BC Centre for Disease Control
Provincial Health Services Authority

TAKE HOME NALOXONE PROGRAM REPORT

REVIEW OF DATA TO DECEMBER 2020

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Acknowledgements

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Naloxone saves lives.

Since the program began on August 31, 2012 through December 31, 2020, British Columbia's Take Home Naloxone (THN) program has resulted in:

- 1,815 active THN distribution locations
- 903,413 naloxone kits shipped
- 267,199 naloxone kits reported distributed
- 94,522 naloxone kits reported as used to reverse an overdose

Data extracted June 15, 2021

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Glossary

- BCCDC – British Columbia Centre for Disease Control
- BC EHS – British Columbia Emergency Health Services
- BCHRS – BCCDC Harm Reduction Services
- FHA – Fraser Health Authority
- FNHA – First Nations Health Authority
- FORB – Facility Overdose Response Box
- GSDOA – Good Samaritan Drug Overdose Act
- HA – Health Authority
- HSDA – Health Service Delivery Area
- HRCS – Harm Reduction Client Survey
- IHA – Interior Health Authority
- IsH – Island Health Authority
- NHA – Northern Health Authority
- NINE – Naloxone Is Not Enough
- OPS – Overdose Prevention Services
- PEEP – Professionals for the Ethical Engagement of Peers
- PWLLE – People with lived and living experience
- PWUD – People who use drugs
- P2P – Peer – 2 – Peer
- SCS – Supervised Consumption Sites
- SRO – Single Room Occupancy
- THN – Take Home Naloxone
- UTG – Unlocking the Gates Peer Health Mentoring Program
- VCH – Vancouver Coastal Health

A Note on Kit Recipient Terminology

All THN kit recipients may witness an overdose in the community and administer naloxone to reverse an overdose. When the program was introduced in 2012, naloxone was a prescription only medication therefore all kit recipients were at risk of an overdose. When naloxone became unscheduled, people who were not at risk of an overdose i.e. individuals who did not use substances, were able to receive kits. The program continues to collect data on risk category of kit recipients dichotomized into: "at risk of experiencing' and "at risk of witnessing" an overdose. However, it is recognized that all kit recipients are at risk of witnessing an overdose. People who use substances are administering naloxone to others in their community but may also be at risk of experiencing an overdose themselves.

Introduction

Background

Access to naloxone, an opioid antagonist, is an essential public health intervention to address the increasing rates of opioid overdose in British Columbia (BC) and across the world (1).

The BC Take Home Naloxone (THN) program was established in August 2012 in response to a rise in heroin overdoses in 2011 (2). The advocacy of people with lived and living experience (PWLLE) was instrumental in its establishment and continues to inform program activities. Following the launch of the program, it quickly expanded to support THN sites in all five of BC's geographic Health Authorities (HA). It is one of the first programs of its kind in North America and the longest running provincial program. Its unique centralized model has allowed for significant growth and evolution to continue meeting the needs of British Columbians. Mathematical modelling shows that naloxone has averted 3,372 (95% CI 3,088 – 3,644) death events related to opioid overdose in BC between January 2015 and December 2020 (written communication from Dr. Mike Irvine PhD, BCCDC, July 9, 2021).

The BC THN program aims to provide low-barrier access to this life-saving medication as well as appropriate training to ensure individuals meet competencies in overdose prevention, recognition and response. THN training and kits containing injectable naloxone are provided by registered distribution sites across BC to individuals at risk of experiencing and/or witnessing an overdose.

A public health emergency related to the opioid overdose crisis was declared in British Columbia on April 14, 2016 (2,3). Policy changes, programs and services were subsequently implemented to improve overdose response and encourage individuals to call 911 for assistance. These policy changes included the non-informing policy implemented by BC Emergency Health Services (BC EHS) in June of 2016, which changed mandatory police informing of non-fatal overdose events to a case by case assessment (4). The expansion of the BC THN program increased rapidly in November and December of 2016 (4).

The Facility Overdose Response Box (FORB) program was also launched at the end of 2016, to increase access to overdose response supplies at community organizations (5). FORB is a companion to the THN program, providing staff at non-profit community-based sites with a central supply of naloxone for overdose response on site. Requirements for involvement in this program include the completion of staff overdose response training utilizing a 'train-the-trainer' model to promote sustainability as well as development of protocols, policies and staff debriefing tools for overdose response.

Overdose prevention services (OPS) were established with support from the Health Minister beginning in December of 2016 as well. OPS provide low-barrier access to witnessed consumption, sterile harm reduction equipment and overdose response services (6). These sites are often peer-run and as such they benefit from the expertise of PWLLE. Despite both offering access to harm reduction services and programs, OPS are distinct from supervised consumption sites (SCS) in that they do not require exemption from the Controlled Drug and Substance Act by Health Canada. Many OPS are enrolled in the FORB program to equip staff for overdose response on site, and in the THN program to distribute personal kits to individuals visiting the site.

The Good Samaritan Drug Overdose Act (GSDOA), a federal act established in early 2017, protects individuals who call 911 for an overdose, the person who overdoses, and anyone at the overdose scene from being charged with simple possession and/or parole/probation violation related to simple possession (7). Knowledge of the GSDOA is a critical component of THN training. The THN program developed a GSDOA poster and information wallet cards can be ordered by distribution sites and provided to individuals obtaining THN kits.

Over the last couple of years, the First Nations Health Authority (FNHA) has progressively expanded the distribution of naloxone to First Nations people and communities around the province, providing access to both nasal spray and injectable naloxone. The nasal spray is provided by FNHA through two routes: by way of community pharmacies to First Nations individuals, and through bulk supply to communities and Indigenous service organizations. In 2020, 18,484 doses of nasal naloxone spray were dispensed to individuals through community pharmacies, while 4,215 nasal naloxone kits were delivered through bulk supply to over 90 First Nations communities in the course of the year (each kit contains two doses). Many FNHA sites and friendship centres are also enrolled in the provincial THN program to distribute injectable naloxone. FNHA worked with partners at the provincial THN program to distribute 7,943 injectable naloxone kits to 159 FNHA take-home naloxone sites between April and December 2020 (each kit contains three doses).

For a summary of the history of BC's THN program - from inception to expansion, see page 7 for a timeline. Additional information has also been published online.

The THN program completes ongoing evaluation and analysis to inform access and quality assurance. The Harm Reduction Client Survey (HRCS) administered from October to December of 2019 at harm reduction supply distribution sites across the province found that 69.2% of 621 survey respondents across BC had a THN kit and 77.4% of survey participants reported 'no difficulties' in obtaining a THN kit (8,9,10). The THN program continues to partner and engage with community members to increase access to naloxone and reduce the stigma people who use drugs (PWUD) experience in accessing healthcare and harm reduction services.

The COVID-19 pandemic declaration in March of 2020, has led to a dual public health emergency in the province of BC (11). The heightened toxicity of the illicit drug supply and public health measures including physical distancing and reduction in availability and capacity of some harm reduction services has contributed to an increase in overdose risk (12).

The BC Coroners Service identified 1,726 illicit drug toxicity deaths in 2020; the highest number ever recorded in a single year in BC, representing an approximately 75% increase in deaths from 2019 (13). On average five British Columbians died each day during 2020 related to toxic drug poisoning (13). Individuals from marginalized and vulnerable populations continue to be disproportionately impacted by the overdose crisis and the increasing toxicity of the drug supply (14).

With worsening of the drug toxicity crisis along with COVID-19, widespread availability of community naloxone has been essential. Review of THN program data demonstrates reach of the THN program and the importance of having naloxone widely available in BC. However, overdose deaths are preventable, and naloxone alone is not enough to stop deaths and harms related to toxic drug poisonings. Additional policies, programs and interventions must be undertaken to prevent further harms associated with the toxic drug supply.

Report Objectives

The Take Home Naloxone Program Evaluation Report provides a summary of THN site, shipping, reported distribution and administration data in BC. Four previous evaluations of the BC THN program have been published; in 2014, 2015, 2016 and 2018 (15). The current report aims to update previously published data to the end of December 2020. The main objectives are as follows:

1. Describe types of THN sites and trends in naloxone kit shipment, reported distribution and use
2. Describe characteristics of reported naloxone administration events
3. Highlight and describe the role of OPS and SCS sites in helping individuals at risk of experiencing and witnessing an overdose, access THN*
4. Provide recommendations for program and policy improvements

*The majority of OPS are also registered as FORB sites. This allows staff to access naloxone and supplies for use on site (FORB) and to distribute personal kits to individuals at risk of experiencing and/or witnessing an overdose (THN).

History of Harm Reduction and BC's THN Program

From inception to expansion

2012

August - The THN program is launched with 6 distribution sites located in Vancouver Coastal and Interior Health Authorities

2013

December - All five geographic health authorities have THN distribution sites

2014

April - THN program is endorsed by Doctors of BC

2015

2016

March - Health Canada removes naloxone from the prescription drug list

April - Public Health Emergency related to toxic drug poisoning is declared in BC by Provincial Health Office

October - Prescription and patient information no longer required by BC THN program as naloxone is unscheduled in BC

December - Facility Overdose Response Box program launched, Overdose Prevention Services opened by Order of the Health Minister

2017

May - Good Samaritan Drug Overdose Act enacted - people on scene when help arrives will not be charged with simple possession

August - BC THN available on release from all provincial correction facilities

November - Naloxone training app available

December- BC THN kits available at no cost in some community pharmacies

2018

January - Pilot program launched on Vancouver Island with BC Emergency Health Services paramedics replacing THN kits on scene at overdose events

November - BC EHS THN kit replacement expands to mainland stations and community paramedicine stations

2019

August - Why Give Breaths training video developed by THN program

2020

March - COVID-19 pandemic declared, beginning of dual public health emergencies in BC

December - THN program records all-time high annual kit shipment and distribution

2021

May - 1 million kits shipped since program inception

June - People with lived and living experience of substance use write - *Letters from the Heart of the Crisis*, to mark program milestone

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= BC THN Program Milestone

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Methods

Data sources

The BC THN Program Report utilizes three main data sources to monitor and evaluate naloxone shipping, reported distribution and kit use in BC. Each data source captures a distinct part of the program process. This report includes data collected through the end of December 2020. Data was retrieved and analyzed in June 2021. The three data sources used to present this report are described below.

1 THN Shipping Data

The shipping data reflects kits shipped to registered distribution sites based on 'Supply order forms' processed by BCCDC Harm Reduction Services (BCHRS). Information provided by this data source includes the number of kits and supplies shipped to distribution sites, site type, site location and shipment date.

2 THN Distribution Data

The 'distribution form' is used by participating distribution sites to record information when an individual receives a THN kit. This form collects voluntary demographic data including the date the kit is received, the recipient's overdose risk (at risk of experiencing an overdose and/or at risk of witnessing an overdose), gender, age group, whether the kit received is a 'first kit', or a replacement kit, and when the kit is for replacement, the reason for replacement (i.e. previous kit used, expired, lost, stolen, confiscated). Distribution sites are asked to return completed distribution forms to BCHRS on a monthly basis.

3 THN Administration Data

The administration form or 'overdose response information form', is available online, at distribution sites, and is included in every THN kit for individuals to complete and return to the BCHRS after administering naloxone. The form collects information on the date of the overdose, the community and location in which the overdose event occurred, demographic information about the person who experienced the overdose (age group, gender), whether 911 was called, whether police arrived on scene, whether rescue breaths were given, how many doses of naloxone were administered and whether the person who overdosed experienced any adverse effects.

Additional Data Sources

The THN report utilizes other administrative data sources including:

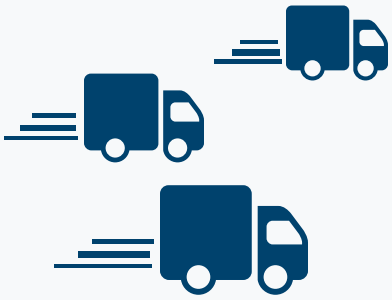
1) BC EHS data regarding paramedic attended overdose events within each Health Authority (HA) and Health Service Delivery Area (HSDA). Data was collected by BC EHS from January 1, 2020 through December 31, 2020. and was retrieved and analyzed in June 2021*.

2) BC Coroners Service data regarding illicit drug toxicity deaths within each HA and HSDA. Data was collected by the BC Coroners service from January 1, 2019 through December 31, 2020 and was retrieved and analyzed in June 2021*.

3) HRCS data from the 2019 client survey. Data was collected from October to December of 2019 and retrieved and analyzed in June 2021.

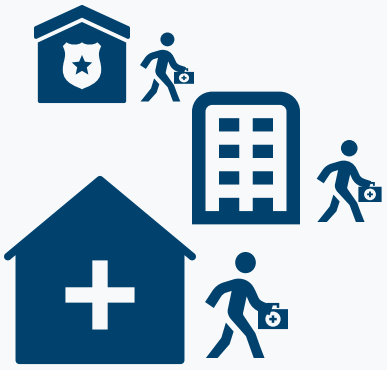
*Data source updates numbers periodically and data is subject to change as new information becomes available.

Figure 1 - Infographic of Take Home Naloxone distribution and points of data collection. Data collection occurs through different means, at different points in the naloxone kit life cycle, and relies on the cooperation of partners and communities across British Columbia (BC).



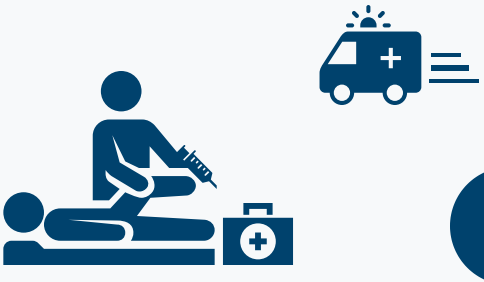
1

The British Columbia Centre for Disease Control (BCCDC) processes naloxone **supply order forms** and arranges shipment of naloxone kits to hundreds of distribution sites across BC.



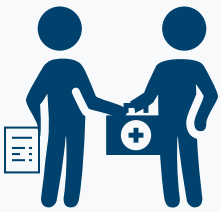
2

After completing overdose response training in person or online, individuals collect naloxone kits from participating distribution sites. Sites complete **distribution forms**, which include basic demographic information of individuals receiving a kit, and whether it is the individual's first kit or a replacement. These forms are requested to be sent back to the BCCDC on a monthly basis.



