



# Naloxone Distribution Across Ontario

A Brief Report by the  
Ontario Drug Policy Research Network

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**ODPRN** ONTARIO  
DRUG POLICY  
RESEARCH NETWORK



## About the ODPRN

The Ontario Drug Policy Research Network (ODPRN) is a province-wide network of researchers who provide timely, high quality, relevant drug policy research to decision makers. We conduct research to determine real-world drug utilization, safety, effectiveness and costs of drugs in Ontario, and have developed partnerships that allow us to engage in cross-provincial comparisons of drug safety and utilization.

We are funded to conduct pharmacoepidemiologic and drug policy research as part of an initiative to provide evidence to inform policy at the Ontario Ministry of Health and Long-Term Care (MOHLTC). As such, the ODPRN works closely with the Drug and Devices Division of the MOHLTC and other stakeholders to select key priority areas and topics for analysis.

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# Background

The Ontario Ministry of Health and Long-Term Care (MOHLTC) aims to widely distribute naloxone kits, a medication that can counter the effects of an opioid overdose, across Ontario to combat the growing impacts of the opioid crisis. Distribution of naloxone has mainly relied on two core mechanisms: the [Ontario Naloxone Program \(ONP\) and the Ontario Naloxone Program for Pharmacies \(ONPP\)](#). The ONP directly distributes naloxone to Public Health Units (PHUs) across the province. This program aims to distribute naloxone to organizations and programs that interact with people at risk of an overdose, or family and friends of people at risk of an overdose, which includes participating needle syringe/exchange programs, hepatitis C programs, and shelters. Similarly, the ONPP provides government funding for naloxone kits dispensed at any community pharmacy in Ontario. Through this program, an Ontario resident can receive a free naloxone kit, without a prescription. This program aims to distribute naloxone to individuals currently receiving prescription opioids, individuals with current or previous experience with opioid use, and family or friends of a person at risk of an opioid overdose.

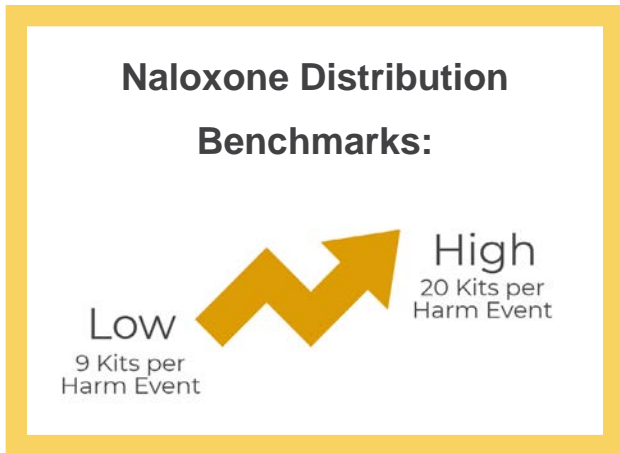
Despite this province wide initiative, meaningful benchmarks to distribute naloxone kits have not been established. One 2016 study in the United Kingdom (UK) suggested that naloxone distribution programs should establish distribution targets of 9 to 20 times the number of opioid-related deaths in the region<sup>1</sup>. These targets were established at a time when there were substantially fewer opioid-related harms occurring, and therefore their relevance to the current opioid climate is unknown. However, these targets provide a useful threshold for naloxone distribution upon which current practices can be compared.

# Objective

Our study aimed to measure the uptake of naloxone kits through both the pharmacy- and community-based programs in Ontario and to assess if distribution benchmarks were achieved.

# Methods

We conducted a population-based, cross-sectional analysis to describe the distribution of naloxone kits across the province between July 1, 2017 and June 30, 2018. We received naloxone distribution numbers through the ONP for each PHU from the Ontario MOHLTC. We determined the total number of naloxone kits dispensed at community pharmacies through the ONPP from the Ontario Drug Benefit database at ICES. This information is publicly available on the ODPRN [Ontario Prescription Opioid Tool](#)<sup>2</sup>. We report the total number and rate (per 100,000 Ontario residents) of naloxone kits distributed through either the ONP or ONPP in Ontario. To establish benchmark distribution metrics, we accessed publicly-available rates of opioid-related harms from the Public Health Ontario [Interactive Opioid Tool](#)<sup>3</sup>. We defined opioid-related harms as the number of opioid-related emergency department visits and deaths that occurred during the study period. Naloxone distribution benchmarks were adopted from previous work that suggested a benchmark of 9 to 20 kits distributed per harm event. We expanded the definition of opioid-related harm to include any major harm leading to death or emergency department visit for overdose, to account for the magnitude of current opioid-related harms and since naloxone distribution can prevent some overdoses from becoming fatal. We reported measures for the entire province and for each PHU.



