

**Yes, not now, or never: An analysis of reasons for refusing or accepting emergency department-based take-home naloxone**

Andrew Kestler, MD MBA MScPH <sup>1,2\*</sup>

Amanda Giesler, MHA <sup>3</sup>

Jane Buxton, MBBS MHSc <sup>3,4</sup>

Gray Meckling, BSc <sup>5</sup>

Michelle Lee, BSc MPH MD <sup>6</sup>

Garth Hunte, MD PhD <sup>1,2</sup>

Jacob Wilkins, MD <sup>2</sup>

Dalya Marks, PhD <sup>7</sup>

Frank Scheuermeyer, MD MHSc <sup>1,2</sup>

<sup>1</sup>Department of Emergency Medicine, St Paul's Hospital, Vancouver

<sup>2</sup>Department of Emergency Medicine, University of British Columbia

<sup>3</sup>School of Population and Public Health, University of British Columbia

<sup>4</sup>British Columbia Centre for Disease Control

<sup>5</sup>Faculty of Science, University of British Columbia

<sup>6</sup>Faculty of Medicine, University of British Columbia

<sup>7</sup>London School of Hygiene & Tropical Medicine

\* corresponding author: Andrew Kestler, MD, MBA, MScPH  
Department of Emergency Medicine  
University of British Columbia & St Paul's Hospital  
1081 Burrard St  
Vancouver BC V6Z 1Y6, Canada  
Phone: 604-807-7058 Fax: 604-800-1670  
e-mail: [andrew.kestler@ubc.ca](mailto:andrew.kestler@ubc.ca)

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## **Abstract**

*Objective:* Take-home naloxone (THN) reduces deaths from opioid overdose. To increase THN distribution to at-risk emergency department (ED) patients, we explored reasons for patients' refusing or accepting THN.

*Methods:* In an urban teaching hospital ED, we identified high opioid overdose risk patients according to pre-specified criteria. We offered eligible patients THN and participation in researcher-administered surveys, which inquired about reasons to refuse or accept THN and about THN dispensing location preferences. We analyzed refusal and acceptance reasons in open-ended responses, grouped reasons into categories (absolute versus conditional refusals,) then searched for associations between patient characteristics and reasons.

*Results:* Of 247 patients offered THN, 193 (78.1%) provided reasons for their decision. Of those included, 69 (35.2%) were female, 91 (47.2%) were under age 40, 61 (31.6%) were homeless, 144 (74.6%) reported injection drug use (IDU), and 131 (67.9%) accepted THN. Of 62 patients refusing THN, 19 (30.7%) felt "not at risk" for overdose, while 28 (45.2%) gave conditional refusal reasons: "too sick", "in a rush", or preference to get THN elsewhere. Non-IDU was associated with stating "not at risk," while IDU, homelessness, and age under 40 were associated with conditional refusals. Among acceptances, 86 (65.7%) mentioned saving others as a reason. Most respondents preferred other dispensing locations beside the ED, whether or not they accepted ED THN.

*Conclusion:* ED patients refusing THN felt "not at risk" for overdose or felt their ED visit was not the right time or place for THN. Most accepting THN wanted to save others.

## **Introduction**

In 2016, an unprecedented 2800 Canadians died of opioid overdose (OD),[1] while hospitalization rates and emergency department (ED) visits for opioid OD have increased correspondingly. [2] Take-home naloxone, (THN) consisting of several doses of naloxone, single-use instructions, simple rescue breathing masks, and educational brochures, is a harm reduction intervention for bystander opioid OD reversal. Dispensing THN to at-risk users has reversed over 26,000 OD in the US [3] and decreased opioid-related community death rates. [4] Seven of thirteen Canadian provinces and territories have initiatives to expand take-home naloxone (THN) access and coverage. [2,5]

Since ED visits and non-fatal ODs are markers for subsequent OD mortality, [3,6,7] EDs become an opportune setting to reach those at highest risk. In North America, EDs increasingly dispense THN [8-13] and 70% of ED patients accept THN. [8] While physician barriers to ED-based THN dispensation have been reported, [9,12,14] patient-specific reasons for ED THN acceptance or refusal have not. In non-ED settings, factors contributing to refusals include reluctance to give injections, fear of triggering additional drug use, and inappropriate minimization of OD risk. [15-19] Conversely, patients are motivated to accept THN if they feel they can help others, [17,19,20] if they have had an OD themselves, [18] or if they know a peer with THN. [21]

To improve quality and reach of ED THN distribution and education, it is crucial to gain greater understanding of reasons influencing THN refusal or acceptance in ED patients. We surveyed high-risk ED patients to explore reasons for refusing or accepting THN.

