

At A Glance

July/August 2004

Monthly highlights of ICES research findings for stakeholders

Spironolactone use can lead to increased hospitalizations and deaths from high potassium

Juurink D, Mamdani M, Lee D, Kopp A, Austin P, Laupacis A, Redelmeier D. Hyperkalemia in the aftermath of the Randomized Aldactone Evaluation Study. *NEJM*. 2004; 351 (6): 11-19.

Issue	In 1999, the Randomized Aldactone Evaluation Study (RALES) demonstrated that the drug spironolactone substantially improved outcomes for heart failure patients. However, spironolactone can cause life-threatening elevated potassium levels (known as hyperkalemia) if combined with angiotensin-converting-enzyme (ACE) inhibitors. The consequences of this drug interaction at the population level and how RALES may have impacted it are unknown.
Study	Tracked hospital admissions for more than one million Ontarians aged 66 years and older between 1994 and 2001 to examine the impact that RALES had on spironolactone prescribing and outcomes.
Key Findings	The publication of RALES was associated with at least 560 excess hospital admissions for hyperkalemia and 73 excess deaths among older Ontarians receiving ACE inhibitors for heart failure in 2001. From 1994 to 2001, among ACE inhibitor-treated patients with a recent hospital admission for heart failure: <ul style="list-style-type: none">• The rate of spironolactone use increased about fivefold (34/1000 patients to 149/1000 patients).• The hospitalization rate for hyperkalemia rose about threefold (2.5/1000 patients to 11.0/1000 patients).• Mortality from hyperkalemia increased about threefold (0.3/1000 patients to 2.0/1000 patients).
Implications	Spironolactone is still beneficial for many patients with heart failure. However, physicians should consider risk factors for hyperkalemia when selecting patients for spironolactone therapy, minimize the use of other medications that cause hyperkalemia, and closely monitor kidney function and potassium levels after starting patients on this drug.

More hospital beds filled by patients requiring life support

Needham D, Bronskill S, Sibbald W, Pronovost P, Laupacis A. Mechanical ventilation in Ontario, 1992-2000: incidence, survival, and hospital bed utilization of noncardiac surgery adult patients. *Crit Care Med*. 2004; 32 (7): 1504-1509.

Issue	Although the number of patients receiving mechanical ventilation is growing, patterns of use, trends in patient survival, and the economic impact of mechanical ventilation remain poorly understood.
Study	Examined mechanical ventilations of more than 150,000 Ontario hospital patients between 1992 and 2000 to assess annual incidence and hospital bed days used.
Key Findings	By 2000, ventilated patients used 6.25%, or one in 16, hospital bed days, a 30% increase from 1992. As a proportion of total inpatient bed days, the number of ventilation days increased by 69% during the study period. Although the actual number of people requiring mechanical ventilation increased by 9%, after being adjusted for age and gender the increase was 2%.
Implications	These trends in mechanical ventilation can be used in human and capital resource planning to ensure adequate supply for critical care.

More detailed cardiac procedure data needed

Faris P, Grant C, Galbraith D, Gong Y, Ghali W. Diagnostic cardiac catheterization and revascularization rates for coronary heart disease. *Can J Cardiol*. 2004; 20 (4): 391-397.

Issue	There have been no comprehensive Canadian studies of cardiac procedure rates for coronary heart disease.
Study	Surveyed all cardiac catheterization facilities in Canada between 1998 and 2002 to obtain and compare revascularization procedure rates for angioplasty and bypass surgery.
Key Findings	Over the study period, the rate of revascularization increased from 360 to 472 per 100,000 population. There was a marked increase in the rate of angioplasty, but little increase in bypass surgery. Considerable variation in revascularization procedure rates existed across regions and provinces.
Implications	This study provides a basic guide for providers and policy makers across Canada to refer to when considering procedure rate projections and targets. Further, there is a need for more comprehensive cardiac care data in Canada to better understand access and practice pattern issues.

Low number of Ontarians screened for colorectal cancer

Rabeneck L, Paszat L. A population-based estimate of the extent of colorectal cancer screening in Ontario. *Am J Gastroenterol.* 2004; 99 (6): 1141-1144.

Issue	Despite strong evidence demonstrating the effectiveness of colorectal cancer (CRC) screening for individuals 50 years of age and older, there are no population-based estimates available within North America to know how many actually undergo CRC screening.
Study	Identified all Ontario residents aged 50 to 59 years on January 1, 1995 without a previous history of CRC screening. Followed these individuals to December 31, 2000 to determine all CRC screening tests received and the proportion of patients that received one or more test or procedure of each type.
Key Findings	More than 982,000 individuals with no previous CRC screening were identified. The proportion that had at least one test or procedure was less than 10% for each type. The majority (80%) had no test or procedure to screen for CRC.
Implications	Given the high burden of CRC in Canada, a major opportunity exists to improve the health of Canadians by increasing screening efforts.

Certain maternal factors cause developmental disorders in young children

To T, Guttman A, Dick P, Rosenfield J, Parkin P, Tassoudji M, Vydykhan T, Cao H, Harris J. Risk markers for poor developmental attainment in young children: results from a longitudinal national survey. *Arch Pediatr Adolesc Med.* 2004; 158 (7): 643-649.

Issue	Many children with developmental disorders who lack obvious biological risk markers may not receive early identification and intervention. A comprehensive risk profile to identify children with developmental disorders based on biological, social and environmental factors is needed.
Study	Analyzed data from the 1994/1995 and 1996/1997 cycles of the National Longitudinal Survey of Children and Youth on nearly 5,000 children aged 1 to 5 years to identify factors associated with poor developmental attainment (developing unusually slowly).
Key Findings	Factors found to be associated with poor developmental attainment included male sex, maternal depression, low maternal education, maternal immigrant status, and low household income status.
Implications	The risk factors identified in this study provide valuable information to appropriately target and advocate interventions to assist children with developmental disorders.

For more information contact:

Paula McColgan, Director, Policy and External Relations, ICES
(416) 480-6190 or paula.mccolgan@ices.on.ca