



**Topic:** Estimated impact of the provincial take-home naloxone program on preventing illegal drug-related deaths in B.C., 2012-2016

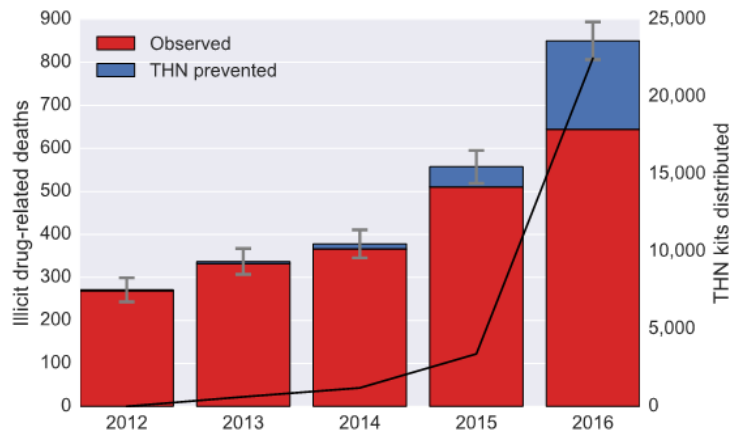
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**Background:**

- The BCCDC, in partnership with the Institute of Applied Mathematics at the University of British Columbia, has developed a mathematical model that uses simulations to estimate the impact of different interventions on preventing overdose deaths in B.C.
- This model is based on multiple data sources including: provincial data for opioid- and fentanyl-related deaths; ambulance-attended overdoses; number of people accessing opioid agonist therapy; estimates of the number of people who use illicit drugs in BC; and research data.
- In the first use of this model, we examined the impact of Take Home Naloxone (THN) kits on preventing deaths using data provided by the provincial THN program on kit usage.
- We chose the time period between January 1st 2012 to October 31st 2016 as this was prior to the scale-up of other interventions, including overdose prevention sites.

**Key Findings:**

- Scaling up distribution of THN kits in B.C. is an effective public health intervention in preventing overdose deaths.
- At the time of this analysis there had been 644 overdose deaths in the first 10 months of 2016. Our model estimates the rapid scale-up of THN kit distribution through the provincial THN program, in partnership with health authorities, prevented an additional 225 (range 125-340) overdose deaths in B.C. during this same time period.
- For every 10 kits of THN used, one overdose death is estimated to have been prevented.



**Figure 1: Estimated impact of Take Home Naloxone (THN) Jan 2012 - Oct 2016 on overdose-related deaths.**

- Red = Observed number of illicit drug-related deaths
- Blue = deaths prevented by THN program
- Black = THN kits distributed.

### Detailed Findings:

- For the period between January 2012 to October 2016, we estimated that:
  - The THN kit program prevented 300 (range 90-470) illicit-drug overdose related deaths, including 155 (range 55-270) fentanyl-related overdose deaths (See Figure 1).
  - In the first 10 months of 2016 alone when there were 644 illicit drug overdose deaths in B.C. \*, we estimated THN kit program prevented 225 (range 125-340) deaths, or 26% (range 16%-35%) of all possible overdose-related deaths in B.C.
  - Ten (range 10-20) THN kits were used for each death prevented, and 65 (45,110) THN kits were distributed for each death prevented.
- To provide information that may be helpful to other jurisdictions that have not yet seen large increases in opioid-related deaths, we simulated the impact of higher coverage/availability of THN kits before the rapid increase in overdose deaths observed in 2016:
  - To simulate this, we adjusted the model as though all THN kits used in the first 10 months of 2016 had been distributed at the beginning of the year (in January 2016).
  - In this scenario, we estimated that earlier scale-up may have prevented an additional 145 (range 80-215) illicit-drug overdose related deaths.
- The model also provides estimates of the proportion of fentanyl in the illicit opioid drug supply in B.C.:
  - We estimated the increase in the proportion of fentanyl in the drug supply between 2015 to 2016 to be 240% (195%-290%).

\*Information presented is based on data current to June 6, 2017



**Next Steps:**

In the next phase of this model, we are incorporating other data sources and partnering with other agencies, such as the BC Centre for Substance Use, to permit estimation of the impact of other overdose-related interventions. These include overdose prevention sites, opioid agonist therapy use, and access to prescription grade opioids. We are also building regional health-authority specific estimates. As well, we will use this model to provide updated estimates of the impact of the provincial THN kit. The results of this first phase of modelling have been accepted for publication in *The Lancet Public Health*. The BCCDC Public Knowledge Summary (i.e. plain language summary available for broader, public circulation) will be released at the time of publication.

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