

Impact of Calgary's supervised consumption site on opioid-related emergency health care usage

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Background: Opioid overdoses have been an increasing public health problem in North America for several years. Supervised consumption sites (SCSs) – hygienic and medically supervised spaces to use illicit substances – are one harm reduction strategy intended to decrease morbidity and mortality, with literature suggesting they reduce emergency department (ED) visits, overdoses, and deaths. Calgary's sole SCS opened in 2017 and received over 6000 monthly visits prior to the COVID-19 pandemic, but recent provincial policy has jeopardized its longevity. To our knowledge, there has not been an evaluation of its effectiveness, so we sought to investigate its impact on opioid-related ED visits.

Methods: Calgary's SCS was not implemented in our institution specifically. It was implemented for the Calgary region by *Safeworks*, an outreach program under the Alberta Health Services (AHS) umbrella, after obtaining a Health Canada exemption and funding from the provincial government. Implementation also required close collaboration with public services (e.g., Calgary Police Services) and the municipal government.

The *Safeworks* SCS opened on October 30, 2017 and remains the only supervised consumption facility in the Calgary region. It is currently located in the Sheldon Chumir Health Centre in downtown Calgary. In addition to supervised consumption, the SCS also offers all clients harm reduction supplies (e.g., naloxone kits), health services (e.g., testing and counselling for sexually transmitted infections, referral to Calgary Opioid Dependency Program), education (e.g., vein care), and access to social services (e.g., housing supports).

Evaluation Methods: This was a retrospective observational study examining the impact of the SCS on two markers of opioid related morbidity (EMS responses and ED visits). Calgary EMS responses, wherein the opioid overdose protocol was activated or naloxone was administered, were queried from the Alberta Health Services (AHS) information management database. ED visits due to opioid toxicity were queried from AHS using ICD-10 codes T40.0-T40.4 and T40.6. Data was collected from January 2014 to February 2020. The impact of Calgary's SCS was analyzed with an interrupted time series using ordinary least squares regression with Newey-West standard errors.

Results: Our data query yielded 9208 EMS responses and 8442 ED visits related to opioid use over the 74-month period. There were no months with missing data. Prior to the opening of Calgary's SCS, monthly EMS responses and ED visits increased significantly by 3.69 [3.08, 4.30] and 7.09 [5.92, 8.26] visits/month, respectively ($p < 0.001$). After the SCS' opening, the trends in EMS responses and ED visits declined significantly, relative to the pre-intervention trends, by 7.14 [5.72, 8.56] ($p < 0.001$) and 15.34 [12.21, 18.48] ($p < 0.001$) visits/month,

respectively. After the intervention, EMS responses declined at a rate of 3.45 visits per month ($p < 0.001$) and ED visits declined at a rate of 8.25 visits per month ($p < 0.001$).

Our interrupted time series suggest that Calgary's SCS led to a significant change (and in fact, a reversal) in the trends of opioid-related EMS responses and ED visits. This evidence suggests that ongoing access to Calgary's SCS has a favourable impact.

Advice and Lessons Learned:

1. Similar studies in the future should consider partnering with their local SCSs (e.g., *Safeworks*) to conduct a multi-faceted program evaluation, including organization-driven outcomes. This could also facilitate respectful and ethical patient engagement.
2. Evaluating mortality data or other more direct markers of morbidity in addition to ED visits may be high yield in future research as it provides greater insight into the breadth of medical outcomes and further informs advocacy efforts.
3. Our study did not consider the impacts of other opioid-related interventions in Calgary/Alberta. This was a deliberate choice, however it is ultimately difficult to estimate the impact of an isolated intervention. One option would be to evaluate all relevant interventions as a *group* of interventions, given that substance misuse and associated harms is a multifaceted problem that requires a multidisciplinary approach