3

Individuals use naloxone kits to respond to a suspected opioid overdose while awaiting emergency services.



4

After responding to an overdose, individuals are asked to return an **overdose response form** to a kit distribution site or to the BCCDC directly by email or fax. Individuals are also asked to return to a distribution site to replace their used naloxone kit.

5

Data from the **supply order forms, distribution forms, and overdose response forms** are processed at the BCCDC to inform practice and program improvement.

Important limitations in interpreting the data

The THN program seeks to provide low-barrier access to naloxone and harm reduction services to individuals and communities across the province. Maintaining the anonymity of individuals receiving overdose response training, collecting THN kits, and actively responding to overdose events is the highest priority. This approach has allowed the program to ensure individuals at the highest risk of experiencing and/or witnessing an overdose have access to naloxone, however it may compromise the timeliness and robustness of the data collected.

A large proportion of the information presented in this report is based on data collected from kit distribution and overdose response information (administration) forms, both of which rely on site and self-report and are subject to lag in return and database entry. These forms also have varying response and return rates. It is recognized that some THN distribution sites, particularly high-traffic distribution sites, do not routinely return forms to the BCCDC. Therefore, data capture is incomplete, differential between sites and vastly underestimates true THN kit distribution across the province.

It is also important to recognize that some information collected, particularly on the administration form may be of a sensitive nature to individuals which may impact completion and return of the form.

The return rate on this form is known to be low and findings from data collected through this form may not be generalizable to all individuals who access harm reduction services including THN or who have used a THN kit to respond to an overdose. There is also the potential for recall bias with the administration form related to inaccurate or incomplete recollections of overdose events. Additionally, the administration forms are likely subject to some participation (volunteer) bias. Individuals with a higher degree of engagement tend to be more likely to complete and return forms and may be over-represented in administration form data.

Finally, in making use of self-reported data, both the administration and the distribution form are subject to response bias. Stigma around substance use may discourage individuals at high risk of experiencing and/or responding to an overdose from providing information or self-identifying their risk.

Interpretation of the results in light of these limitations is provided throughout the report.

Results

SECTION 1: REACH OF NALOXONE DISTRIBUTION IN THE CONTEXT OF A DUAL PUBLIC HEALTH EMERGENCY IN BC

Naloxone Distribution Sites

There were 1,815 registered THN distribution sites across the province as of December 31, 2020. The THN program partners with a variety of different organizations to distribute naloxone kits including housing and treatment sites, First Nations sites and Friendship Centres, community pharmacies, emergency departments, corrections facilities, post-secondary institutions as well as community organizations (including peer-led organizations) and harm reduction sites including OPS and SCS. Registered sites provide training to individuals collecting kits to ensure competencies in overdose prevention, recognition and response are met. Toward the Heart, the online platform for the BCHRS, also provides naloxone training resources, training modules and web applications to support THN distribution sites.

In addition to the THN distribution site types described above, there are also a select number of central sites that participate in the program including some pharmacy hub sites. These locations order directly from BCHRS, but do not distribute kits to individuals or provide training directly. Instead once shipments are received, they are sent to a number of satellite sites who then distribute kits and provide overdose response training to individuals. Unless otherwise indicated, central sites as well as inactive sites are not shown in graphs/tables or included in counts of THN distribution sites.

The THN program enrolled 370 new distribution sites from January 2019 to December 2020. Fraser Health Authority (FHA) had the largest increase in distribution sites with 113 (30.5%) new enrollments between January 2019 and December 2020. Figure 2 shows the cumulative number of THN distribution sites by Health Authority through December 31, 2020. Vancouver Coastal Health (VCH) has the most THN distribution sites, with 420 participating sites as of December 2020.

Following the public health emergency declaration in April 2016, there was a substantial increase in the total number of distribution sites participating in the THN program (4). Unscheduling of naloxone in 2016 and removal of personal identification requirements for individuals receiving kits, supported efforts to create low-barrier access to this life-saving medication (1,2,4). The THN program expanded into a number of community pharmacies beginning in late 2017 and they remain a central distribution partner with 752 participating pharmacy sites as of December 2020, including 562 that were enrolled during the initial program expansion (Figure 3) (16,17).

Figure 2 - Number of Take Home Naloxone distribution sites (cumulative) by Health Authority (HA), January 1, 2015 - December 31, 2020.

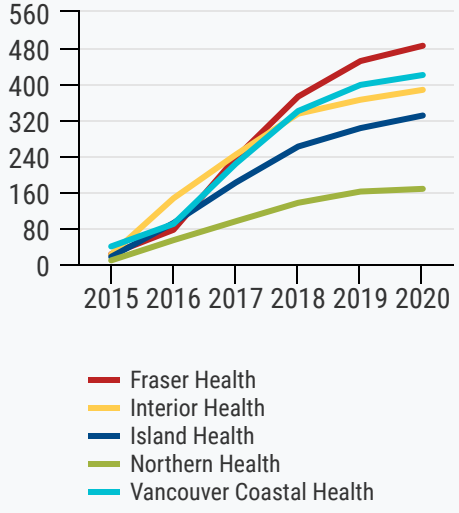
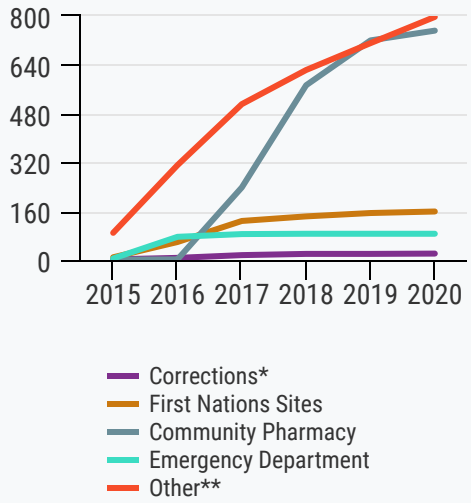


Figure 3 - Number of Take Home Naloxone distribution sites (cumulative) by site type (Pharmacies, First Nations, Emergency Departments, Correctional Facilities, Other sites), January 1, 2015 – December 31, 2020.



*Corrections facility counts includes Federal (training supplies only) and Provincial sites including two youth custody sites
**'Other' includes community based sites (i.e. peer-led and non-governmental sites), housing, healthcare organizations, post-secondary, treatment, forensic psychiatry sites

Results

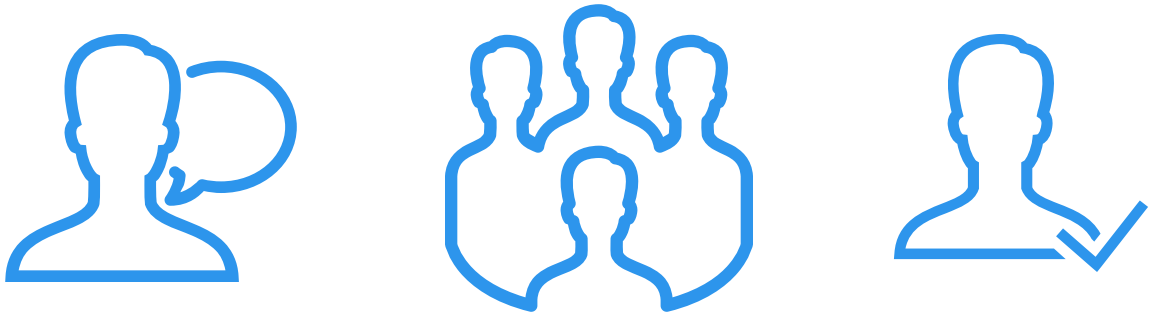
SECTION 1: REACH OF NALOXONE DISTRIBUTION IN THE CONTEXT OF A DUAL PUBLIC HEALTH EMERGENCY IN BC

Naloxone Distribution Sites

Credit: Naloxone is Not Enough, Toward the Heart, June 2021

As of December 2020, 39 sites - 28 OPS* and 11 SCS participate in the THN program. All OPS and SCS included in this data are active kit distribution and overdose response training sites. All five health authorities have at least one OPS enrolled as a THN distribution site (18). In general, the lower number of SCS in the province may reflect difficulties and delays associated with gaining exemption from the Controlled Drug and Substance Act by Health Canada, which is required for SCS establishment.

An increasing proportion of the total THN kits shipped each year are going to OPS and SCS across the province. In 2017 21.2% of all THN kits shipped were to OPS and SCS, while 2020 saw 28.6% of all kit shipments to these sites.



*Many supportive housing sites offer witnessed consumption services and may make use of THN kits however these sites are not registered as OPS and are not available to members of the public. Kit distribution and use at these sites is likely not fully captured in THN program data.

Naloxone Kits Shipped and Distributed

The THN program utilizes both shipment and distribution records to evaluate program uptake at participating sites.

Both 2019 and 2020, saw substantial increases in the number of kits shipped over any prior year in the program's history. In 2019, 232,312 kits were shipped by the THN program to distribution sites across the province. In 2020, the program shipped 272,934 kits which is the largest number of kits ever shipped in a single year.

Of the 272,934 kits shipped in 2020, 63,881 were reported distributed. Routine high-volume shipment orders from distribution sites suggests kits are actively distributed to individuals who need them. This supports the conclusion that reported kit distribution counts represent a significant underestimate of true kit distribution across the province.

Table 1 and Figure 4 show counts for the total number of THN kits shipped, reported distributed, and reported used (kits distributed to individuals citing replacement for used kit) across all HA for each year from 2015 through 2020. There is evidence that an increasing proportion of total kits reported distributed, are to individuals replacing a used kit. In 2020, of the total 63,881 kits reported distributed, 32,170 (50.4%) were to individuals citing replacement for a used kit. In 2019, 21,009 (39.9%) kits were reported distributed for replacement of a used kit.

Prior years (2015-2018) indicated smaller proportions of total kits reported distributed for replacement of used kits. This finding suggests kit distribution to individuals actively responding to overdose events is increasing over time.

Figure 5 shows the number of THN kits shipped by Health Authority from 2015 through 2020. A total of 876,886 THN kits were shipped across the province during this time period. VCH had the highest kit shipment count with 257,794 (29.4%) kits shipped to distribution sites between 2015 and 2020. All Health Authorities saw all-time records for kit shipment in 2020. This may reflect increased demand for naloxone related to increasing illicit drug toxicity and changes in the drug supply during the COVID-19 pandemic (13). Additionally, reduced access to harm reduction services and temporary closures of some health and harm reduction service locations, such as OPS and SCS, may have increased demand for THN at other site types (i.e. community outreach sites) and motivated individuals to access kits (19).

Between 2015 and 2020, 265,278 kits were reported distributed across all health authorities (Figure 6). FHA reported the most THN kits distributed with 77,499 kits reported distributed over the five-year period. However, kit distribution reporting is believed to be differential across health authorities and distribution sites. There is evidence from shipment records that all health authorities are routinely receiving high shipment volumes of THN kits and therefore distribution records vastly underestimate true distribution across all health authorities.

Table 1 - Number of Take Home Naloxone kits shipped, reported distributed, and reported used (counts), January 1, 2015 – December 31, 2020.

	2015	2016	2017	2018	2019	2020
Kits shipped	5,886	52,262	140,748	195,696	232,312	272,934
Kits reported distributed	3,152	21,519	63,347	60,679	52,700	63,881
Kits reported distributed to replace a used kit	397	3,941	15,528	21,309	21,009	32,170
Proportion kits reported distributed to replace a used kit	12.6%	18.3%	24.5%	35.1%	39.9%	50.4%

Figure 4 – Number of Take Home Naloxone kits shipped, reported distributed, and reported used by year (counts), January 1, 2015 – December 31, 2020.

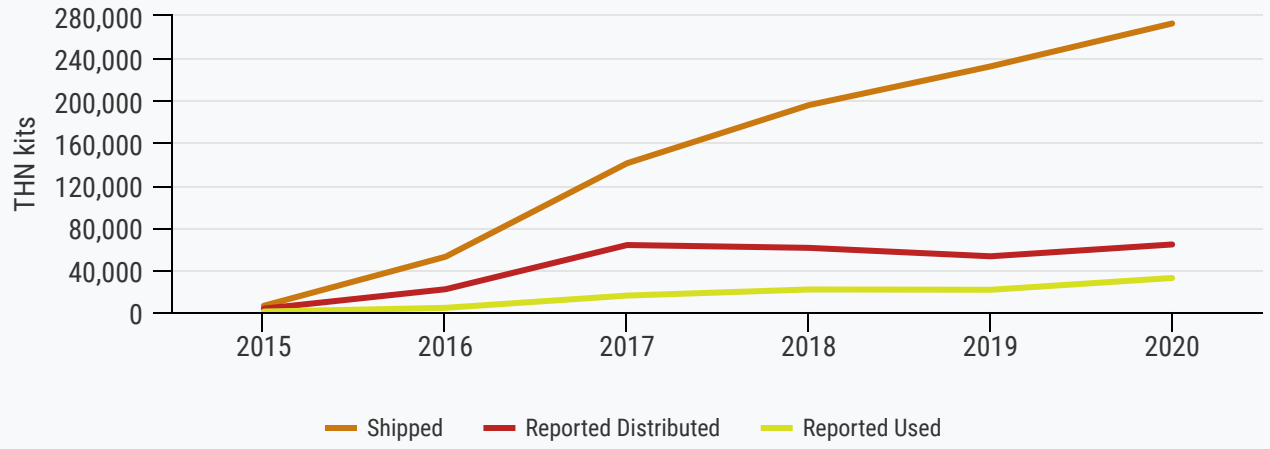


Figure 5 - Number of Take Home Naloxone kits shipped by Health Authority (counts), January 1, 2015 – December 31, 2020.

