The Impact of Substance Use Disorders on Hospital Use

What Is this Report About?

This report:

- Describes trends in individuals hospitalized because of a primary diagnosis of mental and behavioural disorders due to substance use (referred to as substance use disorders or SUDs), from 2006–2011;
- Is the first in Canada to analyze hospital use associated with SUDs, such as number of hospital stays, length of stay and costs, individually by substance rather than as an undifferentiated group, which enables a better understanding of the impact SUDs have on hospitals.

Who Is this Report For?

- Hospital administrators, healthcare professionals and professional associations
- Regional health planners and policy analysts
- Epidemiologists and other researchers
- Treatment and prevention workforce

Why Is this Report Important?

This report provides:

- Information on hospital use trends over time according to substance to identify target areas for the prevention and treatment workforce and to help inform process and system improvements;
- Information to help inform decision making about prevention, education and treatment to reduce both individual harms and system costs;
  An indicator of the harms associated with SUDs that could be used in conjunction with other data (e.g., survey, treatment) to better understand the epidemiology of SUDs in Canada.

> While the number of hospital stays is an indicator of the extent to which individuals with SUDs seek treatment in a hospital setting, days stayed in hospital is an indicator of the extent to which SUDs are responsible for consuming hospital resources.

What Are the Key Findings?

Impact of SUDs on the hospital system

- The numbers presented in this report represent the small proportion of Canadians that required hospitalization for substance use.
- In 2011, approximately 1.2% of all hospital stays involved a primary diagnosis of an SUD, which represents 34,746 stays at a conservative estimate of **$267 million**. These costs have increased by over 22% from approximately $219 million in 2006.
- In 2011, alcohol-related hospitalizations accounted for the majority (54%) of these costs.

Primary substances resulting in hospitalization

- As of 2011, the following psychoactive substances were responsible, in descending order, for consuming the greatest amount of hospital resources:[1]

    - Alcohol
    - Opioids
    - Cannabinoids
    - Cocaine
    - Other Stimulants

- Days spent in hospital due to opioid, cannabinoid and other stimulant-related disorders increased between 2006 and 2011.
- Cocaine dramatically decreased as a cause of hospitalizations between 2006 and 2011.
- Compared to the latter substances, sedatives or hypnotics and hallucinogens or volatile solvents accounted for a negligible amount of hospital resources.

What Do the Key Findings Mean for You?

Hospital administrators, healthcare professionals and professional associations

This report presents data showing the extent to which individuals present to hospital with SUDs and the associated cost. Table 1 indicates the cost associated with hospitalizations for SUDs and shows the potential savings of investments in prevention, early intervention and treatment. Such investments can reduce the harms experienced by individuals thereby preventing the need for hospitalization.

Table 1. Summary of indicators of hospital use attributable to SUDs between 2006 and 2011 by substance

Substance	Hospital stays[a] % Change (2006, 2011)	Days spent in hospital[b] % Change (2006, 2011)	Cost 2006 2011	Notes
Alcohol	15% ↑ (16,996, 19,617)	8% ↑ (173,209, 187,254)	$118 million $145 million	Main increase among males aged 45–64 (29%)
Opioids	23% ↑ (1,495, 1,842)	48% ↑ (12,461, 18,517)	$9 million $15 million	25–44 year olds stayed the most days in hospital and the largest increase occurred among those 65+ (142%)
Cannabinoids	44% ↑ (1,099, 1,582)	39% ↑ (12,321, 17,196)	$9 million $14 million	Main increase in days spent in hospital among those aged 15–24 (40%)
Cocaine	55% ↓ (3,899, 1,737)	48% ↓ (31,263, 16,283)	$23 million $13 million	Main decrease in admissions among those aged 25–44
Other stimulants	39% ↑ (950, 1,324)	63% ↑ (6,625, 10,808)	$5 million $9 million	
All SUDs	11% ↑ (31,437, 34,746)	9% ↑ (309,645, 338,876)	$219 million $267 million	

[a] Percentage change is from 2006 to 2011. Numbers in parentheses are the number of stays in 2006 and in 2011
[b] Percentage change is from 2006 to 2011. Numbers in parentheses are the number of days stayed in hospital in 2006 and in 2011

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1 This ranking excludes those diagnosed with "mental and behavioural disorders due to multiple drug use and use of other psychoactive substances," as this category lacked specificity and was difficult to interpret. For more information, please refer to the technical report.

