

Knowledge Update



TOPIC: Update to public health stakeholders about a change to the B.C. Provincial Overdose Cohort and Overdose Surveillance case definition.

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KEY CONTACTS: Dr. Amanda Slaunwhite, Chloé Xavier, and Margot Kuo

DATA SOURCE: B.C. Provincial Overdose Cohort & Paramedic-Attended Illegal Drug Overdose Events Surveillance Indicator

BACKGROUND

- The Provincial Overdose Cohort is a set of linked administrative datasets focused on persons who have experienced drug-related overdose events. The Cohort was developed to better understand the factors associated with overdose to target provincial, regional, and local response activities.
- The Provincial Overdose Cohort is refreshed annually to include new people who have experienced a drug-related overdose, and to update the information on existing people in the Cohort.
- The Ministry of Health performs the individual-level linkage using health history data. The datasets are then transferred to the BC Centre for Disease Control for data analysis. The Cohort currently includes people who have had a drug-related overdose between January 1st, 2015 and December 31st, 2017. The 2018 data will be added to the Cohort in mid-2019.
- An updated case definition for drug-related overdose in the Cohort was implemented in January 2019. Expanding the definition to include commonly used BC Emergency Health Services (BCEHS) codes for overdose events, in addition to the administration of naloxone, increased the sensitivity and specificity of case detection.
- In addition to being applied in the Cohort, this revised case definition is now applied to the Paramedic Attended Overdose Events surveillance trends that are part of the Provincial Overdose Response Indicators (<http://www.bccdc.ca/health-professionals/data-reports/overdose-response-indicators>).

Why the Change?

- The purpose of updating the Provincial Overdose Cohort case definition was to better identify overdoses in administrative data sources, and to align the Cohort case definition and the BCCDC Overdose Surveillance case definition.
- Previously, the Provincial Overdose Cohort defined an overdose case as any person/event where naloxone was administered by paramedics. Given the widespread distribution of take home naloxone kits, the case definition needed to be refined due to an increasing number of people being administered naloxone prior to the arrival of paramedics.

What is the impact?

- Following the implementation of the new case definition, the number of overdose cases identified in BCEHS data increased (see Table 1 & Figure 1). The Overdose Surveillance trend line also changed slightly, although it remains nearly identical to that based on the previous surveillance definition (Figure 2).
 - In the Cohort, approximately 200 drug-related overdose cases were added using the new criteria in PCIS, and approximately 450 drug-related overdose cases were added using new SIREN impression codes across the study period (2015-2017).
 - For Surveillance, the new case definition results in an average of approximately 13 fewer cases per month in 2018.
 - The new case definition is applied to all years of data (retrospectively and prospectively)

Technical Notes:

- The current BCCDC Overdose Surveillance definition for paramedic attended overdose events is based on a cluster analysis algorithm, which codes ambulance-attended events as overdose cases when naloxone was administered by paramedics OR where the paramedic impression codes are related to recreational drug overdose and the Medical Priority Dispatch System (MPDS) card is 9, 23, 26, or 31. The updated surveillance definition includes a refined set of impression codes from the BCEHS Patient Care Report (PCR) data that improve identification of opioid-related overdoses and aligns with the Cohort definition of an overdose (see Table 1 & Figure 1).
- The new case definition was developed with input from BCEHS to accurately reflect the various coding combinations used by first responders in the PCR data. Historically, PCR data originated from paper-based records completed by paramedics on-scene and entered into the Patient Care Information System (PCIS). By the end of April 2019, virtually all paramedic records in BC will come through electronic forms entered into the new SIREN system. More specific impression codes in SIREN now allow improved identification of overdose events (Opioid Related, Opioid Related/Overdose), naloxone administration, and considers events related to cardiac arrest that were likely overdose.
- The number of events based on the old and new definition is compared in Figure 3.

SUMMARY

The new case definition for overdose surveillance, in addition to harmonizing with the definition for the Provincial Overdose Cohort, uses more specific impression codes to better identify overdose events.

As a result, the new definition is more specific to drug-related events, but also attempts to capture overdoses that were not considered by the old definition.

On balance, the number of events is very similar between the old and new definition.

Table 1: Drug-Related Overdose Case Detection in EHS Records		
	Overdose Encounters Attended by EHS using New Case Definition	Naloxone Administered by Paramedics
Year	# of OD Encounters	# of OD Encounters
2015	5,615	3,090
2016	9,820	4,969
2017	12,842	6,090
Total	28,277	14,149

Figure 1: Impact of Change in B.C. Provincial Overdose Cohort Case Definition on Total EHS Records