## Proposed Benchmark Distribution Rates

- The province as a whole has achieved the low benchmark for naloxone distribution, with 9.6 kits distributed per opioid-related harm (106% of low benchmark). However, this distribution is only half-way (48%) to achieving the high benchmark of 20 kits for every opioid-related harm (**Table 2**).
- Five PHUs were below the low benchmark of at least 9 kits per opioid-related harm, with the lowest rates observed in Toronto Public Health (4.2 kits per harm; 46% of minimal benchmark) and Peel Public Health (6.9 kits per harm; 77% of low benchmark).
- There were 8 PHUs above the high benchmark of 20 kits distributed per opioid-related harm, with the highest rates observed in Ottawa Public Health (38.1 kits per harm; 190% of high benchmark) and Northwestern Health Unit (32.1 kits per harm; 161% of high benchmark).

## Key Findings

### Naloxone Distribution

- There were 147,303 naloxone kits distributed across Ontario between July 2017 and June 2018, equating to approximately 1 naloxone kit for every 100 Ontarians (**Table 1**).
- The rates of naloxone distribution varied by PHU (**Figure 1**), ranging from 270 kits per 100,000 residents in York Region Public Health to 2,499 kits per 100,000 residents in Thunder Bay District Health Unit.
- Provincially, nearly two-thirds of naloxone kits (62%; N=91,456) were dispensed from pharmacies through the ONPP (**Table 1**). Yet, the proportion of kits distributed from pharmacies varied across PHUs, ranging from 36% in the Northwestern Health Unit to 99% in the Eastern Ontario Health Unit.

Interactive Report Card

Naloxone distribution benchmarks are available for each public health unit [here](#).

## Limitations

The main limitation of this analysis is that we relied on naloxone distribution benchmarks that were developed outside of Canada (UK), and prior to the impacts of the current opioid crisis (2006 to 2013)<sup>1</sup>. Although this previous work is insightful, research is needed to determine appropriate benchmarks for naloxone distribution in the current climate of heightened overdoses in North America. Importantly, in the original work establishing these benchmarks, harms were defined as only opioid-related deaths, and were developed in an environment where naloxone was not being distributed. We used a broader definition of opioid-related harms that captured opioid overdoses that presented to a hospital emergency department or resulted in death. This expanded definition accounts for serious harms and near-death events that may be more common in the current North American context, which has both

a more toxic drug supply and ongoing naloxone distribution programs.

Second, we are unable to capture non-fatal overdoses occurring in the community that are treated outside of a hospital setting, and therefore these were not incorporated into our definition of harm. For example, we cannot capture overdoses occurring in Overdose Prevention Sites or treated by emergency services without subsequent transport to hospital. Therefore, we may overestimate naloxone distribution (as a function of overdose rates) in our analysis. However, it is important to note that it is likely that for some of these overdose events, naloxone administration might not have been necessary.

Third, we analyzed the distribution of naloxone kits but could not ascertain how many were used in an overdose and the impact of their use on health outcomes. This is an important area of future research.

Fourth, as of March 2018, there are some instances in which a pharmacist is permitted to dispense more than one naloxone kit to a recipient in a given naloxone claim. For the purposes of this report these would be counted as a single kit. Therefore, this indicator may slightly underestimate the total number of naloxone kits dispensed from pharmacies in Ontario in the last 4 months of the study period.

Finally, we may have double counted overdose events among individuals who presented to the ED with an overdose and subsequently died. However, past work has demonstrated that this is a rare occurrence and would not greatly impact our results.