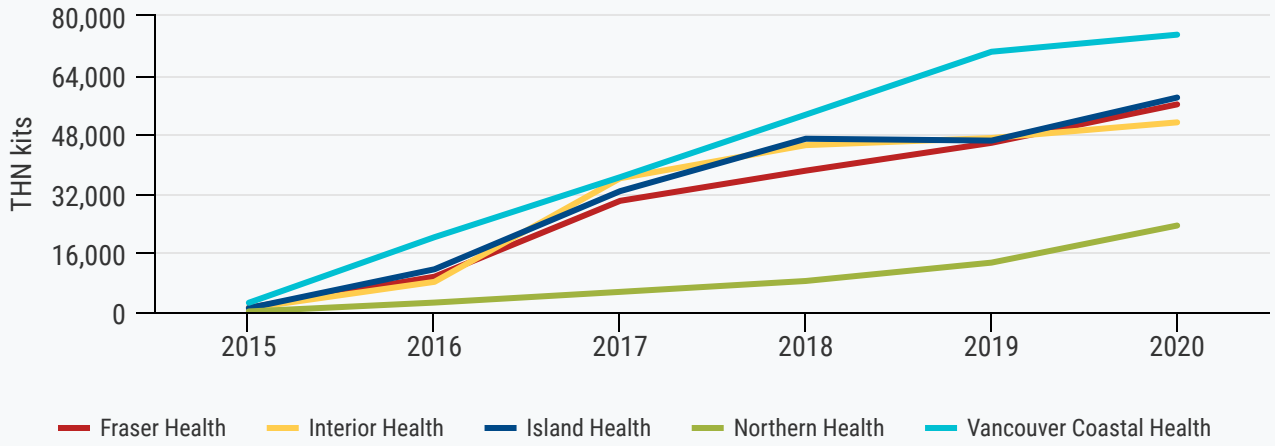
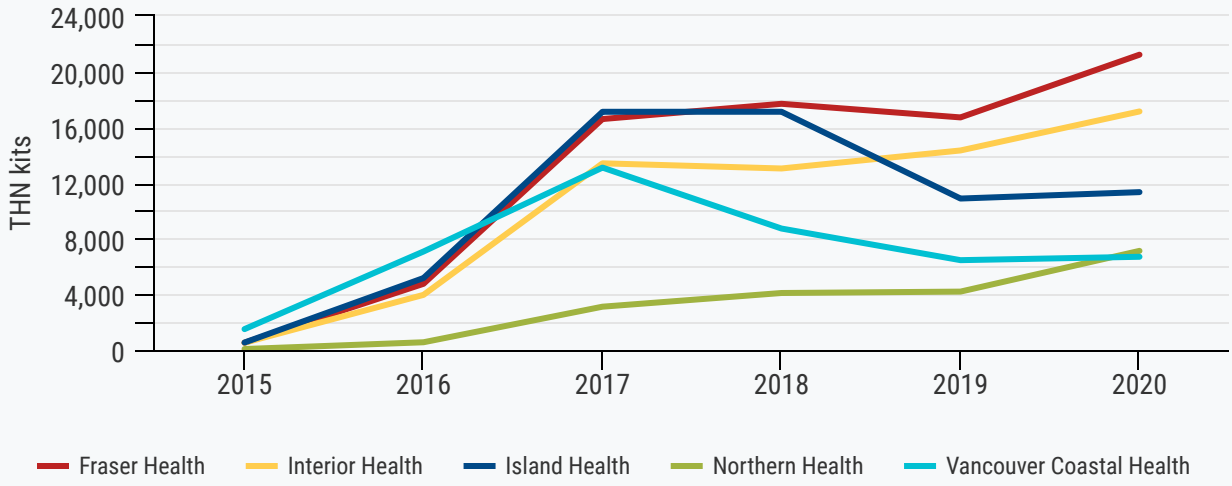


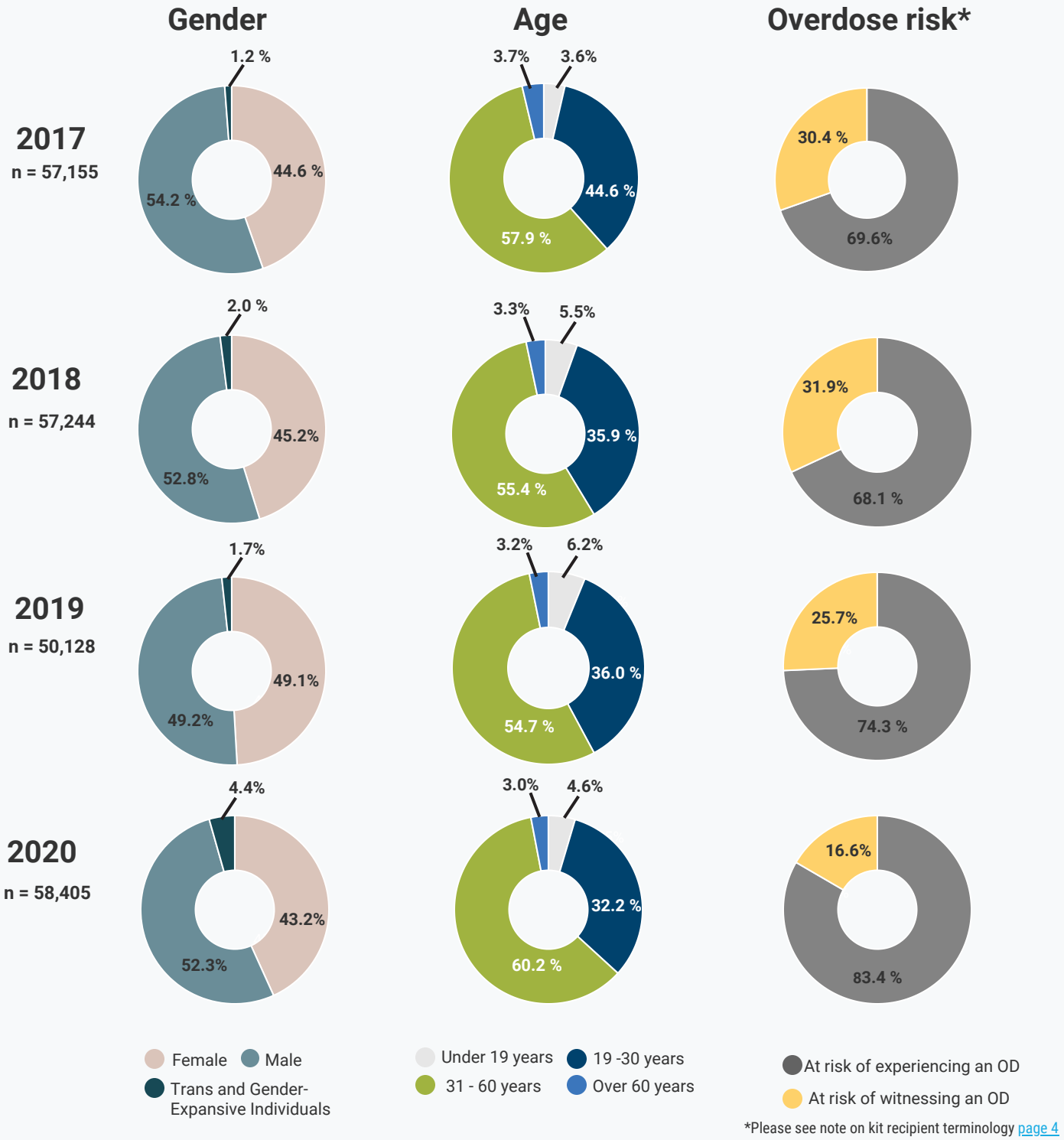
Figure 6 - Number of Take Home Naloxone kits reported distributed by Health Authority (counts), January 1, 2015 – December 31, 2020.



Characteristics of naloxone kit distribution

In 2020, 52.3% of kits reported distributed were to individuals who identified as male (Figure 7). Additionally, individuals between 31 and 60 years of age were consistently most likely to obtain a THN kit with 60.2% of kits reported distributed in 2020, to individuals in this age group. The BC Coroners Service identified 1,200 (69.5%) illicit drug toxicity deaths in the 30-59 age group in 2020, of the total 1,726 deaths attributed to illicit drug toxicity in the province during the year (13). Despite distribution records indicating that individuals in this age group are more likely to have a kit; the highest proportion of illicit drug toxicity deaths in 2020 occurred in this age group. This suggests that individuals may still be using substances alone and naloxone cannot be self-administered.

Figure 7 – Self-reported gender, age and overdose risk of individuals who received naloxone kits, January 1, 2017 – December 31, 2020.



*Please see note on kit recipient terminology page 4

Characteristics of naloxone kit distribution

The proportion of the total kits reported distributed each year that are classified as an individual's first kit, has decreased over time. In 2016 and 2017 more than half of all kits reported distributed were first kits (66.5% and 58.2% respectively). In 2018 slightly less than half of all kits reported distributed were first kits (48.6%) and in 2019, 43.9% of kits reported distributed were first kits. In 2020 only 32% of all kits reported distributed were first kits. A steady decline in first kit distributions since program inception may indicate that the proportion of individuals collecting first kits is reaching saturation. More people are obtaining replacement kits.

In 2017, the program began collecting data on the distribution form regarding risk status of individuals obtaining kits (at risk of experiencing vs witnessing overdose). Distribution data indicates that over 90% of kits reported used each year between 2017 and 2020, were by individuals at risk of experiencing an overdose. This finding along with data obtained through HRCS around naloxone administration, support the conclusion that PWUD are most often using kits to respond to overdose events of other PWUD (10). Distribution records indicate that individuals at risk of experiencing an overdose are more likely to receive a kit for any indication (1st kit, replacement – used, lost, stolen, confiscated, expired) than individuals at risk of witnessing an overdose for all years examined (Figure 8).

Individuals at risk of an overdose are most likely to receive THN kits from distribution site types that fall in the 'other' category, during each year examined (2017 – 2020) (Figure 9). Site types included in this category are housing sites, treatment facilities, health centres, and community organizations including peer-led centres. More than half of all kits reported distributed to people identifying as at risk of experiencing an overdose (57.6%) were reported distributed at sites that fall into the 'other' category between 2017 and 2020.

Individuals who identified as being at risk of witnessing an overdose were most likely to access THN kits at pharmacies compared to other site types , each year from 2017-2020; 50.5% of the cumulative total of kits distributed to people identifying as being at risk of witnessing but not experiencing an overdose, were distributed at community pharmacies. This is consistent with a pharmacy evaluation published in 2019, which reported the majority of THN kits distributed at pharmacy sites were to individuals likely to witness an overdose but not at risk of an overdose (did not use substances) (16).

Figure 8 – Naloxone distribution to those at risk of experiencing an overdose vs. likely to witness an overdose, by whether this is their first kit (1st kit), a replacement kit for a used kit (used), or a replacement kit for a kit stolen, lost, expired, or confiscated (other), January 1, 2017 - December 31, 2020.

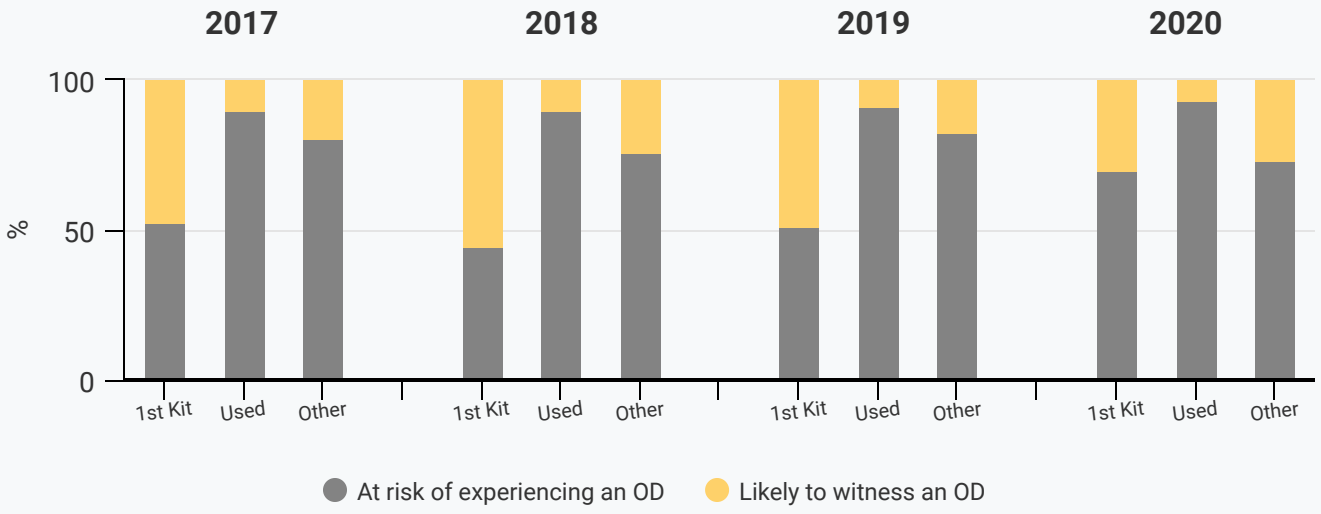
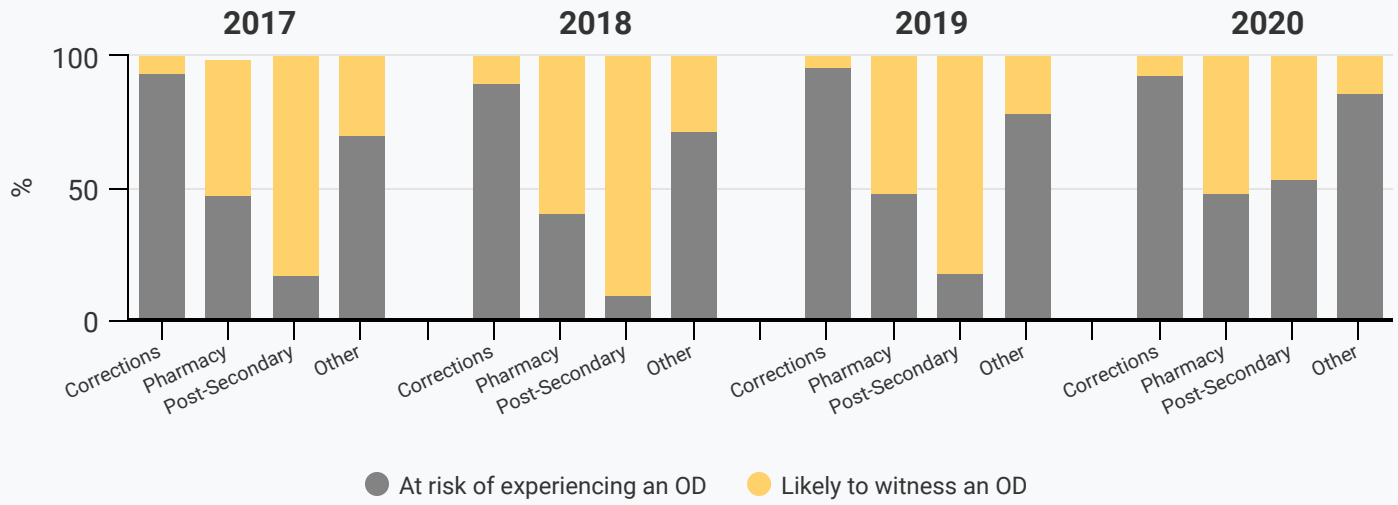


Figure 9 – Naloxone distribution to those at risk of experiencing an overdose vs. witnessing an overdose, by Take Home Naloxone distribution site type, January 1, 2017 - December 31, 2020.*



*Take Home Naloxone distribution sites were expanded to pharmacies in December 2017. Data from pharmacy sites represent only the month of December in 2017.

