2015). An agenda for naloxone distribution research and practice: Meeting report of the surviving opioid overdose with naloxone (SOON) International Working Group. *Journal of Addiction Research & Therapy*, 6(1). doi:10.4172/2155-6105.1000212
- Parker, J., Jackson, L., Dykeman, M., Gahagan, J., & Karabanow, J. (2012). Access to harm reduction services in Atlantic Canada: Implications for non-urban residents who inject drugs. *Health & Place*, 18, 152–162.
- Persaud, N. (2013). Questionable content of an industry-supported medical school lecture series: A case study. *Journal of Medical Ethics*. doi:10.1136/medethics-2013-101343.
- Piper, T.M., Stancliff, S., Rudenstine, S., Sherman, S., Nandi, V., Clear, A., & Galea, S. (2008). Evaluation of a naloxone distribution and administration program in New York City. *Substance Use & Misuse*, 43, 858-870. doi: 10.1080/10826080701801261.
- Popova, S., Patra, J., Mohapatra, S., Fischer, B., & Rehm, J. (2009). How many people in Canada use prescription opioids non-medically in general and street drug using populations? *Canadian Journal of Public Health*, 100, 104–108.
- Poschade, S., Hoger, R., & Schnitzler, J. (2003). Evaluation der Arbeit der Drogenkonsumräume in der Bundesrepublik Deutschland. Endbericht im Auftrag des Bundesministeriums für Gesundheit. Baden-Baden: Nomos.
- Rhodes, T. (2002). The 'risk environment': A framework for understanding and reducing drug-related harm. *International Journal of Drug Policy*, 13, 85–94.
- Rich, J.D., Wolf, F.A., & Macalino, G. (2002). Strategies to improve access to sterile syringes for injection drug users. *The AIDS Reader*, 12, 527–535.
- Robertson, T.M., Hendey, G.W., Stroh, G., & Shalit, M. (2009). Intranasal naloxone is a viable alternative to intravenous naloxone for prehospital narcotic overdose. *Prehospital Emergency Care*, 13, 512–515.
- Robinson, A. & Wermeling, D. P. (2014). Intranasal naloxone administration for treatment of opioid overdose. *American Journal of Health-System Pharmacy*, 71(24), 2129-2135. doi : 10.2146/ajhp130798
- Simeone, R., & Holland, L. (2006). *An evaluation of prescription drug monitoring programs*. Washington, DC: US Department of Justice, Office of Justice Programs. Retrieved from: <http://www.simeoneassociates.com/simeone3.pdf>
- Small, W., Wood, E., Tobin, D., Rikley, J., Lapushinsky, D., & Kerr, T. (2012). The injection support team: A peer-driven program to address unsafe injecting in a Canadian setting. *Substance Use & Misuse*, 47, 491–501.
- Snead, J., Downing, M., Lorvick, J., Garcia, B., Thawley, R., Kegeles, S., & Edlin, B.R. (2003). Syringe exchange among injection drug users. *Journal of Urban Health*, 80, 330–348.
- Soyka, M., Apelt, S.M., Lieb, M., & Wittchen, H.U. (2006). One-year mortality rates of patients receiving methadone and buprenorphine maintenance therapy: A nationally representative cohort study in 2694 patients. *Journal of Clinical Psychopharmacology*, 26, 657–660.
- Spielmans, G.I., & Parry, P.I. (2010). From evidence-based medicine to marketing-based medicine: Evidence from internal industry documents. *Bioethical Inquiry*, 7, 13–29.
- Strang, J., Babor, T., Caulkins, J., Fischer, B., Foxcroft, D., & Humphreys, K. (2012). Drug policy and the public good: evidence for effective interventions. *Lancet*, 379, 71–83.

- Straus, M.M., Ghitza, U.E., & Tai, B. (2013). Preventing deaths from rising opioid overdose in the US – The promise of naloxone antidote in community-based naloxone take-home programs. *Substance Abuse and Rehabilitation, 4*, 65–72.
- Tobin, K.E., Davey, M.A., & Latkin, C.A. (2005). Calling emergency medical services during drug overdose: An examination of individual, social and setting correlates. *Addiction, 100*, 397–404.
- Umbricht, A., Huestis, M. A., Cone, E. J., & Preston, K. L. (2004). Effects of high-dose intravenous buprenorphine in experienced opioid abusers. *Journal of Clinical Psychopharmacology, 24*, 479–487.
- United Nations Commission on Narcotic Drugs. (2012). *Resolution 55/7: promoting measures to prevent drug overdose, in particular opioid overdose*. Vienna: United Nations Economic and Social Council.
- Van Zee, A. (2009). The promotion and marketing of oxycontin: commercial triumph, public health tragedy. *American Journal of Public Health, 99*, 221–227.
- Wagner, K.D., Davidson, P.J., Iverson, E., Washburn, R., Burke, E., [...] & Lankenau, S.E. (2014). “I felt like a superhero”: The experience of responding to drug overdose among individuals trained in overdose prevention. *International Journal of Drug Policy, 25*, 157–165.
- Walley, A.Y., Xuan, Z., Hackman, H.H., Quinn, E., Doe-Simkins, M., [...] & Ozonoff, A. (2013). Opioid overdose rates and implementation of overdose education and nasal naloxone distribution in Massachusetts: Interrupted time series analysis. *BMJ, 346*, f174.
- Wardman, D. & Quantz, D. (2006) Harm reduction services for British Columbia’s First Nation population: A qualitative inquiry into opportunities and barriers for injection drug users. *Harm Reduction Journal, 3*, 30.
- Wheeler, E., Davidson, P.J., Jones, S., & Irwin, K.S. (2012). Community-based opioid overdose prevention programs providing naloxone — United States, 2010. *Morbidity and Mortality Weekly Report, 61*, 101–105.
- Wood, E., Kerr, T., Spittal, P.M., Small, W., Tyndall, M.W., O’Shaughnessy, M.V., & Schechter, M.T. (2003). An external evaluation of a peer-run “unsanctioned” syringe exchange program. *Journal of Urban Health, 80*, 455-464.

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