## **Methods**

*Design & Philosophy:* The study is a content analysis of open-ended question responses in a researcher-administered survey of ED patients with both qualitative and quantitative aspects. Quantitative analysis of other survey questions has previously been reported.[8] Descriptive qualitative tools borrowed from grounded theory informed the analysis of open-ended responses, allowing themes to emerge from respondents' own words. [22] Because use of qualitative tools confers some of the risks and benefits of qualitative research, we report methods and results according to the SRQR (Standards for Reporting Qualitative Research) format. [23] Our research philosophy is consistent with post-positivism or pragmatism, [24,25] where we acknowledge and address the subjectivity of the research team. Our design was dictated by the practical need of THN program implementers to quickly solicit "real-world" (during an actual ED visit rather than a planned focus group) patient input that could be used for program evaluation and improvement. Due to time and space constraints of approaching candidates during their ED stay, the survey adopted sampling and analysis strategies that were predetermined and not iterative. For similar reasons, the survey did not contain follow-up questions to open-ended responses. As most open ended-responses were short, a count-based quantitative approach supplemented the use of qualitative tools. To facilitate this quantitative analysis, consensus building and inter-coder agreement were deemed desirable (contrary to qualitative approaches where presenting interpretive disagreements between researchers might enhance the analysis.) Finally, we included some quantitative analysis of previously unreported data from closed-ended questions on feeling respected in the ED and on preferred locations for THN dispensing: We felt these data were complimentary to the

open-ended questions.

*Context:* The study took place at St Paul's Hospital ED in Vancouver, British Columbia.

Many of the 85,000 annual patients have unstable housing, mental illnesses, and substance use disorders, including injection drug use (IDU). The province of British Columbia is home to North America's first officially sanctioned supervised drug injection site [26] and Canada's first provincial THN program.[19] Shortly before the study, the ED became an approved dispensing site for the provincial THN program: ED staff offered THN to at-risk patients and gave standardized THN training lasting approximately 5 minutes. During the study, research assistants (RAs) offered eligible patients THN (as part of the provincial program) and survey participation simultaneously. RAs were non-physicians who had no direct patient care involvement. All RAs had an ED orientation, an introduction to harm reduction principles and an opportunity to pilot the study before beginning study work. Regular ED staff continued to train patients and dispense THN to those interested, regardless of study participation.

*Sampling Strategy:* RAs screened candidates using triage notes and printouts of the last 6 months of the provincial pharmacy database. The following patients were approached: (a) self-reported opioid use at triage or during pre-hospital care, (b) clinical opioid OD or withdrawal, (c) prescriptions of methadone, buprenorphine/naloxone, or other opioids exceeding 100 morphine equivalents daily, (d) injection-related infections, and (e) narcotic requests (defined as the chief complaint including a request for a refill of previous opioid prescription). ED staff could refer additional study candidates to the RAs. RAs invited consecutive eligible patients to participate, and excluded patients too ill, agitated, or sedated to answer study questions or undergo THN training. Those who already had a

THN kit were ineligible. The rationale for selecting a target sample size of 200 was based on the previously reported quantitative outcome-based component of the study.[8]

*Ethics, consent, & permissions:* All participants provided written informed consent, could choose a suitably private ED interview location, and could receive THN regardless of survey participation. Age range, gender, and eligibility criteria met were recorded without personal identifiers for study candidates who declined participation or who met exclusion criteria. The University of British-Columbia-Providence Health Care Research Ethics Board (H14-03430) and the London School of Hygiene & Tropical Medicine (MSc Ethics 8673) approved the study.

*Data Collection:* RAs covered pre-specified 4-to 8-hour shifts in a 2:1 daytime to evening ratio including weekends from May to August 2015, and administered the survey (Appendix)[8] to consenting patients after medical stabilization. RAs asked patients about demographics, substance use, and THN-related preferences, as well as an open-ended question on the reason for accepting or refusing THN. Participants who had difficulty answering open-ended questions were provided with “prompts”: a menu of possible answers (see Appendix) containing themes previously cited in the harm reduction literature and by content experts including patients and addiction specialists. Patients completing the standardized 15 – 20 minute survey received \$10 compensation. RAs entered verbatim (in the patient’s voice) responses into anonymous electronic survey forms (SurveyMonkey.com, Palo Alto, CA.) Responses were later transferred to Excel version 14.7.1 (Microsoft, Redmond, WA) and STATA version 11.0 (StatCorp, College Station, TX) for further analysis. During data collection, RAs regularly communicated with each other and with the study leads to clarify uncertain points or conflicting data.