One of the new objectives for this report is to examine THN shipment and distribution at OPS and SCS across the province. The COVID-19 pandemic has continued to highlight the importance of these sites in connecting PWUD with harm reduction services and supplies to prevent overdose events and death. Harm reduction sites including witnessed consumption sites were designated as essential services during the pandemic allowing many to remain open although likely with lower attendance. Outreach services also increased in many communities. OPS and SCS in all Health Authorities reported high kit volumes in 2020. However, it is known that some high-volume distribution sites have low return rates on distribution records. As such, kit distribution at some OPS and SCS is substantially under-reported. It is therefore illuminating to examine shipment records for these sites as well in order to help accurately estimate kit distribution at OPS and SCS across the province.

Comparing Take Home Naloxone distribution to overdose events in British Columbia

To contextualize the COVID-19 related increase in demand for THN kits during 2020, shipping data and distribution records are compared to BC EHS paramedic attended overdose data and BC Coroners Service confirmed illicit drug toxicity deaths in each HA/HSDA throughout 2020 (see Table 2). The THN program shipped 158 kits on average per illicit drug toxicity death in 2020. This is an increase from 2018, when 124 kits were shipped on average for each illicit drug toxicity death.

Other jurisdictions have published THN distribution targets including Bird et al., who identified a target of 20 THN kits distributed for every death due to illicit drug toxicity, in their 2015 report (20). As previously noted, this target is helpful in standardizing practices around naloxone distribution, however it was established prior to the increase in synthetic opioids and higher potency substances in the drug supply that was first seen in 2016 (2,15).

In 2020, BC's THN program again surpassed the target established by Bird et al., with an average of 37 kits reported distributed for each of the 1,726 illicit drug toxicity deaths reported. This however is a slight decrease from the average 38 kits reported distributed in 2018 (most recent update) for each illicit drug toxicity death (15). While there was a significant increase in shipping volumes in 2020, the same increase was not seen in distribution record return which likely contributes to an underestimate of kits distributed per illicit drug toxicity death in 2020.

This report also assesses kit shipment and distribution per BC EHS paramedic attended overdose event. BC EHS data helps to capture both fatal and non-fatal overdose events, (excludes overdose events related to prescription drugs or alcohol). Paramedic attended overdose event counts are based on paramedic impression codes as well as 911 dispatch codes (21).

This metric provides a more reliable estimate of overdose incidents where naloxone is beneficial and can be used to save a person's life. Using substances alone is recognized as a significant risk factor for opioid overdose death (22,23). In such cases, the presence of naloxone is unfortunately not useful as administration cannot be performed on oneself.

The THN program operates in tandem with a variety of other services that support overdose response and mitigate risk. The availability and accessibility of these programs and services varies across the province. For example, the number of OPS and SCS is highly differential between HA. While naloxone remains an essential component of overdose response, other programs (i.e FORB) and services not examined here, also play a central role in harm reduction across the province.

Despite continued program expansion, higher shipping volumes and kit distribution, 2020 saw the most illicit drug toxicity deaths and paramedic attended overdose events on record. There were 17,157 paramedic attended overdose events during 2020 and 1,726 Coroner confirmed illicit drug toxicity deaths as previously stated. The BC Coroners Service detected illicit fentanyl (alone or in combination with other drugs) in 86% of all illicit drug toxicity deaths in 2020. In contrast, in 2012, illicit fentanyl was detected in 5% of illicit drug toxicity deaths. Post-mortem toxicology results also suggest there has been a larger number of cases since April 2020, where extreme fentanyl concentrations (concentrations > 50 u/gL) have been detected, compared with previous months. Approximately 12% of cases had extreme fentanyl concentrations from April – December of 2020, compared to 8% of cases from January 2019 to March 2020 (12,13). This may reflect increased toxicity and changes in drug supply related to COVID-19.

Credit: Sophie Mckenzie, P2P

Table 2 – Distribution and shipment of naloxone kits by paramedic-attended overdose event and Coroners confirmed overdose death in BC, by Health Authority (HA) and Health Service Delivery Area (HSDA), January 1, 2020– December 31, 2020.

Health Authority (HA) and Health Service Delivery Area (HSDA)	THN kits distributed	THN kits shipped	Paramedic attended overdose events *	Naloxone kits reported distributed per paramedic attended overdose event **	Naloxone kits shipped per paramedic attended overdose event	Coroners confirmed overdose death ***	Naloxone kits reported distributed per Coroners confirmed overdose death **	Naloxone kits shipped per Coroners confirmed overdose death
FRASER HEALTH	21,219	56,114	5,017	4.2	11.2	574	37	97.8
Fraser East	5,753	14,577	1,320	4.4	11	121	47.6	120.5
Fraser North	6,757	16,271	1,435	4.7	11.3	177	38.2	91.9
Fraser South	8,709	25,266	2,262	3.9	11.2	276	31.6	91.5
INTERIOR HEALTH	17,141	51,255	2,745	6.2	18.7	284	60.4	180.5
East Kootenay	777	3,080	152	5.1	20.3	18	43.2	171.1
Kootenay Boundary	1,620	3,915	162	10	24.2	21	77.1	186.4
Okanagan	10,688	27,598	1,568	6.8	17.6	143	74.7	193
Thompson Cariboo Shuswap	4,056	16,662	863	4.7	19.3	102	39.8	163.4
NORTHERN HEALTH	7,123	23,370	1,249	5.7	18.7	130	54.8	179.8
Northeast	1,309	4,098	139	9.4	29.5	29	45.1	141.3
Northern Interior	3,313	14,343	841	3.9	17.1	84	39.4	170.8
Northwest	2,501	4,929	269	9.3	18.3	17	147.1	289.9
VANCOUVER COASTAL HEALTH	6,698	74,954	5,464	1.2	13.7	474	14.1	158.1
North Shore - Coast Garibaldi	1,008	4,752	358	2.8	13.2	48	21	99
Richmond	101	5,075	228	0.4	22.3	18	5.6	281.9
Vancouver	5,589	65,127	4,878	1,1	13.4	408	13.7	159.6
ISLAND HEALTH	11,344	57,960	2,682	4.2	21.6	264	43	219.5
Central Vancouver Island	6,239	18,622	992	6.3	18.8	97	64.3	192
North Vancouver Island	1,612	11,194	372	4.3	30.1	31	52	361.1
South Vancouver Island	3,493	28,144	1,318	2.7	21.4	136	25.7	206.9
TOTAL	63,881	272,934	17,157	3.7	15.9	1,726	37	158.1

* Paramedic-attended overdose data is provided by BC Emergency Health Services (21). Some individuals who use THN kits do not call 911 so data likely underestimates overdose events occurring across the province.

** THN kits reported distributed vastly underestimates true distribution across BC.

*** Overdose deaths are used in the original distribution benchmark by Bird et al. (20). Confirmed overdose death data used here is provided by the Coroners Service of BC (13).

****A small number of kits with missing geographic data (n=9281 shipping, n=356 distribution) included in total shipping and distribution counts

Results

SECTION 2: CHARACTERISTICS OF OVERDOSE EVENTS AND RESPONSE

Demographic Characteristics of Individuals who received Naloxone

Between January 1, 2015 and December 31, 2020, there have been 4,703 naloxone administration forms retuned to the THN program (Table 3). This forms collects information from individuals who used a THN kit to respond to a suspected opioid overdose. The 2016 THN program ramp-up, where 300 new distribution sites were enrolled to respond to a 20-fold increase in demand for naloxone, is likely reflected in this data, with high administration form return between 2017 and 2019 (4). Despite low administration form return in 2020, both shipping data and distribution records indicate that naloxone is being administered frequently to reverse overdose events.

Figure 10 displays demographic characteristics (age, gender, health authority) of individuals who have experienced an overdose based on data collected on administration forms between 2015 and 2020. Individuals identifying as male are more than twice as likely to experience an overdose as individuals identifying as female across all year examined. Additionally, individuals between the ages of 31 and 60 are consistently the most likely to experience an overdose. Of the administration forms returned between 2015 and 2020, that contained demographic information, 56.2% indicated the person who experienced the overdose was between 31 and 60 years of age while 37.7% indicated the person who experienced the overdose was between 19 and 30 years old.

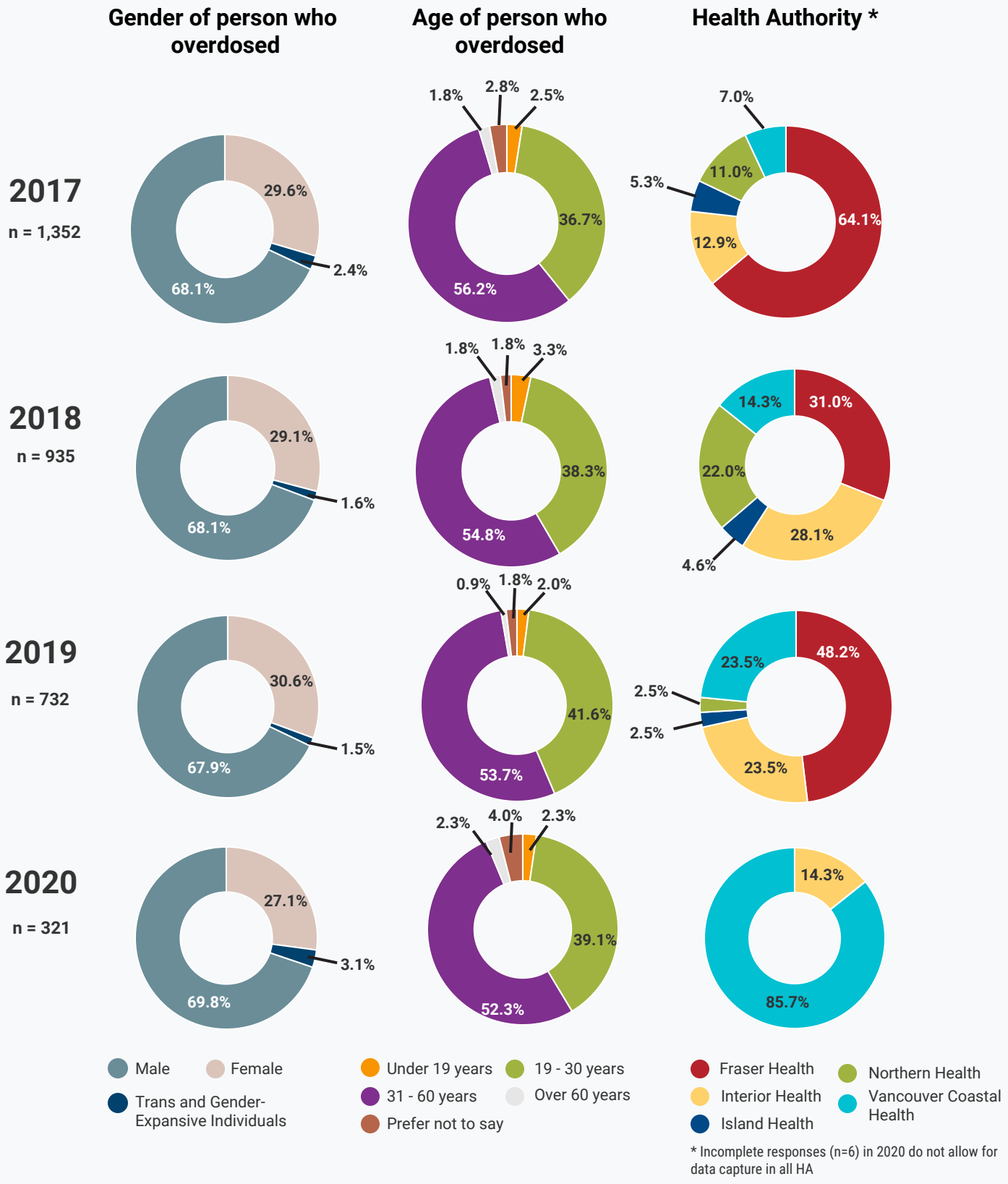
Fraser Health Authority returned the highest number of administration forms between 2015 and 2020. As mentioned previously, administration form return rates are differential and particularly low in some busy regions where significant numbers of overdose events and reversals with naloxone occur.

Table 3 - Yearly number of naloxone administration forms returned, January 1, 2015 - December 31, 2020.*

	2015	2016	2017	2018	2019	2020	Total
Administration forms	261	945	1,387	956	792	362	4703

*Data extracted June 15th, 2021. Numbers are subject to change.

Figure 10 - Demographic characteristics of individuals who experienced an overdose, based on administration forms, January 1, 2017 - December 31, 2020.



* Incomplete responses (n=6) in 2020 do not allow for data capture in all HA

Where are overdoses occurring?