## Future Research

The ODPRN is currently conducting a qualitative study to understand individuals' experiences accessing naloxone from both pharmacies and community centres in Ontario. In addition, we will be evaluating naloxone distribution more fully, including studies designed to investigate whether programs have been effective in reducing fatal opioid overdoses.

## Conclusions

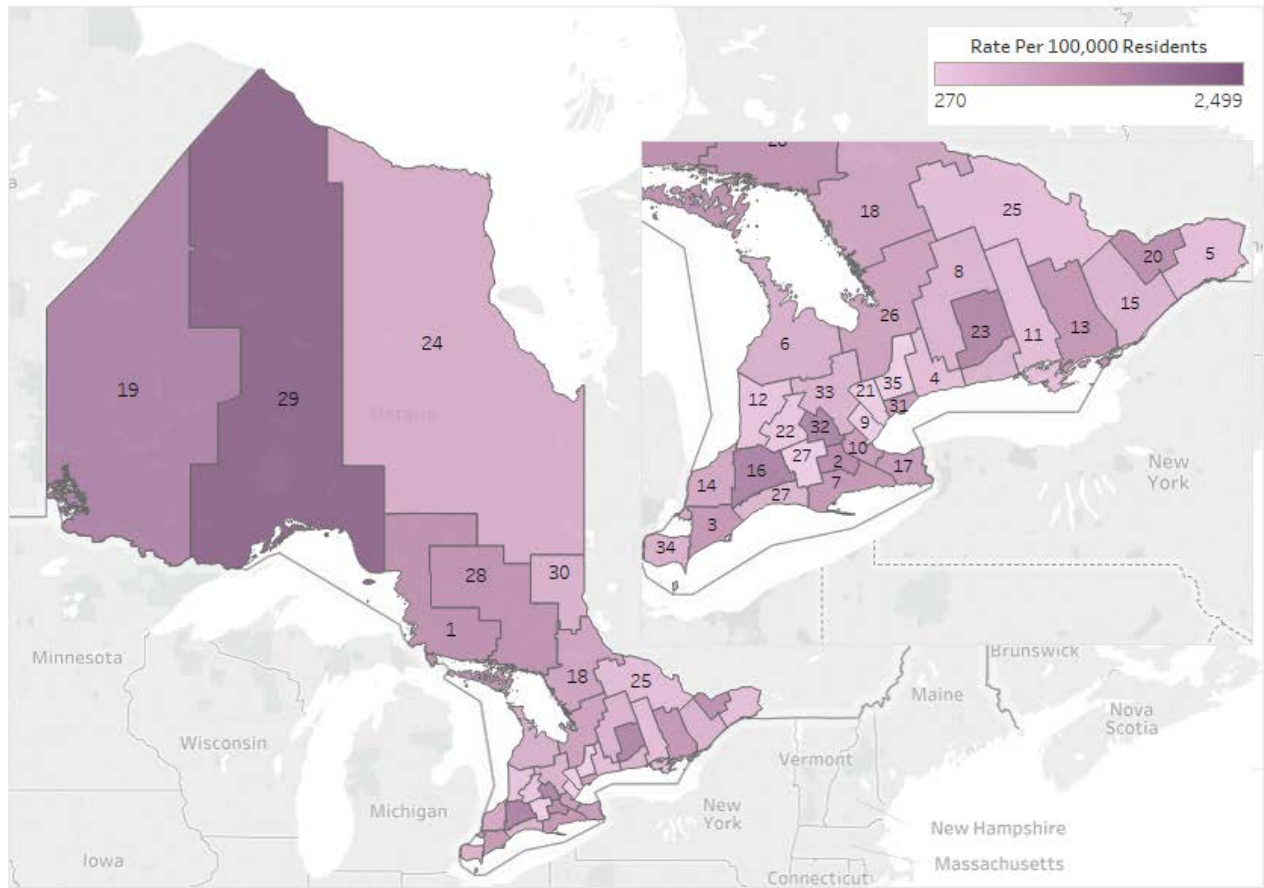
Distribution of naloxone kits in Ontario is considerable and demonstrates that leveraging both pharmacies and regional health units for distribution has the capacity for widespread, provincial distribution. Despite this, the presented benchmarks highlight evidence of varied access across the province, suggesting opportunities for further expansion of naloxone distribution in some jurisdictions. These communities should develop strategies to improve naloxone access that meets their specific challenges and resources, leveraging both the ONP and ONPP to meet these needs. For example, more rural PHUs often exhibited a higher proportion of naloxone distribution through the ONP, suggesting that the use of this mechanism in a region with poorer access to pharmacies may be preferred. Future work is needed to better establish naloxone distribution benchmarks in the current North American opioid context<sup>4-5</sup>.