*Data analysis:* We analyzed open-ended question responses by developing a coding structure for reasons to accept or reject THN. The primary coder was an RA who analyzed the open-ended responses as part of her master's thesis. The primary coder and one senior researcher initially independently coded the same random 20% subset of responses, then met to discuss their coding structure with a qualitative research methodologist to generate consensus for a codebook. The primary coder then applied the codebook to the complete data set, adding additional codes where needed. A secondary coder not involved in the initial coding or interviews analyzed the data using the codebook. The two coders' selections were compared for inter-coder reliability, with full code matching required if a response had more than one code assigned. A discussion between coders, moderated by a senior researcher, generated further consensus, leading to a measure of inter-coder agreement.[27] If disagreement between coders persisted, the senior moderator's chosen code was used for further analysis. [27]. In order to test associations of patient characteristics with specific reasons for THN acceptance or refusal, we classified characteristics by the following pre-specified mutually exclusive subgroups: male/female, IDU/non-IDU, no fixed address (homeless)/fixed address, and age over 40/age under 40. Reasons mentioned in 10% or more of refusals or acceptances were tested for association with patient characteristics. In order to facilitate some quantitative analysis of reasons mentioned by fewer than 10% of respondents, we included these responses into larger, mutually exclusive, binary category groupings by identifying overarching themes. We then tested these categories for association with patient characteristics. Reasons for THN refusal were classified into the categories absolute (not interested in THN at all) or conditional (potentially interested in THN but not desiring it during this ED visit.) Reasons

for THN acceptance were classified into the following categories: either mentioning a desire to help others, or not mentioning this desire. To test for potential confounding, patient characteristics were checked for association with other patient characteristics. We used Fisher's exact test for testing all associations, with  $p = 0.05$  as a threshold for significance. Responses to closed-ended questions on feeling respected in the ED and on THN preferences were analyzed with descriptive statistics only.



## Results

We identified 417 consecutive THN candidates and offered 247 eligible patients THN and survey participation, of whom 193 (78.1%) completed the open-ended questions on THN acceptance and were analyzed. (Figure 1) Participant characteristics, as well as those of patients excluded or refusing participation, are presented in Table 1. Interviewers used at least one prompt for approximately a quarter of the patients. The coding process identified 10 reasons for refusal and 12 reasons for acceptance, which were grouped into mutually exclusive binary response categories. (Table 2) Associations between patient characteristics and types of responses are presented in Table 3. Inter-coder reliability was 74.9% (95% CI 68.7 to 81.0%, N=191 because 2 originally misclassified responses were not included in the calculation) and inter-coder agreement after discussion was 95.3% (95% CI 92.3 to 98.3%, N=191 as above.)

### *Reasons for refusing THN*

Sixty-two patients provided reasons for refusing THN. (Table 3 for all results below unless otherwise mentioned.) *"I'm not at risk"* was the most common, mentioned by 30.7% (95% CI 19.2-42.2%) of patients refusing. IDU patients expressed this reason significantly less frequently than non-IDU patients. Some participants taking prescription opioids gave additional details related to risk perception: *"I'm just not interested. I don't believe I will truly OD because my doc has close eye on my meds."* Other reasons for absolute refusals included *"Encourages abuse," "Would not use," "Uncomfortable with injections," "Done with drugs,"* and passive suicidality. (Table 2) When refusing THN, women endorsed *"Done with drugs"* three times as frequently as men, a statistically significant difference. Of 62 patients refusing THN, 48 (45.2% [95% CI 32.8 to 57.6%]) endorsed the following conditional

reasons: “*Poor timing,*” “*In a rush,*” “*Too sick*” and preference for another location. Patient characteristics significantly associated with conditional refusals were age younger than 40, homelessness, and IDU status.

#### *Reasons for Accepting THN*

“*Save someone else’s life*” was the most common acceptance reason, mentioned by 65.6% (95% CI 57.4 to 73.9%) of patients accepting THN, followed by “*Save my own life*” by 35.1% (95% CI 26.8 to 43.4%), with 22.1% (95% CI 15.0 to 29.2%) of patients stating both reasons. Age under 40 was significantly associated with the “*Save my own life*” reason for accepting THN. One accepting patient also mentioned feelings of potential self-harm: “*Because I’ve thought about suicide by an overdose so it would be safe to have one around in case I change my mind.*” The acceptance category “*for self,*” encompassing all acceptance responses not specifically mentioning the desire to help others, was not associated with any particular patient characteristic. (Table 3)

#### *Preference for other THN distribution locations & feeling respected*

Overall, 155 patients (including those refusing and accepting THN) answered a closed-ended question on THN location preference. Of these, 117 (75.5% [95% CI 68.6 to 82.3%]) preferred non-ED sites. The supervised injection site was the most frequently preferred location for THN distribution, followed by the ED, then in descending order of preference community clinics, family doctors, methadone doctors, pharmacies, and their own apartment buildings. THN location preference was not associated with specific open-ended response reasons for refusing or accepting THN, other than “*Prefers other location.*” Nine patients expressed “*Prefers other location*” as a reason for refusal in open-ended responses, though only one mentioned a specific reason (“*not a hospital fan.*”) Of the overall study

cohort, 36.8% of patients felt inadequately respected in the ED. This lack of respect was not significantly associated with preference for a non-ED THN location, conditional refusals, or refusing THN overall.