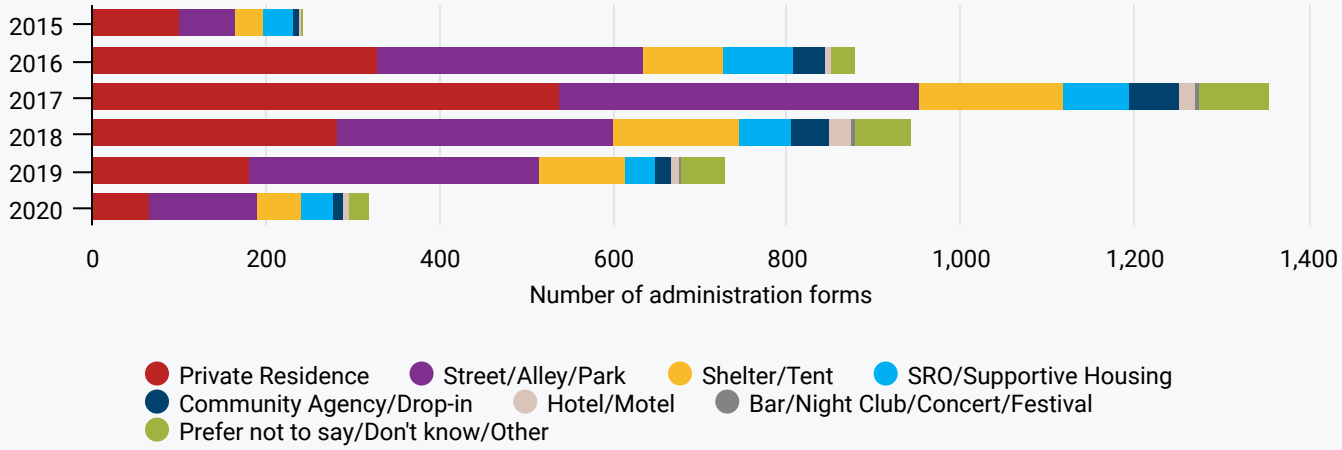
According to THN administration records, naloxone was most frequently reported given to respond to suspected overdose events occurring in public spaces including streets, alleys and parks in 2019 and 2020 (Figure 11). Of all the reported naloxone administrations that occurred during 2019 and 2020, 43.7% were in public settings while 23.6% of reported naloxone administration events occurred in private residences. This is a departure from the most recent THN report examining data up until December 2018, which indicated that private residences were the most common site of naloxone administration.

Additionally, since the establishment of the FORB program, in 2016, fewer THN kits have been reported used in supportive housing, and single room occupancy (SROs) settings to reverse overdose events. These sites are more often enrolled in the FORB program which equips staff with larger supply boxes to respond to overdoses on site. As previously stated, overdose response events using FORB supplies are not counted in THN administration numbers.

Of note, in 2020, BC Coroners Services identified private residences as the most common site of illicit drug toxicity deaths (56.3%), while a smaller number (14.4%) of illicit drug toxicity deaths occurred at locations characterized as 'outside', including vehicles, streets, sidewalks, parking lots, public parks, wooded areas, and campgrounds (13). The high incidence of fatal overdose events at private residences in 2020 may be linked to self-isolation practices and increased unwitnessed consumption associated with COVID-19. BCHRS published a recent report using HRCS data, regarding reasons people use substances alone and found that most individuals who endorsed using alone, cited comfort and convenience as the reason (44%). Approximately 14% of individuals cited stigma and not wanting others to know about drug use and 10% cited having no one to use with as the reason for using substances alone (23).

Rapid response to a suspected overdose with naloxone may be more likely in public spaces where events are often witnessed by others. This finding again highlights the importance of observed consumption practices and ensuring naloxone is on hand to administer in the event of an overdose.

Figure 11 – Reported locations of overdose events, January 1, 2015 and December 31, 2020.



Location type	2015	2016	2017	2018	2019	2020
Private Residence	102 (41.6%)	329 (37.4%)	539 (39.8%)	283 (30.0%)	181 (24.8%)	67 (21.0%)
Street/Alley/Park	63 (25.7%)	307 (34.9%)	415 (30.6%)	317 (33.6%)	334 (45.8%)	124 (38.8%)
Shelter/Tent	32 (13.1%)	91 (10.3%)	166 (12.2%)	146 (15.5%)	100 (13.7%)	50 (15.6%)
SRO/Supportive Housing	36 (14.7%)	81 (9.2%)	75 (5.5%)	60 (6.4%)	34 (4.7%)	38 (11.9%)
Community Agency/Drop-in	7 (2.9%)	37 (4.2%)	57 (4.2%)	43 (4.6%)	18 (2.5%)	10 (3.1%)
Hotel/Motel	1 (0.4%)	7 (0.8%)	18 (1.3%)	26 (2.8%)	10 (1.4%)	8 (2.5%)
Bar/Night Club/Concert/Festival	0 (0.0%)	0 (0.0%)	5 (0.4%)	5 (0.5%)	3 (0.4%)	0 (0.0%)
Prefer not to say/Don't know/Other	4 (1.6%)	28 (3.2%)	81 (6.0%)	64 (6.8%)	49 (6.7%)	23 (7.2%)
Total	245 (100.0%)	880 (100.0%)	1,356 (100.0%)	944 (100.0%)	729 (100.0%)	320 (100.0%)

911 calls and emergency response to overdoses

Overdose response training includes instruction in technical skills required to administer naloxone via intramuscular injection as well as information around giving rescue breaths and calling for emergency services.

Calling emergency services is an essential step in overdose response. Figure 12 shows the proportion of suspected overdose events where 911 was called to the scene, in each health authority between 2015 and 2019. Geographic information was not captured for the majority of administration records returned in 2020, therefore this breakdown is excluded from the report. Low return on administration forms in 2020 in general makes assessing trends in 911 calls for overdose events during the year challenging. The majority of administration forms returned in 2020 (67.5%) indicate that 911 was called. Of the forms returned in 2019, 60.8% indicate that 911 was called. Between 2016 and 2018, approximately 57% of all administration records returned, indicated that 911 was called for an overdose event.

A number of factors influence trends related to calling 911 during overdose events. Both the BC EHS police non-informing policy at non-fatal overdose events and the federal Good Samaritan Drug Overdose Act, were established to motivate individuals to call for help at overdose events. These policy changes likely contribute to increasing reports of 911 being called during overdose events seen in the THN program's naloxone administration records. (2,7,24)

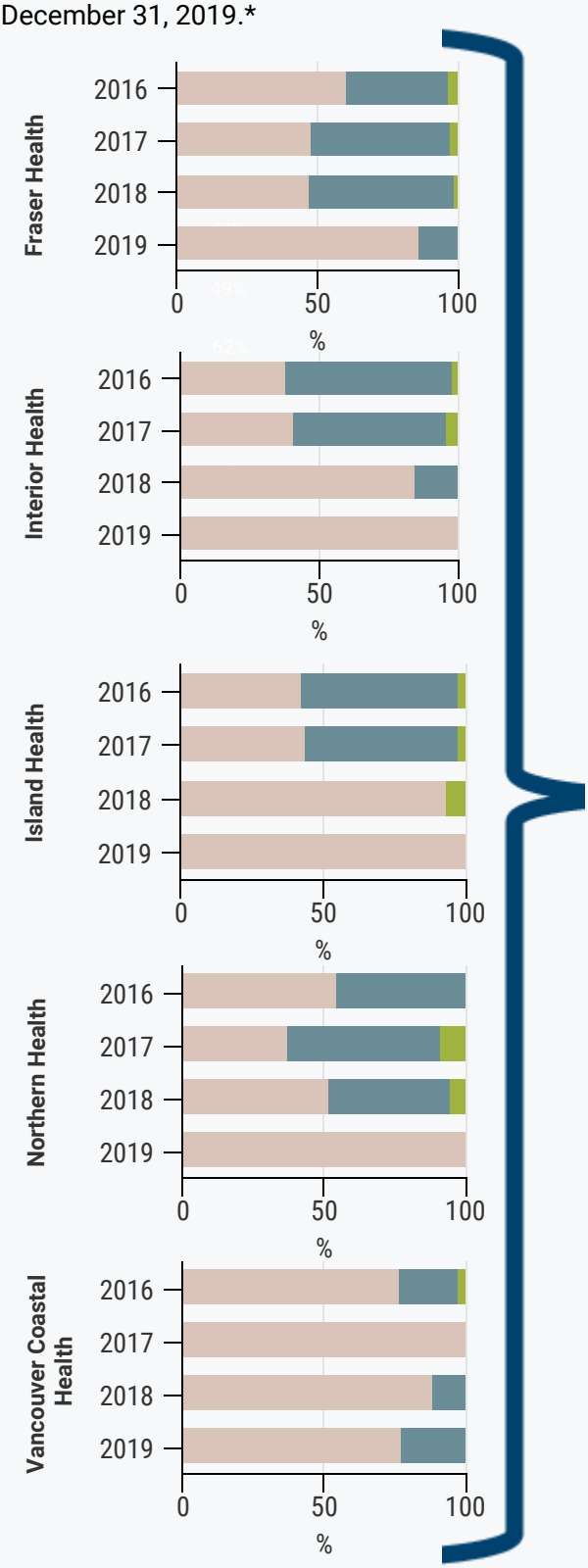
The proportion of individuals travelling to hospital in an ambulance when 911 was called to an overdose event has decreased slightly each year from 2017 to 2020 as shown in Figure 13. In 2017, 59.9% of records that reported 911 was called to the site of an overdose, indicated the person who experienced the overdose went by ambulance to the hospital while 50.4% of records indicated hospital transfer occurred in 2018, 47.4% in 2019 and 42.4% in 2020. Across all four years examined, in cases where 911 was called, more than half (52.3%) of the administration records returned indicated the person who experienced the overdose was transferred to hospital.

There is evidence of a decreasing trend in police presence at overdose events when 911 is called (Figure 14). In 2016 police were reported to have attended 44% of overdose events where 911 was called. Subsequently, they attended 38.8% in 2017, 28.3% in 2018, 27.1 % in 2019 and 19.3% of reported events in 2020. Additional data sources concur that police presence at non-fatal overdose events where 911 is called, is decreasing (24,25).

Information regarding the reason for not calling 911 to suspected opioid overdoses is also collected on THN administration forms (Figure 15). Of those who reported no 911 call was made, just over half (50.7%) cited thinking the person would get better or the person was 'ok', as the reason, across all years examined (2016 – 2020). Only 15.2% of records indicated worry over police presence as the reason for no 911 call, across the same time period.

Trends seen in figures 14 and 15 may relate to policy changes previously mentioned including the BC EHS police non-informing policy as well as the GSDOA enactment. In-depth evaluations of the impacts of these policies have been conducted in recent years and provide additional context for these findings.

Figure 12 – Proportion of reported calls made to 911 by Health Authority, January 1, 2016– December 31, 2019.*



*2020 was excluded from this data due to incomplete responses (n=6)

Figure 13 – Of overdoses where 911 was called, proportion of people who went to hospital in ambulance, January 1, 2017– December 31, 2020.

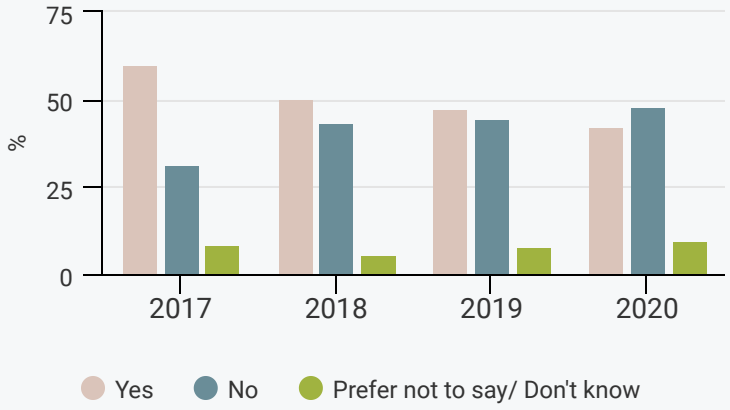


Figure 14 – Of overdoses where 911 was called, proportion where police arrived on scene, January 1, 2016– December 31, 2020.

