900,000 Days in Hospital:

The Annual Impact of Smoking, Alcohol, Diet and Physical Activity on Hospital Use in Ontario

Summary

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900,000 Days in Hospital: The Annual Impact of Smoking, Alcohol, Diet and Physical Activity on Hospital Use in Ontario

SUMMARY

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This study was undertaken with support from the Institute for Clinical Evaluative Sciences (ICES) and the Ontario Ministry of Health and Long-Term Care (MOHLTC).

The opinions, results and conclusions included in the report are those of the authors and are independent from the funding sources. No endorsement by ICES or the MOHLTC is intended or should be inferred.

The full report is available at **www.ices.on.ca**

About the Report

From our previous studies, we know that improving health behaviours will result in a substantial improvement in life expectancy and health-adjusted life expectancy. This report seeks to determine whether improving health behaviours will also result in reduced hospitalization.

Objectives

1. To describe the proportion of Ontarians with four behavioural health risks — smoking, unhealthy alcohol consumption, poor diet and physical inactivity — and their hospital use.
2. To calculate the contribution of these behavioural health risks to Ontarians' total hospital bed-days and hospital costs in 2011.

This study examined 79,477 community-dwelling Ontarians who were surveyed regarding their health status between 2001 and 2005. The cohort was followed to calculate five-year use of hospital care attributable to the four behavioural risks. In total, there were 176,000 person-years of follow-up involving 67,500 hospital bed-days.

Definitions

Hospital bed-day: A single measure which combines the number of hospitalizations and total length of hospital stay.

Hospital cost: A daily prorated hospitalization cost derived by multiplying the resource intensity weight associated with a hospitalization by the year-specific cost per weighted case and then dividing the result by the length of the stay.

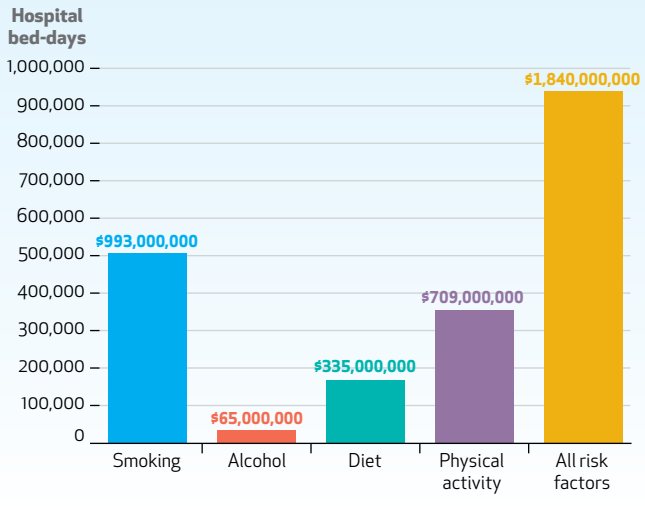
Key Findings

Improving health behaviours in Ontario will result in reduced demand for hospital care.

The Impact of Four Unhealthy Behaviours

- Thirty-two percent of hospital use between 2001 and 2012 was attributed to smoking, unhealthy alcohol consumption, poor diet and physical inactivity. This calculation applies to community-dwelling individuals aged 20 to 79 years who were hospitalized for any condition other than pregnancy and excludes individuals hospitalized in the last year of life.
- In 2011, the health behaviour attribution equalled 942,000 bed-days or $1.8 billion for insured residents of Ontario.
- Nearly all Ontarians reported at least one of the four health behaviour risks; only 7.2% had none.
- People with the unhealthiest behaviour for all four risks required 280% more bed-days than people with the healthiest behaviours; this equates to 42 more bed-days per person.
- A 54-year old Ontarian with the unhealthiest behaviours for all four risks had the same hospital use as a 75-year-old Ontarian with none of the risks.
- Smoking had the greatest impact on hospital use, followed by physical inactivity and poor diet (17%, 12% and 6% of hospitalizations, respectively).
- Ontarians with the lowest family income had 171% more hospital use than people with the highest income. Less than half of this difference was attributed to behavioural risks.

The impact of eliminating smoking, unhealthy alcohol consumption, inadequate diet and physical inactivity on hospital bed-days and costs for Ontario adults aged 20 to 79, 2011



- The study identified five limitations and interpretive cautions that contributed to uncertainty in the reported estimates. In general, the estimates are conservative or underrepresent the true burden of unhealthy living. For example, people aged 80 and over and people living in long-term care facilities were excluded due to difficulties attributing health behaviours to their hospital use. Had these people been included, hospital burden would have increased to approximately 1.7 million bed-days at a cost of $3.1 billion.

Individuals can determine their own risk of hospitalization with a new calculator based on smoking, alcohol consumption, diet and physical activity, and other factors such as age and sex.

www.projectbiglife.ca

Health Behaviour Risks

Behaviour	Category*	Definition
Smoking		
	Heavy smoker	**Current smoker (≥1 pack/day)†**
	Light smoker	Current smoker (<1 pack/day)
	Former heavy smoker	Former smoker (≥1 pack/day)
	Former light smoker	Former smoker (<1 pack/day)
	Non-smoker	*Former occasional smoker or never smoker*
Alcohol		
	Heavy drinker	**Bingeing‡ or >24 (men) or >17 (women) drinks/week**
	Moderate drinker	≤24 (men) or ≤17 (women) drinks/week with no bingeing‡
	Current non-drinker	No alcohol consumption in the last 12 months
Diet		
	Very poor diet	**Index score 0 to <2**
	Fair diet	Index score 2 to <4
	Adequate diet	*Index score 4 to 10*
Physical activity		
	Inactive	**0 to <1.5 METs/day**
	Moderately active	1.5 to <3 METs/day
	Active	*≥3 METs/day*

*Highest risk levels are in boldface and lowest risk levels are in italic.

† One pack contains 20 cigarettes.

‡Bingeing was defined as ≥5 drinks a day on any day in the previous week, or weekly bingeing behaviour in the previous month.

MET: metabolic equivalent of task; a measure of calories burned by type, duration and frequency of physical activity.

Index score: points awarded for the average number of daily servings of fruits and vegetables consumed.

Conclusion

In addition to increasing life expectancy (adding years to life) and quality of life (adding life to years), improving healthy living would also reduce demands for health care.

Our study strongly supports two major Ontario health care initiatives:

- *Make No Little Plans — Ontario's Public Health Sector Strategic Plan*, which challenges us to consider improved health behaviours as an imperative for government and society.

- The Triple Aim provides a framework for guiding the transition from a focus on health care to a focus on optimizing health for individuals and populations by simultaneously pursuing three objectives: improving the patient experience of care; improving the health of populations; and reducing the per capita cost of health care.

Our Organizations

The **Institute for Clinical Evaluative Sciences** is a not-for-profit research institute encompassing a community of research, data and clinical experts, and a secure and accessible array of Ontario's health-related data. ICES evidence supports health policy development and guides changes to the organization and delivery of health care services.

The **Ottawa Hospital Research Institute** (OHRI) is the research arm of The Ottawa Hospital and is an affiliated institute of the University of Ottawa, closely associated with the University's Faculties of Medicine and Health Sciences. The OHRI includes more than 1,700 scientists, clinical investigators, graduate students, postdoctoral fellows and staff conducting research to improve the understanding, prevention, diagnosis and treatment of human disease.