Epidemiologists and other researchers

This report provides data to help epidemiologists better understand increases, decreases and stable trends in harms associated with psychoactive substance use. Table 2 provides information regarding trends in days stayed in hospital due to SUDs by age group.

Table 2. Days stayed in hospitals due to SUDs among age groups between 2006 and 2011*

Substance	0–14 % Change (2006, 2011)	15–24 % Change (2006, 2011)	25–44 % Change (2006, 2011)	45–64 % Change (2006, 2011)	65+ % Change (2006, 2011)
Alcohol	**	24% ↑ (6,229, 7,696)	17% ↑ (37,112, 43,423)	29% ↑ (71,645, 92,146)	15% ↓ (58,022, 49,652)
Opioids	**	50% ↑ (1,418, 2,124)	30% ↑ (6,594, 8,583)	56% ↑ (3,404, 5,304)	142% ↑ (1,025, 2,481)
Cannabinoids	**	40% ↑ (6,327, 8,824)	28% ↑ (4,752, 6,092)	67% ↑ (1,125, 1,860)	**
Cocaine	**	58% ↓ (5,204, 2,182)	52% ↓ (20,598, 9,984)	27% ↓ (5,413, 3,977)	**

* Analyses exclude newborns.
** Not reported due to low numbers (days stayed for both years < 500).

Treatment and prevention workforce

The most effective way to reduce the impact of SUDs on hospital resources is by preventing the harms associated with SUDs from reaching a level of severity where hospitalization is required. The data summarized in this report provides a better understanding of the demographics of those presenting to hospital because of SUDs with a view to inform those serving individuals with or at risk of developing an SUD.

The greatest reduction in the volume of individuals presenting to hospital with SUDs can be achieved by addressing hospitalizations for alcohol-related disorders. One option is the use of Screening, Brief Intervention, and Referral to Treatment (SBIRT), which assists healthcare professionals in referring individuals to treatment who are unlikely to seek treatment for substance use-related harms or those at risk of such harms (Babor et al., 2007). Given the evidence establishing SBIRT as an effective tool to prevent or reduce the long-term harms of excessive alcohol use (Kahan, Wilson, & Becker, 1995; Reid, Fiellin, & O'Connor, 1999), treatment providers should consider greater use of this intervention.

This report indicates that for opioids, programs targeting those aged 25–44 and those 65 and older could have the greatest impact given their increased rates of hospitalization due to opioid-related disorders. It is reasonable to assume that most opioid-related hospital stays can be attributed to prescription opioids, given the number of Canadians reporting prescription versus illicit opioid use (Health Canada, 2012). However, the proportion misusing prescription opioids as opposed to using their prescribed amount, and the extent to which each is responsible for hospital stays, is unknown.

The younger age of individuals presenting to hospital with cannabinoid-related disorders provides further evidence of the importance of programming targeted at these youth. The prevention workforce could benefit from Canadian Standards for Youth Substance Abuse Prevention and the forthcoming *Youth Substance Abuse Prevention Workforce Competencies*, both produced by the Canadian Centre on Substance Abuse (CCSA).

Strategies and resources offered by CCSA to complement these findings

- *Canada's Low-Risk Alcohol Drinking Guidelines* are evidence-based and identify patterns of use that will reduce acute and long-term harms that may result in hospitalization (Butt et al., 2011).