## Discussion

In this survey of 193 ED patients at risk of opioid overdose, we identified key reasons for refusal and acceptance of THN. While understanding motivators of THN acceptance is important, understanding barriers is critical: Our findings may help physicians overcome the reluctance of vulnerable ED patients to accept a life-saving intervention.

The most common reason for refusal was feeling “not at risk” for OD. Some patients expressed confidence they would not overdose if taking opioids only as prescribed by their physician, as previously noted in patients on opioids for chronic pain.[19] Unfortunately, patients taking prescription opioids are at increased overdose risk, proportional to increasing opioid doses.[28] Conversely, our IDU patients less frequently mentioned “not at risk” as a reason for refusing THN, suggesting they might be more aware of overdose risk. The reasons “done with drugs” and “encourages abuse” arose in our study population, mirroring concerns elsewhere that THN kits with syringes could increase risky behavior or trigger opioid use relapses. [15-17] Nevertheless, THN program participation has been associated with decreased (rather than increased) high-risk opioid use.[29]

Both patients accepting and refusing THN mentioned thoughts of suicide or not caring whether they overdosed. This is not surprising given the high correlation of opioid use disorder and depression[30] and previously reported associations between opioid overdoses and suicidal ideation, [31] further highlighting the need for integration of addiction and mental health care. Though “not being comfortable with injections” has been noted in other populations, [16] our patients, the majority of whom injected drugs, did not

mention this barrier often.

Conditional refusals are critical as they imply patients who might be ready for THN acceptance, although not during that particular ED encounter. Conditional refusals were associated with younger patients and those experiencing homelessness, although neither characteristic was associated with lower THN acceptance overall.[8] Among specific reasons for conditional refusals, patients cited “too sick,” “in a rush,” and “poor timing,” all previously unreported in community settings. These reasons may not be surprising in an ED setting where patients are acutely ill and do not present specifically seeking harm reduction services. Some previously identified barriers to accepting THN were not directly mentioned by our study population, notably fear of interacting with police and drug-related stigma. [16,19]

The most common motivator for THN acceptance was helping others, reflected in responses about saving other and educating others. This desire is also common in non-ED settings.[17,19,20] Wanting to protect oneself from OD or to generally “feel safer” corroborates with prior quantitative analysis of our study cohort: Those concerned about their own OD risk were more likely to accept THN.[8] One participant mentioned peer influence, a strong driver of THN acceptance elsewhere. [21] The “feels good” reason mentioned by another reminiscent echoes the feeling of personal empowerment cited by other THN research [19,20].

The THN acceptance reasons “did not know where to get one,” “willing to try,” “never had

one,” “lost other kit,” and “supervised injection site crowded” highlight the convenience of ED dispensing. Prior analysis of our study population indicates that 80% of patients felt the ED was indeed a convenient setting for THN. [8] Taken together, these findings further support the concept of the ED as a 24-hour location for patients who might not otherwise have easy THN access.

Preferences for THN dispensing sites have not been previously reported. Even among accepting patients, the community’s supervised injection site was the preferred location. Many factors may play into this preference, including the dislike of hospitals mentioned by one participant. Nevertheless, lack of feeling respect in the ED, previously noted in another marginalized ED population [32], did not appear to play a significant role in patient’s THN location preferences or in their reasons for refusing THN.

Importantly, our findings may encourage ED THN programs to adopt strategies to enhance uptake. ED staff should gently emphasize true OD risk in a non-judgmental manner. Secondly, staff should empower patients by encouraging THN acceptance to help other at-risk peers. For patient convenience, THN needs can be addressed early in the ED stay in parallel with medical management. Even if patients refuse THN in the ED, providers should emphasize the importance of THN kits and encourage patients to discuss it in the community with family, peers, and trusted care providers. The presence of a dedicated nurse, social worker, or other care provider specially trained in addictions treatment in the ED would likely enhance patient receptivity to both THN and other forms of addictions care and harm reduction.

### *Limitations*

Our findings at a single inner-city centre with a high proportion of IDU may be challenging to extrapolate to other settings, but the themes found in our population are congruent with those in non-ED environments. The analysis of open-ended question responses is necessarily limited due to a sampling strategy based on the survey's quantitative design. Traditional qualitative approaches such as iterative interviewing and theory development could have helped clarify responses, explore additional reasons, and assess theme saturation. Social desirability bias may have occurred in the context of compensation for participation, though the candor of responses suggests such bias to be minimal. Lack of interview recording could have allowed RAs to inject their own words into transcriptions. Interviewer prompting could have directed participants' responses in some cases by providing a quick and easy answer rather than one in an authentic patient voice. Some subgroups, especially those involving patients refusing THN, are small and could draw spurious associations or fail to identify correct ones.