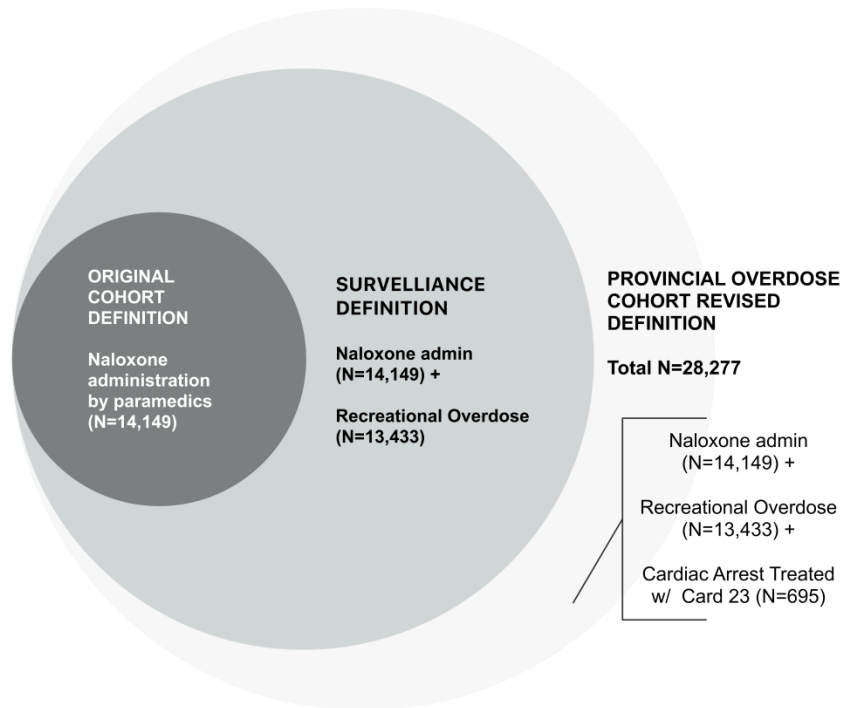


Figure 2: Impact of change in BCCDC Surveillance definition on monthly paramedic attended overdose events