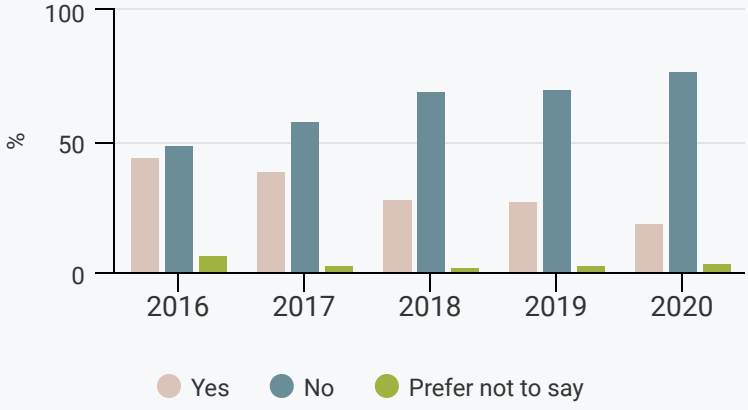
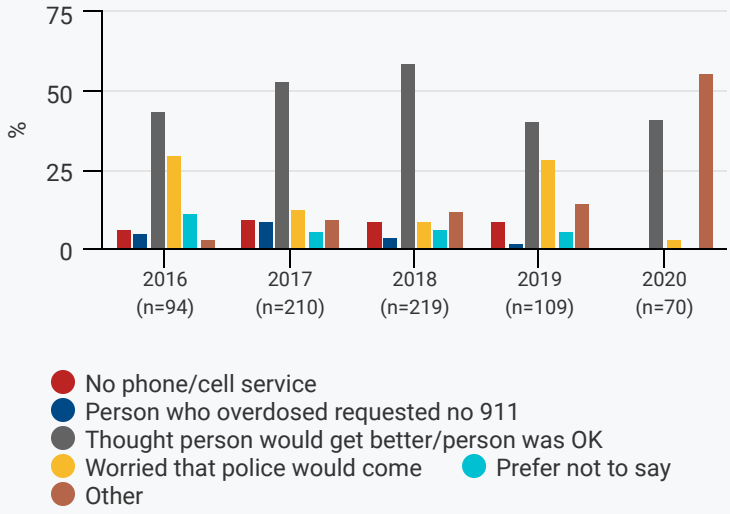
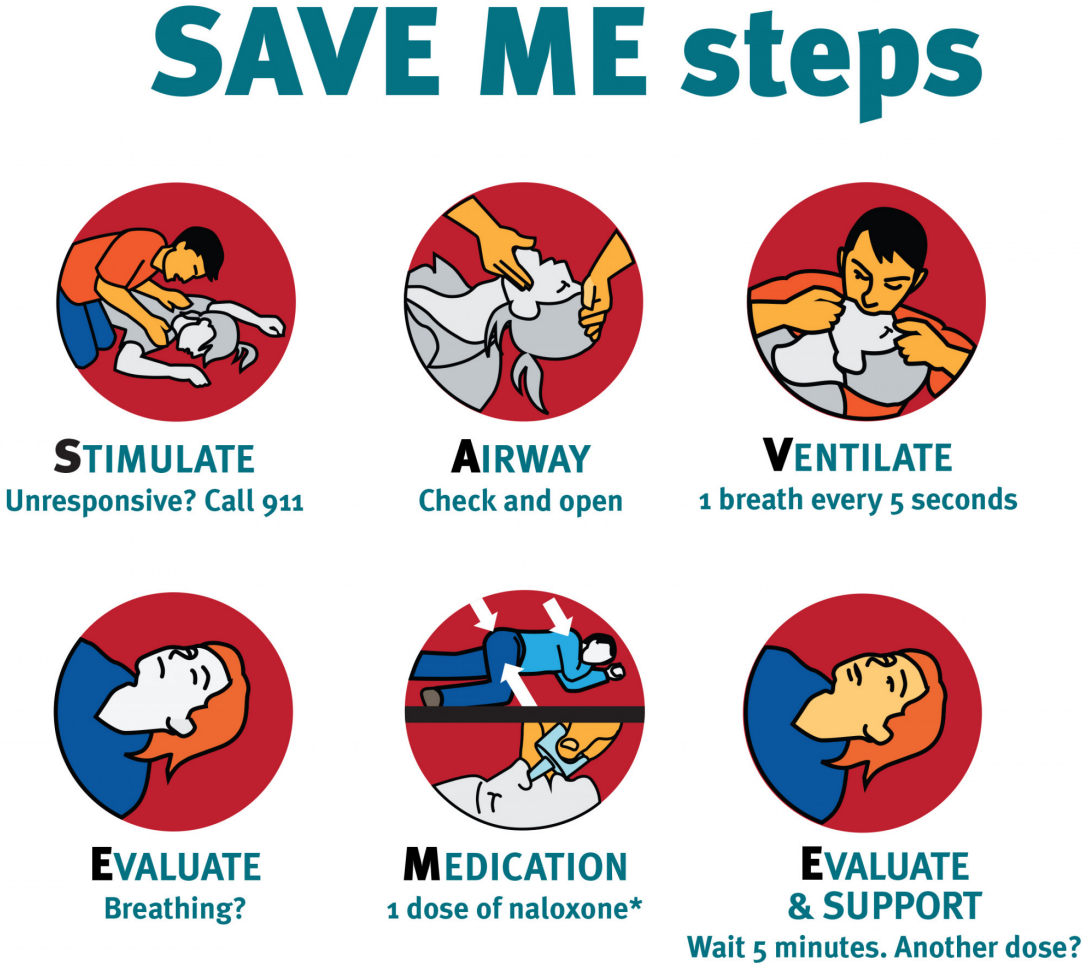


Figure 15 – Of overdoses where 911 was not called, reason for not calling, January 1, 2016– December 31, 2020.





Bystander response to overdoses

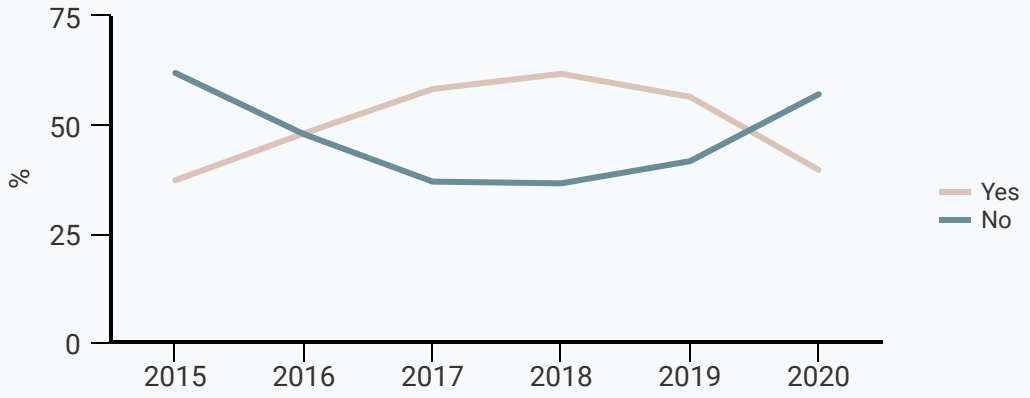
Giving rescue breaths and administering naloxone are essential interventions in opioid overdose response and core components of overdose response training programs (26). Despite a decrease in reporting that rescue breaths were given at suspected overdose events in 2020 (57% of records indicate no rescue breaths given in 2020 vs 41.6% in 2019), examining administration records collected for overdose events between 2015 and 2020 suggests that overall people experiencing an overdose were more likely to receive rescue breaths than not (Figure 16). More than half (54.2%) of records indicate that rescue breaths were given at overdose events between 2015 and 2020. Rescue breathing has been cited as a crucial intervention to prevent anoxic brain injury associated with prolonged oxygen deprivation and the THN program provides a number of resources (i.e. manual, infographics, videos) that emphasize the importance of giving rescue breaths to individuals experiencing an opioid overdose (27,28,29).

The COVID-19 pandemic has resulted in increased awareness and concern regarding transmission of the respiratory virus due to close contact with other individuals.

The risk of contracting or spreading COVID-19 during an overdose response event is low compared to the risk of anoxic brain injury due to a lack of oxygen during an overdose (30). Individuals responding to an overdose are advised to wear gloves and use a CPR face shield which has a one-way valve to protect the responder from exposure to respiratory fluids during an overdose response. Both of these items are included in every THN kit.

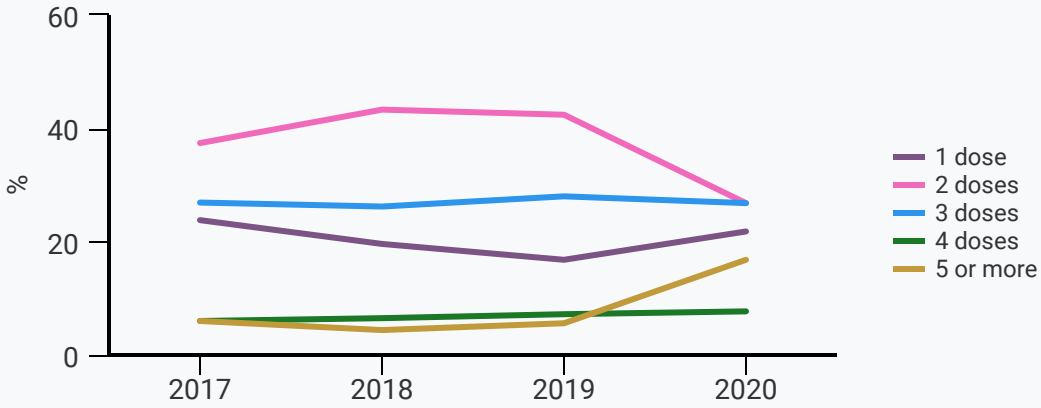
Administration records indicate that between 2017 and 2020, administration of one to three doses of naloxone during an overdose response was most common (Figure 17). In March of 2016, as a result of increased prevalence of synthetic opioids including fentanyl and carfentanil in the illicit drug supply, the THN program began including three doses of naloxone instead of two in each kit (2). In 2020, heightened presence of benzodiazepines and synthetic analogues was seen in the illicit drug supply (12). Individuals who have opioids and benzodiazepines in their system may respond differently to naloxone or experience prolonged sedation and receive additional naloxone doses (31). The THN program has developed resources for the general public and for health professionals to guide overdose response in the presence of benzodiazepines.

Figure 16 - Reported cases where rescue breathing was performed, January 1, 2015– December 31, 2020.



	2015	2016	2017	2018	2019	2020
Yes	86 (37.2%)	388 (48.0%)	751 (58.2%)	484 (61.7%)	331 (56.4%)	91 (39.6%)
No	143 (61.9%)	386 (47.8%)	476 (36.9%)	286 (36.5%)	244 (41.6%)	131 (57.0%)
Prefer not to say	2 (0.9%)	34 (4.2%)	63 (4.9%)	14 (1.8%)	12 (2.0%)	8 (3.5%)

Figure 17 - Number of naloxone doses given, January 1, 2017 – December 31, 2020.*



	2017	2018	2019	2020
1 dose	314 (23.8%)	156 (19.6%)	100 (16.8%)	48 (21.8%)
2 doses	494 (37.8%)	344 (43.3%)	252 (42.4%)	59 (26.8%)
3 doses	356 (26.9%)	208 (26.2%)	166 (28.0%)	59 (26.8%)
4 doses	79 (6.0%)	52 (6.5%)	43 (7.2%)	17 (7.7%)
5 or more	79 (6.0%)	35 (4.4%)	33 (5.6%)	37 (16.8%)

*Naloxone ampoules in each kit increased from 2 to 3 in 2016. Only data collected from complete years following this change is included in graphs and tables

Adverse effects resulting from naloxone administration

Naloxone has a well-established safety profile and a long history of safe usage to reverse opioid overdose (1). When an opioid overdose is suspected, naloxone should be immediately administered to (temporarily) reverse respiratory depression and sedation caused by the opioid (27). In the event that the cause of respiratory depression and/or unresponsiveness is unknown, the administration of naloxone is unlikely to be harmful and will eliminate concerns about opioid mediated effects (32,33). The THN program provides three ampoules each containing 0.4 mg of injectable naloxone in every kit. In comparison, nasal naloxone provided through other organizations is available in a 4 mg dosage which is 10 times the injectable dosage. Titrating naloxone administration – giving a low dose initially, assessing response and providing additional doses as needed until response is appropriate, is recommended to reduce the risk of withdrawal and/or adverse effects (28).

Consistent with the most recent THN program summary, reports of moderate to severe adverse effects including aggression and/ or withdrawal symptoms remain low (Figure 18).

In 2019, 88% of administration records indicate the person who received naloxone experienced no adverse effects or mild withdrawal only. In 2020, 84.6% of records indicate there were no or only mild adverse effects/withdrawal following the administration of naloxone.

For individuals that experienced adverse effects and/or withdrawal following the administration of naloxone, the majority of records returned between 2017 and 2020 indicate the individual experienced mild withdrawal (31.5%) (Figure 19). Fewer administration records (16.2%) indicated the person experienced moderate withdrawal and only 6.5% of records indicated the person experienced severe withdrawal. Approximately 13.9% of records returned between 2017 and 2020, reported the person who received naloxone exhibited aggressive behavior after receiving naloxone.

Decreased reporting of moderate and severe adverse effects following administration of naloxone from 2018 to 2020, as compared to prior years, may reflect effective overdose training and increased education regarding naloxone titration.

Figure 18 - Proportion of individuals who reported adverse effects, January 1, 2017–December 31, 2020.*

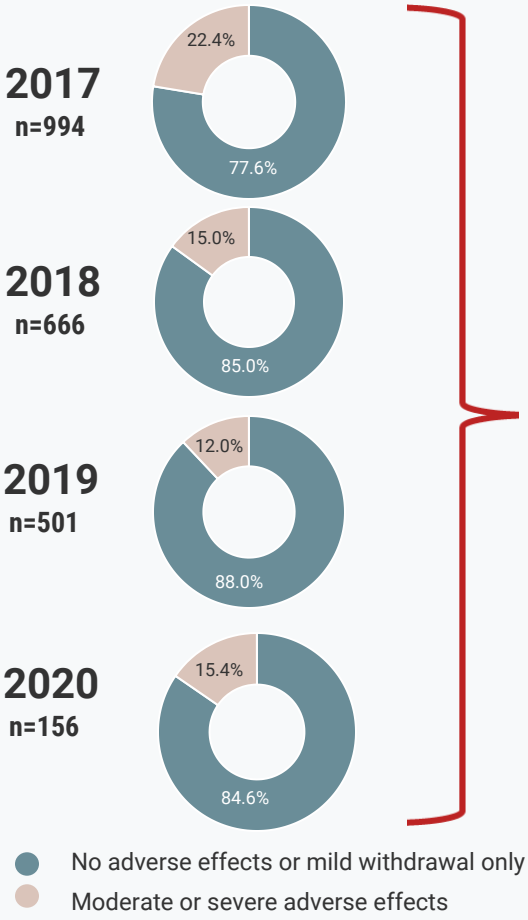
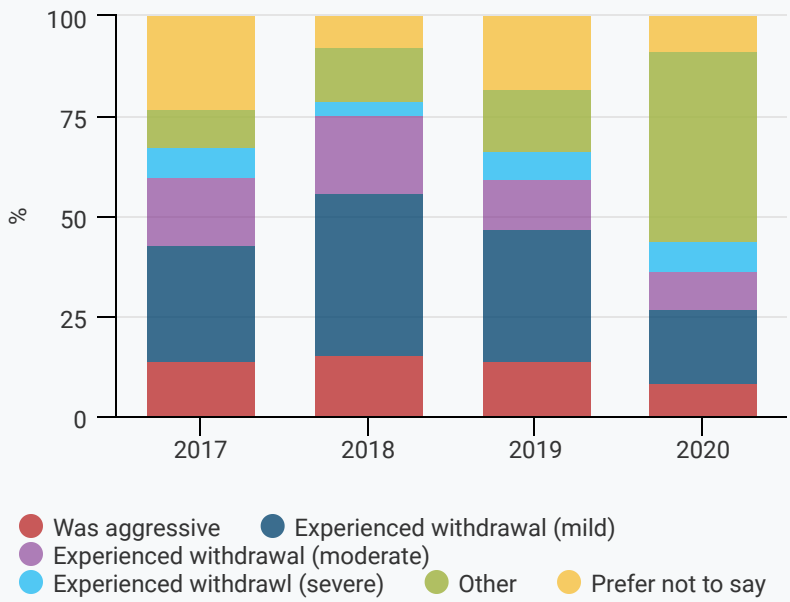


Figure 19 - Of those experienced adverse effects, type of adverse effects experienced, January 1, 2017– December 31, 2020.*



*Naloxone ampoules in each kit increased from 2 to 3 in 2016. Only data collected from complete years following this change is included in graphs and tables (n = 1,112)

Key Findings and Recommendations

Programmatic

1. The THN program continues to expand access to naloxone across BC.
Since the 2018 program report, site enrollment, kit shipment and reported kit distribution have continued to increase. The BCCDC must continue to evaluate the program to identify gaps and new distribution partners across the province to improve access to naloxone especially in the context of COVID-19 and increased toxicity/unpredictability of the illicit drug supply.