### **Conclusion**

ED patients refusing THN either did not feel at risk for OD or did not feel their ED encounter was the right time and place for THN. Most ED patients accepting THN wanted to save others from OD.

## References

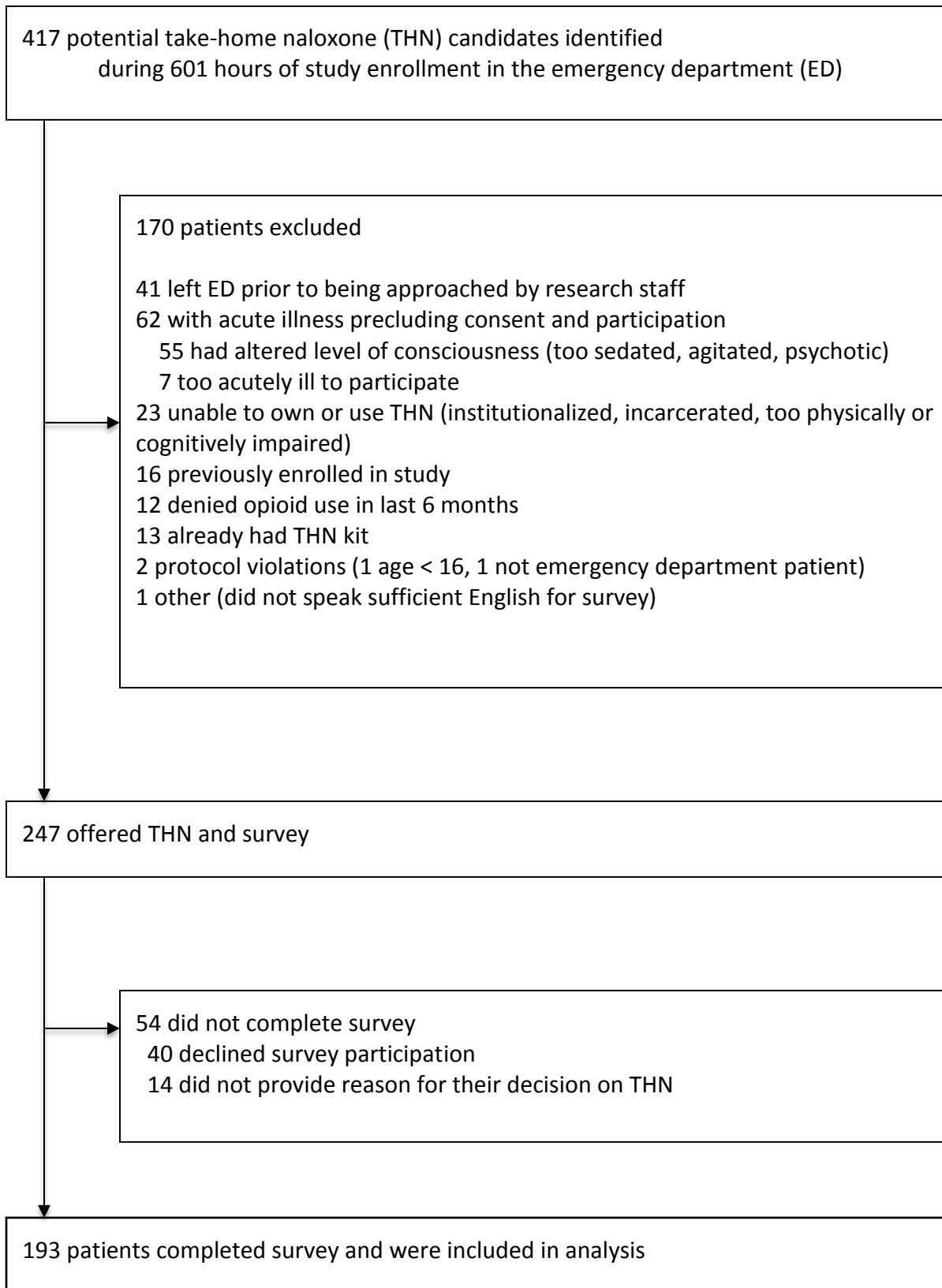
1. Public Health Agency of Canada. Apparent opioid-related deaths in Canada 2016. 2017;
2. Canadian Institute for Health Information Opioid-Related Harms in Canada. Ottawa: CIHI; 2017.
3. Wheeler E, Jones TS, Gilbert MK, Davidson PJ. Opioid Overdose Prevention Programs Providing Naloxone to Laypersons - United States, 2014. *MMWR Morb. Mortal. Wkly. Rep.* 2015;64:631–5.
4. Walley AY, Xuan Z, Hackman HH, Quinn E, Doe-Simkins M, Sorensen-Alawad A, et al. Opioid overdose rates and implementation of overdose education and nasal naloxone distribution in Massachusetts: interrupted time series analysis. *BMJ* 2013;346:f174–4.
5. Canadian Centre on Substance Abuse. The availability of take-home naloxone in Canada. *CCENDU Bulletin* 2016;;1–11.
6. Brady JE, DiMaggio CJ, Keyes KM, Doyle JJ, Richardson LD, Li G. Emergency department utilization and subsequent prescription drug overdose death. *Ann Epidemiol* 2015;25:613–619.e2.
7. Caudarella A, Dong H, Milloy MJ, Kerr T, Wood E, Hayashi K. Non-fatal overdose as a risk factor for subsequent fatal overdose among people who inject drugs. *Drug and Alcohol Dependence* 2016;162:51–5.
8. Kestler A, Buxton J, Meckling G, Giesler A, Lee M, Fuller K, et al. Factors Associated With Participation in an Emergency Department-Based Take-Home Naloxone Program for At-Risk Opioid Users. *Annals of Emergency Medicine* 2017;69:340–6.
9. Samuels EA, Dwyer K, Mello MJ, Baird J, Kellogg AR, Bernstein E. Emergency Department-based Opioid Harm Reduction: Moving Physicians From Willing to Doing. *Acad Emerg Med* 2016;23:455–65.
10. Samuels E. Emergency department naloxone distribution: a Rhode Island department of health, recovery community, and emergency department partnership to reduce opioid overdose deaths. *R I Med J (2013)* 2014;97:38–9.
11. Dwyer K, Walley A, Langlois B, Mitchell P, Nelson K, Cromwell J, et al. Opioid Education and Nasal Naloxone Rescue Kits in the Emergency Department. *WestJEM* 2015;16:381–4.
12. Drainoni M-L, Koppelman EA, Feldman JA, Walley AY, Mitchell PM, Ellison J, et al.