## References

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# Tables and Figures

**Figure 1: Geographic variation of naloxone distribution by public health unit across Ontario between July 2017 and June 2018**



1	Algoma Public Health Unit	19	Northwestern Health Unit
2	Brant County Health Unit	20	Ottawa Public Health
3	Chatham-Kent Health Unit	21	Peel Public Health
4	Durham Region Health Department	22	Perth District Health Unit
5	Eastern Ontario Health Unit	23	Peterborough Public Health
6	Grey Bruce Health Unit	24	Porcupine Health Unit
7	Haldimand-Norfolk Health Unit	25	Renfrew County and District Health Unit
8	Haliburton, Kawartha, Pine Ridge District Health Unit	26	Simcoe Muskoka District Health Unit
9	Halton Region Health Department	27	Southwestern Public Health
10	Hamilton Public Health Services	28	Sudbury and District Health Unit
11	Hastings and Prince Edward Counties Health Unit	29	Thunder Bay District Health Unit
12	Huron County Health Unit	30	Timiskaming Health Unit
13	Kingston, Frontenac and Lennox & Addington Health Unit	31	Toronto Public Health
14	Lambton Health Unit	32	Region of Waterloo Public Health
15	Leeds, Grenville and Lanark District Health Unit	33	Wellington-Dufferin-Guelph Health Unit
16	Middlesex-London Health Unit	34	Windsor-Essex County Health Unit
17	Niagara Region Public Health Department	35	York Region Public Health
18	North Bay Parry Sound District Health Unit		

**Table 1: Naloxone distribution by public health unit across Ontario between July 2017 and June 2018**

Public Health Unit	Naloxone Distributed through the ONP*	Naloxone Distributed through the ONPP*	Total Naloxone Distributed	Naloxone Originating from Pharmacy (%)	Naloxone Distribution Rate (Per 100,000)
<b>Ontario</b>	<b>55,847</b>	<b>91,456</b>	<b>147,303</b>	<b>62%</b>	<b>1,045</b>
Algoma Public Health Unit	678	1,059	1,737	61%	1,520
Brant County Health Unit	372	1,986	2,358	84%	1,606
Chatham-Kent Health Unit	637	773	1,410	55%	1,358
Durham Region Health Department	458	3,700	4,158	89%	613
Eastern Ontario Health Unit	13	1,238	1,251	99%	603
Grey Bruce Health Unit	574	880	1,454	61%	883
Haldimand-Norfolk Health Unit	352	1,123	1,475	76%	1,351
Haliburton, Kawartha, Pine Ridge District Health Unit	297	1,153	1,450	80%	793
Halton Region Health Department	226	1,580	1,806	87%	309
Hamilton Public Health Services	2,511	4,521	7,032	64%	1,249
Hastings and Prince Edward Counties Health Unit	217	759	976	78%	598
Huron County Health Unit	40	232	272	85%	474
Kingston, Frontenac and Lennox & Addington Health Unit	944	1,920	2,864	67%	1,392
Lambton Health Unit	508	819	1,327	62%	1,026
Leeds, Grenville and Lanark District Health Unit	408	991	1,399	71%	819
Middlesex-London Health Unit	1,862	6,795	8,657	78%	1,813
Niagara Region Public Health Department	1,482	4,404	5,886	75%	1,305
North Bay Parry Sound District Health Unit	524	898	1,422	63%	1,106
Northwestern Health Unit	950	528	1,478	36%	1,833
Ottawa Public Health	2,621	12,530	15,151	83%	1,537
Peel Public Health	914	3,348	4,262	79%	288
Perth District Health Unit	176	162	338	48%	431
Peterborough Public Health	833	1,602	2,435	66%	1,724
Porcupine Health Unit	433	364	797	46%	933
Renfrew County & District Health Unit	82	556	638	87%	600
Simcoe Muskoka District Health Unit	1,027	5,345	6,372	84%	1,142
Southwestern Public Health	274	1,301	1,575	83%	768
Sudbury & District Health Unit	1,235	1,713	2,948	58%	1,480
Thunder Bay District Health Unit	1,514	2,358	3,872	61%	2,499
Timiskaming Health Unit	18	277	295	94%	866
Toronto Public Health	18,368	15,342	33,710	46%	1,162
Region of Waterloo Public Health	4971	4,983	9,954	50%	1,781
Wellington-Dufferin-Guelph Public Health	581	1,713	2,294	75%	792
Windsor-Essex County Health Unit	1,461	1,841	3,302	56%	824
York Region Public Health	560	2,662	3,222	83%	270