- Screening, Brief Intervention, and Referral to Treatment: A Clinical Guide

- Increased use and misuse of prescription drugs prompted the development of Canada's prescription drug abuse strategy, *First Do No Harm: Responding to Canada's Prescription Drug Crisis*. This pan-Canadian, 10-year strategy provides actions required to address harms in the areas of prevention, education, treatment, monitoring and surveillance, and enforcement.

- The *National Treatment Indicators Report* captures individuals accessing publicly funded substance use treatment services and, in future, will benefit from the addition of hospital data as a publicly funded treatment indicator. Comparison of the two data sets shows that most Canadians who access services for SUDs do so outside of the hospital system, with the National Treatment Indicators reporting 236,193 episodes[2] in treatment services in 2011, compared to the 34,746 hospital stays attributable to SUDs identified in this report.

Limitations

A limitation of the data set drawn on for this report is that the classification codes do not distinguish between individuals admitted to hospital for SUDs associated with prescription opioids vs illicit opioids or those admitted for SUDs associated with herbal vs synthetic cannabis. Further, this report solely examined individuals admitted to hospital because of a **primary cause of SUD**. The analysis excludes hospital stays in which the patient's condition is indirectly attributable to a SUD. For example, an individual with liver disease attributable to chronic alcohol consumption would be admitted to hospital with a primary diagnosis of liver disease, not an alcohol-related SUD. Similarly, an individual injured in a traffic accident that occurred while impaired after using cannabis is admitted to hospital with an injury as the primary cause, not a SUD related to cannabinoids. Consequently, the numbers presented in this report underestimate the extent to which SUDs impact hospital resources and the magnitude of this underestimation is unknown.

Conclusions and Next Steps

This report is an important contribution to the literature as it provides a first look into the impact that specific SUDs had on Canadian hospitals between 2006 and 2011. The data presented in this report can be used to more effectively prevent the harms of substance use from reaching a level of severity where hospitalization is necessary, by more precisely targeting prevention and treatment efforts when needed.

All Canadians should have access to an evidence-based, comprehensive system of services and supports — from prevention initiatives to specialized services as recommended by the National Treatment Strategy Working Group in 2008. CCSA has developed the *Systems Approach Workbook*, which is a collection of modules to support systems planning for substance use treatment. The varying age, gender and substance use profiles shown in this report emphasize the importance of ensuring that treatment services are targeted to meet the needs of different population groups. Though a system of services might seem costly, this report illustrates the potential value of reducing hospital costs through effective prevention and a continuum of treatment.

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[2] This figure does not include data from Quebec, New Brunswick, the Northwest Territories or Nunavut. An episode refers to admission to a specific treatment service. A person can access several different services or re-enter the same service more than once in a given year and therefore have multiple episodes.

References

Babor, T. F., McRee, B. G., Kassebaum, P. A., Grimaldi, P. L., Ahmed, K., & Bray, J. (2007). Screening, Brief Intervention, and Referral to Treatment (SBIRT): toward a public health approach to the management of substance abuse. *Substance Abuse, 28*(3), 7–30.

Health Canada. (2012). Canadian Alcohol and Drug Use Monitoring Survey (CADUMS). Ottawa, ON: Author.

Kahan, M., Wilson, L., & Becker, L. (1995). Effectiveness of physician-based interventions with problem drinkers: a review. *Canadian Medical Association Journal, 152*(6), 851–859.

National Treatment Strategy Working Group. (2008). *A systems approach to substance use in Canada: Recommendations for a national treatment strategy*. Ottawa, ON: National Framework for Action to Reduce the Harms Associated with Alcohol and Other Drugs and Substances in Canada.

Reid, M. C., Fiellin, D. A., & O'Connor, P. G. (1999). Hazardous and harmful alcohol consumption in primary care. *Archives of Internal Medicine, 159*(15), 1681–1689.

Wilk, A. I., Jensen, N. M., & Havighurst, T. C. (1997). Meta-analysis of randomized control trials addressing brief interventions in heavy alcohol drinkers. *Journal of General Internal Medicine, 12*(5), 274–283.