- Why is it so hard to implement change? A qualitative examination of barriers and facilitators to distribution of naloxone for overdose prevention in a safety net environment. *BMC Research Notes* 2016;:1-14.
13. Ellison J, Walley AY, Feldman JA, Bernstein E, Mitchell PM, Koppelman EA, et al. Identifying Patients for Overdose Prevention With ICD-9 Classification in the Emergency Department, Massachusetts, 2013-2014. *Public Health Rep* 2016;131:671-5.
  14. Lacroix L, Thurgur L, Orkin AM, Perry JJ, Stiell IG. Emergency physicians' attitudes and perceived barriers to the implementation of take-home naloxone programs in Canadian emergency departments. *CJEM* 2017;:1-7.
  15. Sondhi A, Ryan G, Day E. Stakeholder perceptions and operational barriers in the training and distribution of take-home naloxone within prisons in England. *Harm Reduct J* 2016;13:1-8.
  16. Black L, Connolly I, Getty M, Hogan C, Lennon P, Mc Cusker M, et al. Poor implementation of naloxone needs to be better understood in order to save lives. *Addiction* 2017;112:911-2.
  17. Wright N, Oldham N, Francis K, Jones L. Homeless drug users' awareness and risk perception of peer 'take home naloxone' use--a qualitative study. *Subst Abuse Treat Prev Policy* 2006;1:28.
  18. Lagu T, Anderson BJ, Stein M. Overdoses among friends: Drug users are willing to administer naloxone to others. *Journal of Substance Abuse Treatment* 2006;30:129-33.
  19. Banjo O, Tzemis D, Al-Qutub D, Amlani A, Kesselring S, Buxton JA. A quantitative and qualitative evaluation of the British Columbia Take Home Naloxone program. *CMAJ Open* 2014;2:E153-61.
  20. Wagner KD, Davidson PJ, Iverson E, Washburn R, Burke E, Kral AH, et al. "I feel like a superhero": the experience of responding to drug overdose among individuals trained in overdose prevention. *International Journal of Drug Policy* 2014;25:157-65.
  21. Wagner KD, Iverson E, Wong CF, Bloom JJ, McNeeley M, Davidson PJ, et al. Personal Social Network Factors Associated with Overdose Prevention Training Participation. *Subst Use Misuse* 2013;48:21-31.
  22. Lingard L, Albert M, Levinson W. Grounded theory, mixed methods, and action research. *BMJ* 2008;337:a567-7.
  23. O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for Reporting Qualitative Research. *Academic Medicine* 2014;89:1245-51.