2. The THN program responded to increased demand for kits related to increased toxicity in the drug supply however, deaths continued at an unacceptably high rate.
Despite program response and increased reported kit distribution, paramedics attended a record number of overdose events across BC in 2020 and BC Coroners reported 1,726 illicit drug toxicity deaths A number of sources indicate that toxicity of the illicit drug supply increased substantially following the pandemic declaration and border closure in March of 2020 (12). These findings Indicate that more upstream interventions and programs targeting high risk populations as well as expanded access to safer consumption, overdose prevention spaces and safer supply, are needed to prevent further harms associated with the toxic drug crisis.

3. Involving people with lived experience in program practice and evaluation is important.
People with lived and living experience of substance use are experts in their own reality. Engaging with PWLLE in research, policy making, program planning and practice is essential to ensuring healthcare services including harm reduction services are accessible, acceptable, accommodating and affordable (34,35). Peer advocacy was instrumental in the establishment of BC's THN program in 2012 (2). Through ongoing partnership, collaboration and engagement with Peer Organizations including the Peer2Peer project (P2P), Compassion, Inclusion, Engagement (CIE) and the Professionals for Ethical Engagement of Peers (PEEP) Consultation and Advisory Board, the THN program and BCHRS strive to ensure the voices and perspectives of PWLLE guide all research and service initiatives to meet community needs.

4. Reporting of kit distribution and naloxone administration remains a challenge.
Return on THN distribution and administration records remains relatively low across all Health Authorities. Although shipping data provide accurate and timely information about program demand and expansion across BC, vast underreporting of distribution and administration information is a challenge to completeness of reporting and modeling of death events averted. The program completes annual reminders, conducts inventory review with high volume sites, and implemented a communications plan at the end of 2020 emphasizing the importance of returning these records. The program is currently exploring alternate means for capturing these data as a future pilot project (i.e. online reporting for OPS/SCS locations).

Kit Recipients

5. Kit distribution to individuals actively responding to overdoses is increasing over time.
Over half of all kits reported distributed in 2020 were to replace kits used to reverse an overdose; this is a higher proportion than in previous years and suggests the THN program is successfully getting kits into the hands of individuals responding to overdoses.

6. Males and individuals aged 31-60 continue to be most likely to obtain a THN kit.
The THN program encourages overdose response training and provision of kits to anyone who may witness an overdose including people who use substances, parents, guardians and youth. Opportunities to improve access for specific populations (i.e. youth and women) should be explored.

Key Findings and Recommendations

7. People who identify as at-risk of experiencing an overdose are most often collecting kits from community organizations, OPS and SCS, health care centres, housing sites and treatment facilities while people who are not at risk of an overdose most often collect kits from community pharmacies.
This finding supports previous research conducted through the THN program which explored the types of sites where individuals obtained their THN kit. A variety of distribution sites are necessary to meet the needs of individuals who use substances as well as individuals who may witness an overdose but do not access traditional harm reduction service locations. The program continues to raise awareness around where individuals can access THN kits through the online site finder, social media and referrals.

Administration Event Data

8. According to THN administration records, overdoses are occurring most frequently in streets, alleys and parks, followed by private residences. However, most deaths are occurring in private residences.
Before 2018, private residences were the most commonly cited location for naloxone administration on the THN program's administration form. BC Coroners' data indicates that most fatal overdose events in 2020 occurred in private residences. Unwitnessed consumption/using alone increases the risk of fatal overdose. Naloxone cannot be self-administered, however it is important to have a kit available so that a person who finds or is checking on an individual can use it to respond. The HRCS found the most common reasons why people use substances alone were convenience and comfort (23). Increased awareness of safer consumption practices (i.e. buddying up, use of phone applications i.e. Lifeguard App, BRAVEBeSafe App) are crucial and highlight the importance of phone ownership.

9. There is an increasing trend in people reporting that 911 was called to suspected overdose events.
Calling 911 is an essential step in overdose response. Naloxone temporarily reverses the respiratory depression caused by opioid overdose (1). As such, calling emergency services can ensure that people get the care and monitoring they need to prevent re-overdose.
However fear of police involvement at an overdose continues to be a concern. To reduce police attendance at overdoses BC EHS introduced a policy in 2016 so that emergency dispatch does not routinely inform police about a suspected overdose call. The GSDOA enacted in 2017 provides some protection for individuals calling 911 but awareness may be limited (24). Therefore, the THN program is adapting overdose response training to include details about the GSDOA. Continued knowledge translation initiatives to increase awareness and understanding of the BC EHS policy and GSDOA should be explored.

10. Concerns regarding transmission of COVID-19 may be contributing to mixed messaging around performing rescue breaths during overdose response events.
There is a need for consistent guidelines regarding rescue breathing during overdose response. The THN program has developed an information sheet and a video outlining the importance of giving rescue breaths during an overdose response to prevent anoxic brain injury. Each THN kit also contains a pair of gloves and a CPR face shield with a one-way valve to help protect and support responders during overdose interventions.

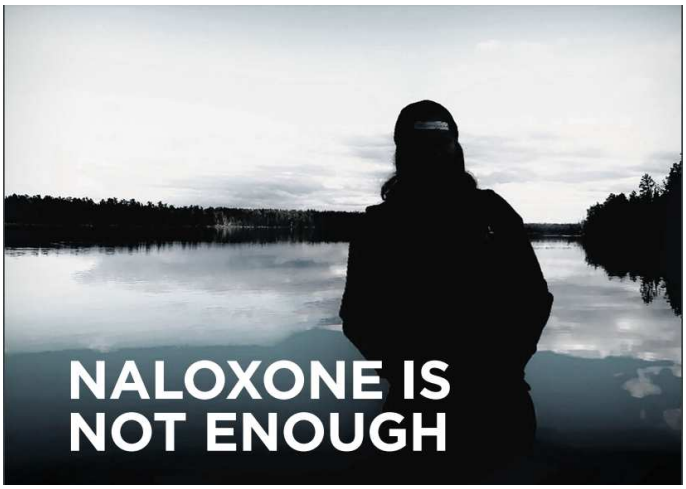
11. Increased toxicity and greater prevalence of benzodiazepines in the opioid supply may challenge expectations around what naloxone response will look like.
The toxicity of the illicit drug supply has increased since the COVID-19 pandemic was declared in March of 2020. Drug checking organizations and BC Coroners service indicate an increased prevalence of high fentanyl levels and benzodiazepines including etizolam (12, 36). Recommendations and publications have been developed for the public and professionals to guide overdose response when opioids and benzodiazepines are suspected, however further knowledge translation activities may be warranted.

12. Administration records indicate that moderate and/or severe adverse effects following the administration of naloxone are uncommon.
This finding concurs with previous reports and ongoing research regarding withdrawal effects following administration of naloxone, conducted through BCHRS (25). The THN program recommends naloxone dose titration meaning starting with one dose and assessing the person's response before delivering subsequent doses (1).

Conclusion

Following the end of data collection for this report, the THN program achieved a significant kit shipment milestone. At the time of writing of this report, June 2021, the THN program reached 1 million kits shipped to distribution sites across the province. The Naloxone is Not Enough (NINE) campaign was launched to highlight this event as well as draw attention to the need for other overdose intervention and prevention programs informed by the expertise of PWLLE. The THN program partnered with Peer Organizations including P2P and PEEP to collect letters from PWLLE on their experiences of the ongoing overdose crisis and what this milestone means to them.

This report is written with the acknowledgement that overdose deaths are preventable and that alone, naloxone is not enough to stop deaths related to toxic drug poisonings. As a member of the P2P group stated, “Naloxone is just a tool in what should be a much larger tool kit”. That being said, it is also important to acknowledge the essential role the THN program plays in providing access to life-saving medication for individuals at risk of experiencing and/or witnessing an overdose. The success of the program would not be possible without the support, expertise and tireless efforts of persons with lived and living experience who are on the frontlines of this crisis, as well as community partners and colleagues at the BCCDC, Regional Health Authorities and the Ministry of Health. BCHRS continues to advocate for safer supply, expanded access to harm reduction services, and removal of policies that criminalize persons who use drugs.



Credit: Naloxone is Not Enough, Toward the Heart, June 2021

PEEP
Professionals for Ethical Engagement of Peers

Credit: P2P

Compassion, Inclusion and Engagement

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Appendix

Appendix A - Data used in this report

Figure 2 (Page 11) - Number of Take Home Naloxone distribution sites (cumulative) by Health Authority (HA), January 1, 2015 - December 31, 2020.

Health Authority	2015	2016	2017	2018	2019	2020
Fraser Health	22	76	236	372	451	485
Interior Health	21	146	243	334	365	387
Island Health	16	91	181	261	302	330
Northern Health	8	53	95	136	161	167
Vancouver Coastal Health	39	89	223	340	398	420
Total	106	455	983	1,445	1691	1815

Figure 3 (Page 11) - Number of Take Home Naloxone distribution sites (cumulative) by site type (Pharmacies, First Nations, Emergency Departments, Correctional Facilities, Other sites), January 1, 2015 – December 31, 2020.

Distribution Site Type	2015	2016	2017	2018	2019	2020
Corrections	2	7	16	20	20	21
First Nations (FN) Sites	9	59	128	143	154	159
Pharmacy	1	2	238	573	720	752
Emergency Departments (ED)	5	76	85	86	86	86
Other	89	311	511	623	711	797
Total	106	455	983	1,445	1691	1815

Figure 4 (Page 14) - Total number of Take Home Naloxone shipped, reported distributed, and reported used by year (counts), January 1, 2015 – December 31, 2020.

	2015	2016	2017	2018	2019	2020	Total
Kits shipped	5,886	52,262	140,748	195,696	232,312	272,934	899,838
Kits reported distributed	3,152	21,519	63,347	58,547	52,700	63,881	265,278
Kits reported used	397	3,941	15,528	20,901	21,009	32,170	94,354

Figure 5 (Page 14) - Number of Take Home Naloxone kits shipped by Health Authority (counts), January 1, 2015 – December 31, 2020.

Health Authority	Before 2015	2015	2016	2017	2018	2019	2020	Total
Fraser Health	361	1,166	9,542	30,046	38,199	45,722	56,114	181,150
Interior Health	876	1,016	8,152	36,154	45,098	47,017	51,255	189,568
Island Health	588	1,054	11,549	32,665	46,829	46,322	57,960	196,967
Northern Health	100	148	2,546	5,440	8,384	13,344	23,370	53,332
Vancouver Coastal Health	1,650	2,502	20,223	36,443	53,335	70,337	74,954	259,444
Total	3575	5886	52,262	140,748	195,696	232,312	272,934	903,413

Figure 6 (Page 14) - Number of Take Home Naloxone kits reported distributed by Health Authority (counts), January 1, 2015 – December 31, 2020.

Health Authority	Before 2015	2015	2016	2017	2018	2019	2020	Total
Fraser Health	180	524	4,756	16,596	17,691	16,713	21,219	77,679
Interior Health	522	522	3,961	13,415	13,043	14,338	17,141	62,942
Island Health	313	536	5,170	17,117	17,119	10,883	11,344	62,482
Northern Health	32	70	556	3,112	4,096	4,196	7,123	19,185
Vancouver Coastal Health	874	1,500	7,076	13,107	8,727	6,455	6,698	44,437
Total	1,921	3,152	21,519	63,347	60,679	52,700	63,881	267,199

Figure 7 (Page 15) - Self-reported gender, age and overdose risk of of individuals who collected naloxone kits, January 1, 2017 – December 31, 2020.

	2017	2018	2019	2020
GENDER				
Female	25,497 (44.6%)	25,882 (45.2%)	24,606 (49.1%)	25,252 (43.2%)
Male	30,966 (54.2%)	30,229 (52.8%)	24,663 (49.2%)	30,565 (52.3%)
Other	692 (1.2%)	1,133 (2.0%)	859 (1.7%)	2,588 (4.4%)
AGE				
Under 19 years	2,011 (3.6%)	3,122 (5.5%)	3,079 (6.2%)	2,632 (4.6%)
19-30 years	19,509 (34.8%)	20,406 (35.8%)	17,950 (36.0%)	18,444 (32.2)
31-60 years	32,526 (57.9%)	31,541 (55.4%)	27,288 (54.7)	34,515 (60.2%)
Over 60 years	2,095 (3.7%)	1,861 (3.3%)	1609 (3.2%)	1702 (3.0%)
OVERDOSE RISK				
At risk of experiencing an overdose	23,426 (69.6%)	39,521 (68.1%)	37,633 (74.3%)	50,055 (83.4%)
Likely to witness an overdose	10,224 (30.4%)	18,487 (31.9%)	12,990 (25.7%)	9,940 (16.6%)

Figure 8 (Page 16) -Naloxone distribution to those self-reporting being at risk of experiencing an overdose vs. likely to witness an overdose, by whether this is their first kit, a replacement kit due to being used, or a a replacement kit due to having a previous kit stolen, lost, expired, or confiscated, January 1, 2017 - December 31, 2020.