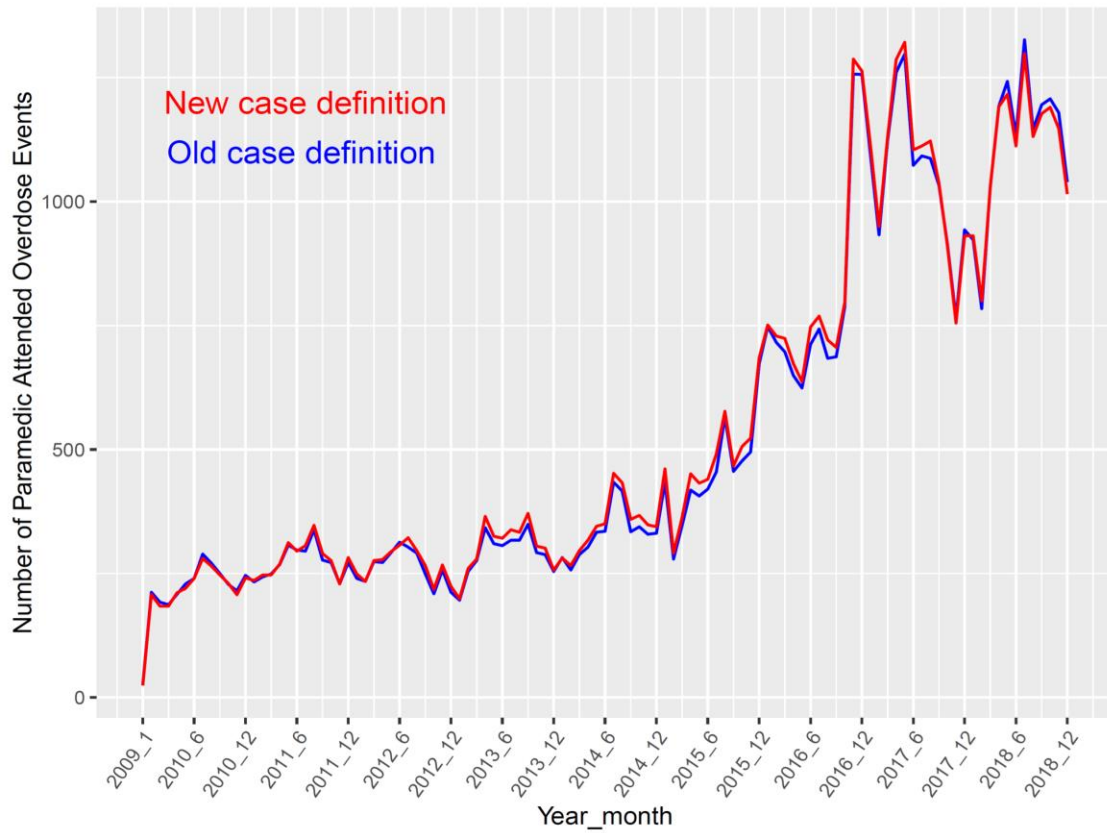


Table 2: Drug-Related Overdose Case Definitions

New Case Definition: Provincial Overdose Cohort and Overdose Surveillance*	Previous Case Definition: Overdose Surveillance**	Previous Case Definition: Provincial Overdose Cohort
<ul style="list-style-type: none"> • PCIS <ul style="list-style-type: none"> ▪ Naloxone administered by paramedics, OR ▪ Impression code: 'Recreational Drug Overdose' AND CARD 9, 23, 26, 31*, OR ▪ Impression code: 'Cardiac Arrest: Treated' AND CARD 23* • SIREN <ul style="list-style-type: none"> ▪ Naloxone administered, OR ▪ Impression code: 'Opioid Related', 'Opioid Related / Overdose', OR ▪ Impression code: 'Cardiac Arrest' AND CARD 23* 	<ul style="list-style-type: none"> • PCIS <ul style="list-style-type: none"> ▪ Naloxone administered by paramedics, OR ▪ Impression codes related to Recreational drug OD** AND CARD 9, 23, 26, or 31* 	<ul style="list-style-type: none"> • Naloxone administered by paramedics

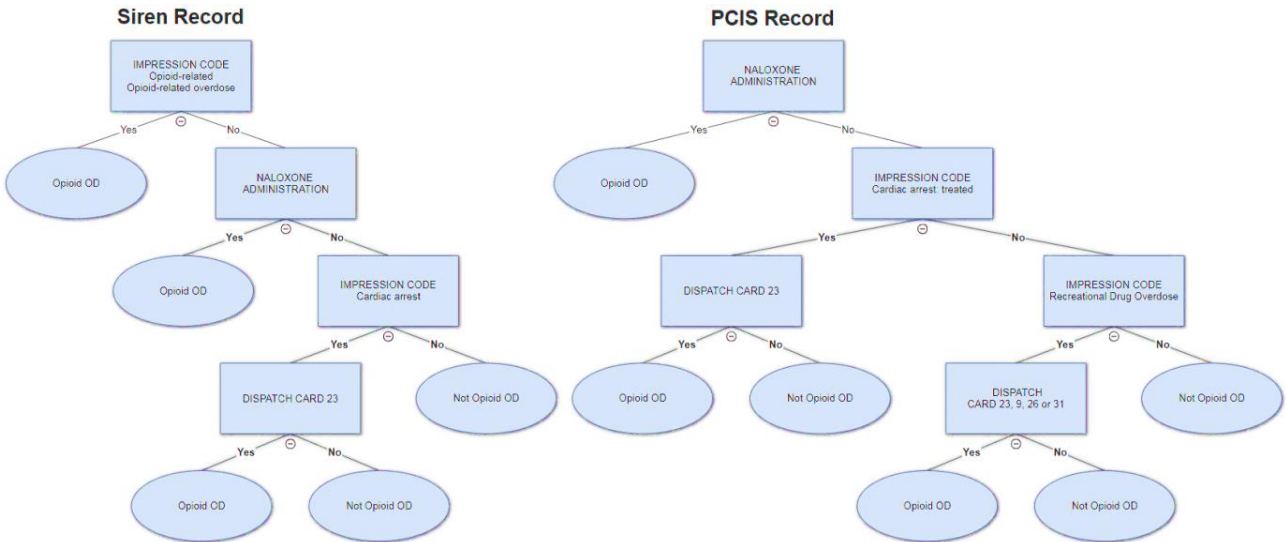
* Cluster analysis algorithm and BC EHS input

** Based on cluster analysis algorithm

*9: Cardiac or respiratory arrest / death 23: Overdose / poisoning (ingestion) 26: Sick 31: Unconscious

**Recreational drug overdose, recreational drug withdrawal, drug overdose, altered level of consciousness

Figure 3: Current B.C. Provincial Overdose Cohort Drug-Related Overdose Case Definition Decision Tree



NEXT STEPS

- Scientists, clinicians, and public health professionals at the BC Centre for Disease Control will continue to review and update the B.C. Provincial Overdose Cohort and Paramedic Attended Overdose Events Surveillance definitions for drug-related overdose cases to reflect the ongoing changes in programs and policies.
- For additional information on the B.C. Provincial Overdose Cohort please visit the Cohort website: <http://www.bccdc.ca/our-research/projects/overdose-cohort-data>

FOR MORE INFORMATION

- If you have any questions regarding the change in the B.C. Provincial Overdose and Paramedic Attended Overdose Events Surveillance case definition please contact Chloé Xavier at Chloe.Xavier@bccdc.ca

ANALYSIS TEAM

- Amanda Slaunwhite (BCCDC)
- Michael Otterstatter (BCCDC)
- Margot Kuo (BCCDC)
- Bin Zhao (BCCDC)
- Mei Chong (BCCDC)
- Wenqi Gan (BCCDC)
- Christopher Mill (PHAC/BCCDC)
- Chloé Xavier (BCCDC)