24. Yvonne Feilzer M. Doing Mixed Methods Research Pragmatically: Implications for the Rediscovery of Pragmatism as a Research Paradigm. *Journal of Mixed Methods Research* 2009;4:6–16.
25. Winit-Watjana W. Research philosophy in pharmacy practice: necessity and relevance. *Int J Pharm Pract* 2016;24:428–36.
26. Kerr T. North America's first supervised injection site opens in Vancouver. *Can HIV AIDS Policy Law Rev* 2003;8:24–5.
27. Campbell JL, Quincy C, Osserman J, Pedersen OK. Coding In-depth Semistructured Interviews: Problems of Unitization and Intercoder Reliability and Agreement. *Sociological Methods & Research* 2013;42:294–320.
28. Bohnert ASB, Valenstein M, Bair MJ, Ganoczy D, McCarthy JF, Ilgen MA, et al. Association between opioid prescribing patterns and opioid overdose-related deaths. *JAMA* 2011;305:1315–21.
29. McDonald R, Strang J. Are take-home naloxone programmes effective? Systematic review utilizing application of the Bradford Hill criteria. *Addiction* 2016;111:1177–87.
30. Goldner EM, Lusted A, Roerecke M, Rehm J, Fischer B. Prevalence of Axis-1 psychiatric (with focus on depression and anxiety) disorder and symptomatology among non-medical prescription opioid user in substance use treatment: systematic review and meta-analyses. *Addict Behav* 2014;39:520–31.
31. Richer I, Bertrand K, Vandermeersch J, Roy É. A prospective cohort study of non-fatal accidental overdose among street youth: The link with suicidal ideation. *Drug Alcohol Rev* 2012;32:398–404.
32. McCormack RP, Hoffman LF, Norman M, Goldfrank LR, Norman EM. Voices of Homeless Alcoholics Who Frequent Bellevue Hospital: A Qualitative Study. *Annals of Emergency Medicine* 2015;65:178–186.e6.

Figure 1: Study flow diagram



**Table 1: Patient Characteristics, including those declining study participation or excluded**

Characteristic	Included N=193		Declined N=54		Excluded N=170		Fisher's exact §
	# (%)	95% CI	# (%)	95% CI	# (%)	95% CI	
<i>Demographics</i>							
Female	69 (35.2)	28.6-42.2	22 (40.7)	27.2-54.3	66 (38.8)	31.4-46.2	
Under age 40	91 (47.2)	40.0-54.3	20 (37.0)	24.1-49.9	84 (49.4)	41.9-56.9	
Indigenous	47 (24.7)	18.5-30.9	--	--	--	--	
Homeless	61 (31.6)	25.0-38.2	--	--	--	--	
<i>Opioid Use</i>							
IDU*	144 (74.6)	68.4-80.8	--	--	--	--	
IDU from triage screening*	85 (44.0)	37.0-51.1	24 (44.4)	30.8-58.1	75 (44.1)	36.6-51.7	
Methadone or Suboxone prescription	86 (44.6)	37.5-51.6	25 (46.3)	32.6-60.0	70 (41.2)	33.8-48.9	
High-dose opioid analgesic prescription**	31 (16.1)	10.8-21.3	8 (14.8)	5.0-24.6	13 (7.6)	3.6-11.7	P=0.040
<i>ED presentation</i>							
Opioid overdose	29 (15.0)	9.9-20.1	16 (29.6)	17.0-42.2	36 (21.2)	15.0-27.4	P=0.043
Other opioid-related chief complaints ***	58 (30.1)	23.5-36.6	12 (22.2)	10.8-33.7	38 (22.4)	16.0-28.7	
Non-opioid-related chief complaints	106 (54.9)	47.8-62.0	26 (48.1)	34.4-61.9	96 (56.5)	48.9-64.0	
<i>Outcome</i>							
Take-home naloxone acceptance	131 (67.9)	61.2-74.5	--	--	--	--	--
<i>ED respect &amp; THN location preferences</i>							
Does not always feel respected in ED	73 (36.8)	29.9-43.7	--	--	--	--	--
Prefers THN dispensing location other than ED#	117 (75.5)	68.6-82.3	--	--	--	--	--
§ difference between three groups significant at 95% level by Fisher's exact test							
*IDU: injection drug use; "IDU from triage screening" refers to IDU reported in triage documents only							
**prescription data obtained from print-out report of last 6 months from provincial pharmacy database							
***other opioid related chief complaints include soft-tissue infection consistent with IDU, withdrawal, and opioid request							
-- data unavailable for patients refusing or excluded							
#N=155							