	2017		2018		2019		2020	
Overdose Risk	At risk of experiencing an overdose	Likely to witness an overdose	At risk of experiencing an overdose	Likely to witness an overdose	At risk of experiencing an overdose	Likely to witness an overdose	At risk of experiencing an overdose	Likely to witness an overdose
Kits for new participants	8,541 (52.9%)	7,529 (47.1%)	10,965 (44.5%)	13,649 (55.5%)	9,570 (51.4%)	9,036 (48.6%)	9,889 (70.3%)	4,169 (29.7%)
Replacements: Stolen, lost, expired or confiscated	3,110 (80.4%)	758 (19.6%)	5,871 (75.7%)	1,881 (24.3%)	6,888 (82.7%)	1,444 (17.3%)	7,521 (73.1%)	2,763 (26.9%)
Kits reported as used	8,153 (89.9%)	914 (10.1%)	18,933 (90.2%)	2,067 (9.8%)	18,954 (91.3%)	1,799 (8.7%)	29,627 (93.2%)	2,169 (6.8%)
Total	19,714 (66.9%)	9,754 (33.1%)	35,769 (66.8%)	17,754 (33.2%)	35,412 (74.2%)	12,289 (25.8%)	47,037 (83.8%)	9,115 (16.2%)

Figure 9 (Page 17) - Naloxone distribution to those self-reporting being at risk of experiencing an overdose vs. likely to witness an overdose, by take-home naloxone distribution site type, January 1, 2017 - December 31, 2020.

	2017		2018		2019		2020	
Distribution Site Type	At risk of experiencing an overdose	Likely to witness an overdose	At risk of experiencing an overdose	Likely to witness an overdose	At risk of experiencing an overdose	Likely to witness an overdose	At risk of experiencing an overdose	Likely to witness an overdose
Corrections	453 (93.8%)	30 (6.2%)	1,231 (90.4%)	131 (9.6%)	1715 (96.1%)	70 (3.9%)	923 (92.9%)	71 (7.1%)
Pharmacy	233 (48.1%)	251 (51.9%)	1,682 (40.6%)	2,549 (59.4%)	3057 (48.2%)	3286 (51.8%)	2,333 (48.2%)	2,510 (51.8%)
Post-Secondary	11 (17.5%)	52 (82.5%)	93 (9.5%)	881 (90.5%)	127 (18.2%)	571 (81.8%)	53 (54.1%)	45 (45.9%)
Other	22,430 (70.7%)	9,281 (29.3%)	35,714 (71.8%)	14,006 (28.2%)	32,322 (78.6%)	8,822 (21.4%)	46,223 (86.6%)	7,138 (13.4%)

Figure 10 (Page 21) - Demographic characteristics of individuals overdosed, based on administration forms, January 1, 2015 - December 31, 2020.

	2015	2016	2017	2018	2019	2020
GENDER						
Female	44 (26.4%)	281 (32.4%)	400 (29.5%)	272 (29.0%)	224 (30.6%)	87 (27.1%)
Male	121 (72.5%)	583 (67.2%)	920 (68.1%)	648 (69.3%)	497 (67.9%)	224 (69.8%)
Other	2 (1.2%)	3 (0.4%)	32 (2.4%)	15 (1.6%)	11 (1.5%)	10 (3.1%)
AGE						
Under 19 years	3 (1.7%)	9 (1.1%)	32 (2.5%)	29 (3.3%)	14 (2.0%)	7 (2.4%)
19-30 years	64 (37.2%)	296 (35.7%)	479 (37.8%)	341 (39.0%)	294 (42.4%)	119 (40.8%)
31-60 years	99 (57.6%)	515 (62.1%)	733 (57.8%)	488 (55.8%)	379 (54.7%)	159 (54.5%)
Over 60 years	6 (3.5%)	9 (1.1%)	24 (1.9%)	16 (1.8%)	6 (0.9%)	7 (2.4%)
HEALTH AUTHORITY						
Fraser Health	75 (28.7%)	346 (37.9%)	665 (64.1%)	121 (31.0%)	39 (48.2%)	0 (0.0%)
Interior Health	46 (17.6%)	141 (15.4%)	134 (12.9%)	110 (28.1%)	19 (23.5%)	1 (14.3%)
Island Health	24 (9.2%)	107 (11.7%)	52 (5.0%)	18 (4.6%)	2 (2.5%)	0 (0.0%)
Northern Health	7 (2.7%)	55 (6.0%)	114 (11.0%)	86 (22.0%)	2 (2.5%)	0 (0.0%)
Vancouver Coastal Health	109 (41.8%)	264 (28.9%)	73 (7.0%)	56 (14.3%)	19 23.5%)	6 (85.7%)

Figure 11 (Page 22) - Reported locations of overdose events, January 1, 2015 and December 31, 2020.

Location type	2015	2016	2017	2018	2019	2020
Private Residence	102 (41.6%)	329 (37.4%)	539 (39.8%)	283 (30.0%)	181 (24.8%)	67 (21.0%)
Street/Alley/Park	63 (25.7%)	307 (34.9%)	415 (30.6%)	317 (33.6%)	334 (45.8%)	124 (38.8%)
Shelter/Tent	32 (13.1%)	91 (10.3%)	166 (12.2%)	146 (15.5%)	100 (13.7%)	50 (15.6%)
SRO/Supportive Housing	36 (14.7%)	81 (9.2%)	75 (5.5%)	60 (6.4%)	34 (4.7%)	38 (11.9%)
Community Agency/Drop-in	7 (2.9%)	37 (4.2%)	57 (4.2%)	43 (4.6%)	18 (2.5%)	10 (3.1%)
Hotel/Motel	1 (0.4%)	7 (0.8%)	18 (1.3%)	26 (2.8%)	10 (1.4%)	8 (2.5%)
Bar/Night Club/Concert/Festival	0 (0.0%)	0 (0.0%)	5 (0.4%)	5 (0.5%)	3 (0.4%)	0 (0.0%)
Prefer not to say/Don't know/Other	4 (1.6%)	28 (3.2%)	81 (6.0%)	64 (6.8%)	49 (6.7%)	23 (7.2%)
Total	245 (100.0%)	880 (100.0%)	1,356 (100.0%)	944 (100.0%)	729 (100.0%)	320 (100.0%)

Figure 12 (Page 24) - Proportion of reported calls made to 911 by Health Authority, January 1, 2016 – December 31, 2020.

	2016	2017	2018	2019	2020
British Columbia					
No	348 (38.2%)	639 (47.4%)	352 (37.8%)	270 (37.4%)	97 (31.2%)
Yes	545 (59.8%)	664 (49.2%)	570 (61.2%)	439 (60.8%)	210 (67.5%)
Prefer not to say	19 (2.1%)	46 (3.4%)	10 (1.1%)	13 (1.8%)	4 (1.3%)
Total	912 (100.0%)	1,349 (100.0%)	932 (100.0%)	722 (100.0%)	311 (100.0%)
FRASER HEALTH					
No	123 (36.3%)	318 (49.2%)	62 (51.7%)	5 (13.5%)	0 (0.0%)
Yes	207 (61.1%)	313 (48.5%)	57 (47.5%)	32 (86.5%)	0 (0.0%)
Prefer not to say	9 (2.6%)	15 (2.3%)	1 (0.8%)	0 (0.0%)	0 (0.0%)
INTERIOR HEALTH					
No	85 (60.3%)	73 (55.3%)	16 (14.8%)	0 (0.0%)	0 (0.0%)
Yes	54 (38.3%)	54 (40.9%)	92 (85.2%)	18 (100.0%)	0 (0.0%)
Prefer not to say	2 (1.4%)	5 (3.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
ISLAND HEALTH					
No	54 (55.1%)	28 (53.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Yes	42 (42.9%)	23 (44.2%)	16 (94.1%)	1 (100.0%)	0 (0.0%)
Prefer not to say	2 (2.0%)	1 (1.9%)	1 (5.9%)	0 (0.0%)	0 (0.0%)
NORTHERN HEALTH					
No	23 (45.1%)	61 (54.5%)	37 (43.5%)	0 (0.0%)	0 (0.0%)
Yes	28 (54.9%)	42 (37.5%)	44 (51.8%)	1 (100.0%)	0 (0.0%)
Prefer not to say	0 (0.0%)	9 (8.0%)	4 (4.7%)	0 (0.0%)	0 (0.0%)
VANCOUVER COASTAL HEALTH					
No	52 (20.6%)	30 (42.3%)	6 (10.9%)	4 (22.2%)	1 (16.7%)
Yes	195 (77.1%)	39 (54.9%)	49 (89.1%)	14 (77.8%)	6 (83.3%)
Prefer not to say	6 (2.4%)	2 (2.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

Figure 13 (Page 24) - Of overdoses where 911 was called, proportion of people who went to hospital in ambulance, January 1, 2017– December 31, 2020.

	2017	2018	2019	2020
No	161 (31.5%)	201 (43.7%)	146 (44.7%)	69 (47.9%)
Yes	306 (59.9%)	232 (50.4%)	155 (47.4%)	61 (42.4%)
Prefer not to say/ don't know	44 (8.6%)	27 (5.9%)	26 (8.0%)	14 (9.7%)
Total	511 (100/0%)	460 (100.0%)	327 (100.0%)	144 (100.0%)

Figure 14 (Page 24) - Of overdoses where 911 was called, proportion where police arrived on scene, January 1, 2016– December 31, 2020.

	2016	2017	2018	2019	2020
No	172 (48.9%)	352 (58.2%)	322 (69.5%)	239 (70.3.%)	112 (77.2%)
Yes	155 (44.0%)	235 (38.8%)	131 (28.3%)	92 (27.1%)	28 (19.3%)
Prefer not to say	25 (7.1%)	18 (3.0%)	10 (2.2%)	9 (2.6%)	5 (3.5%)
Total	352 (100.0%)	605 (100.0%)	463 (100.0%)	340 (100.0%)	145 (100.0%)

Figure 15 (Page 24) - Of overdoses where 911 was not called, reason for not calling, January 1, 2016– December 31, 2020.

	2016	2017	2018	2019	2020
No phone/cell service	6 (6.4%)	20 (9.5%)	20 (9.1%)	10 (9.2%)	0 (0.0%)
Person who overdosed requested no 911	5 (5.3%)	19 (9.1%)	9 (4.1%)	2 (1.8%)	0 (0.0%)
Thought person would get better/person was OK	41 (43.6%)	112 (53.3%)	130 (59.4%)	44 (40.4%)	29 (41.4%)
Worried that police would come	28 (29.8%)	27 (12.9%)	19 (8.7%)	31 (28.4%)	2 (2.9%)
Prefer not to say	11 (11.7%)	12 (5.7%)	14 (6.4%)	6 (5.5%)	0 (0.0%)
Other reason	3 (3.2%)	20 (9.5%)	27 (12.3%)	16 (14.7%)	39 (55.7%)
Total	94 (100.0%)	210 (100.0%)	219 (100.0%)	109 (100.0%)	70 (100%)

Figure 16 (Page 26) - Reported cases where rescue breathing was performed, January 1, 2015 – December 31, 2020.

	2015	2016	2017	2018	2019	2020
Yes	86 (37.2%)	388 (48.0%)	751 (58.2%)	484 (61.7%)	331 (56.4%)	91 (39.6%)
No	143 (61.9%)	386 (47.8%)	476 (36.9%)	286 (36.5%)	244 (41.6%)	131 (57.0%)
Prefer not to say	2 (0.9%)	34 (4.2%)	63 (4.9%)	14 (1.8%)	12 (2.0%)	8 (3.5%)
Total	231 (100.0%)	808 (100.0%)	1,290 (100.0%)	784 (100.0%)	587 (100.0%)	230 (100.0%)

Figure 17 (Page 26) - Number of naloxone doses given, January 1, 2017 – December 31, 2020.

	2017	2018	2019	2020
1 dose	314 (22.6%)	156 (16.3%)	100 (12.6%)	48 (13.3%)
2 doses	494 (35.6%)	344 (36.0%)	252 (31.8%)	59 (16.3%)
3 doses	356 (25.7%)	208 (21.8%)	166 (21.0%)	59 (16.3%)
4 doses	79 (5.7%)	52 (5.4%)	43 (5.4%)	17 (4.7%)
5 or more	79 (5.7%)	35 (3.7%)	33 (4.2%)	37 (10.2%)
Prefer not to say/blank	65 (4.7%)	161 (16.8%)	198 25.0%)	142 (39.2%)
Total	1,387 (100.0%)	956 (100.0%)	792 (100.0%)	362 (100.0%)

Figure 18 (Page 27) - Proportion of individuals who reported adverse effects, January 1, 2017– December 31, 2020.

	2017	2018	2019	2020
No adverse effects or mild withdrawal only	771 (77.6%)	566 (85.0%)	441 (88.0%)	132 (84.6%)
Moderate or severe adverse effects	223 (22.4%)	100 (15.0%)	60 (12.0%)	24 (15.4%)
Total	994 (100.0%)	666 (100.0%)	501 (100.0%)	156 (100.0%)

Figure 19 (Page 27) - Of those who did experience adverse effects, type of adverse effects experienced, January 1, 2017– December 31, 2020.

	2017	2018	2019	2020
Aggressive	82 (14.2%)	40 (15.4%)	25 (13.9%)	8 (8.6%)
Withdrawal (mild)	167 (28.8%)	106 (40.8%)	60 (33.3%)	17 (18.3%)
Withdrawal (moderate)	99 (17.1%)	50 (19.2%)	22 (12.2%)	9 (9.7%)
Withdrawal (severe)	42 (7.3%)	10 (3.8%)	13 (7.2%)	7 (7.5%)
Other	57 (9.8%)	34 (13.1%)	28 (15.6%)	44 (47.3%)
Prefer not to say	132 (22.8%)	20 (7.7%)	32 (17.8%)	8 (8.6%)
Total	579 (100.0%)	260 (100.0%)	180 (100.0%)	93 (100.0%)