\*Ontario Naloxone Program (ONP) and the Ontario Naloxone Program for Pharmacies (ONPP)



**Table 2: Naloxone distribution benchmarks by public health unit across Ontario between July 2017 and June 2018**

Public Health Unit	Total Naloxone Distributed	Opioid-related Harm Event*	Naloxone Kits per Opioid-related Harm Event	Low Distribution Benchmark (%)	High Distribution Benchmark (%)
<b>Ontario</b>	<b>147,303</b>	<b>15,378</b>	<b>9.6</b>	<b>106%</b>	<b>48%</b>
Algoma Public Health Unit	1,737	170	10.2	114%	51%
Brant County Health Unit	2,358	173	13.6	151%	68%
Chatham-Kent Health Unit	1,410	58	24.3	270%	122%
Durham Region Health Department	4,158	476	8.7	97%	44%
Eastern Ontario Health Unit	1,251	75	16.7	185%	83%
Grey Bruce Health Unit	1,454	94	15.5	172%	77%
Haldimand-Norfolk Health Unit	1,475	74	19.9	221%	100%
Haliburton, Kawartha, Pine Ridge District Health Unit	1,450	149	9.7	108%	49%
Halton Region Health Department	1,806	228	7.9	88%	40%
Hamilton Public Health Services	7,032	565	12.4	138%	62%
Hastings and Prince Edward Counties Health Unit	976	99	9.9	110%	49%
Huron County Health Unit	272	16	17.0	189%	85%
Kingston, Frontenac and Lennox & Addington Health Unit	2,864	210	13.6	152%	68%
Lambton Health Unit	1,327	86	15.4	171%	77%
Leeds, Grenville and Lanark District Health Unit	1,399	65	21.5	239%	108%
Middlesex-London Health Unit	8,657	394	22.0	244%	110%
Niagara Region Public Health Department	5,886	691	8.5	95%	43%
North Bay Parry Sound District Health Unit	1,422	95	15.0	166%	75%
Northwestern Health Unit	1,478	46	32.1	357%	161%
Ottawa Public Health	15,151	398	38.1	423%	190%
Peel Public Health	4,262	615	6.9	77%	35%
Perth District Health Unit	338	26	13.0	144%	65%
Peterborough Public Health	2,435	192	12.7	141%	63%
Porcupine Health Unit	797	51	15.6	174%	78%
Renfrew County & District Health Unit	638	58	11.0	122%	55%
Simcoe Muskoka District Health Unit	6,372	529	12.0	134%	60%
Southwestern Public Health	1,575	128	12.3	137%	62%
Sudbury & District Health Unit	2,948	157	18.8	209%	94%
Thunder Bay District Health Unit	3,872	181	21.4	238%	107%
Timiskaming Health Unit	295	22	13.4	149%	67%
Toronto Public Health	33,710	8,117	4.2	46%	21%
Region of Waterloo Public Health	9,954	458	21.7	241%	109%
Wellington-Dufferin-Guelph Public Health	2,294	195	11.8	131%	59%
Windsor-Essex County Health Unit	3,302	225	14.7	163%	73%
York Region Public Health	3,222	262	12.3	137%	61%

\*Opioid-related harm events include emergency department visits and deaths