**Table 2: Participants' reasons codes and categories, with illustrative quotes & frequency**

Code	Reason		Frequency # (%) <sup>§</sup>	Reason Category
	<b>Refusing THN</b>	<b>Illustrative quotes</b>	62 (100.0)	
8	Not at risk	"I know my limit so I don't need a Narcan kit."	19 (30.7)	Absolute
2	Done with drugs	"Right now I'm going to detox and I don't need opioids or anything related to opioids in my life anymore."	11 (17.7)	Absolute
3	Too sick	"I'm not in the best shape right now and I wouldn't want to miss anything important in the training so I'll do it another day"	11 (17.7)	Conditional
6	Prefers other location	"I can also get a kit from work or other places because I know where to go."	9 (14.5)	Conditional
1	In a rush	"I've been here a long time and I want to get going."	6 (9.7)	Conditional
4	Poor timing	"I just got released from the hospital and it's not a good time to take one."	6 (9.7)	Conditional
9	Would not use	"I am not around people who use drugs"	5 (8.1)	Absolute
5	Uncomfortable giving injections	"I wouldn't want to inject someone with a kit - not comfortable doing that."	2 (3.2)	Absolute
7	Encourages abuse	" I feel like these kits would be abused. Gives people an excuse to use more."	2 (3.2)	Absolute
10	Passive suicidality	"I just don't care."	2 (3.2)	Absolute
	Conditional category	Reason based on time and place, mutually exclusive of any response mentioning absolute reason	28 (45.2)	
	<b>Accepting THN</b>	<b>Illustrative quotes</b>	131 (100.0)	
2	Save someone else's life	"My brother is at risk of dying of an overdose and I want to help him."	86 (65.7)	For others
3	Save my own life	"So I don't overdose when I shoot up."	46 (35.1)	For self
1	General safety	"Just in case. To be safe." "It's a good thing to have."	20 (15.3)	For self
8	Willing to try	"Just to try it out." "Why not?"	3 (2.3)	For self
7	Did not know where to get one	"Always thought it would be a good idea to have one but I didn't know where I could go to get one."	1 (0.8)	For self
4	Never had one	"Never had one before and it would be good to have one around."*	1 (0.8)	For self
5	Educate others	"Show people the kits and tell my friends they are available"	1 (0.8)	For others
6	Lost other kit	"Lost my old one and want it just in case I overdose in the future."**	1 (0.8)	For self
10	Supervised injection site crowded	"Insite# is always busy so it would be a good thing to have around."	1 (0.8)	For self
9	Peer impact	"Heard about it and saw someone with a kit."	1 (0.8)	For self
11	Feels good	"Always like having one. Actually feels bad not having one."	1 (0.8)	For self
12	Everyone should have one	"We should all have one. I want one because I need one and everyone should carry it with them."	1 (0.8)	For self
	For self category	Reason not mentioning others, mutually exclusive of any response mentioning desire to help others	44 (33.6)	

<sup>§</sup>Frequency sum greater than 100% because some responses included more than 1 reason

\* Response also counted as acceptance code 1, \*\* Response also counted as acceptance code 3 #Supervised drug injection site

**Table 3: Association of participant's responses with participant characteristics**

<b>Reasons for refusing THN</b>	Female N=16*	Male N=45*	IDU N=38	No IDU N=24	NFA N=18	Not NFA N=44	Age ≥40 N=33	Age <40 N=29
# (%) Participants expressing reason by selected characteristics								
Not at risk	6 (37.5)	13 (28.9)	6** (15.8)	13** (54.2)	3 (16.7)	16 (36.4)	13 (39.4)	6 (20.7)
Done with drugs	6** (37.5)	5** (11.1)	6 (15.8)	5 (20.8)	1 (5.56)	10 (22.7)	7 (21.2)	4 (13.8)
Too sick	3 (18.8)	7 (15.6)	7 (18.4)	4 (16.7)	4 (22.2)	7 (15.9)	4 (12.2)	7 (24.1)
Prefers other location	2 (12.5)	7 (15.6)	7 (18.4)	2 (8.3)	4 (22.2)	5 (11.4)	3 (9.1)	6 (20.7)
Conditional reason category	6 (37.5)	21 (46.7)	22** (57.9)	6** (25.0)	12** (66.7)	16** (36.4)	10** (30.3)	18** (62.1)
<b>Reasons for accepting THN</b>	Female N=52	Male N=79	IDU N=106	Non-IDU N=25	NFA N=43	Non-NFA N=88	Age ≥40 N=69	Age <40 N=62
Save someone else's life	34 (65.4)	52 (65.8)	70 (66.0)	16 (64.0)	26 (60.5)	60 (68.2)	46 (66.7)	40 (64.5)
Save my own life	18 (34.6)	28 (35.4)	36 (34.0)	10 (40.0)	16 (37.2)	30 (34.1)	18** (26.1)	28** (45.2)
General safety	9 (17.3)	11 (13.9)	17 (16.0)	3 (12.0)	7 (16.3)	13 (14.8)	11 (15.9)	9 (14.5)
For self reason category	18 (34.6)	26(32.9)	35 (33.0)	9 (36.0)	17(39.5)	27 (30.7)	23 (33.3)	21 (33.9)
* 1 participant identifying as "other" gender not included in analysis **P<0.05 by Fisher's exact test								
Characteristics from Table 1 not associated with specific reasons for accepting or refusing are not shown: Indigenous, methadone or buprenorphine prescription, high-dose opioid analgesic prescription, and type of ED presentation								
IDU: Injection drug use; NFA: No fixed address (homeless)								
Variables Age < 40, IDU, and NFA were all associated with each other by Fisher's exact test (p<0.05)								