

At A Glance

December 2003

Monthly highlights of ICES research findings for stakeholders

Heart disease drug expenditures soar in Canada

Jackevicius C, Tu K, Filate W, Brien S, Tu J, for the Canadian Cardiovascular Outcomes Research Team (CCORT). Trends in cardiovascular drug utilization and drug expenditures in Canada between 1996 and 2001. *Can J Cardiol.* 2003; 19 (12): 1359-1366.

Issue	An aging population, evidence from clinical studies, and rising risk factor levels (i.e. obesity, diabetes, etc.) have led to an increased number of people taking cardiovascular drugs. To date, little research on the utilization and expenditures of these medications has been done.
Study	Examined patterns of drug use and expenditures in Canada, both nationally and by province, for cardiovascular drug classes and individual drugs within classes.
Key Findings	Cardiovascular drug expenditures in Canada have risen 94%, from about \$1.7 billion in 1996 to over \$3.3 billion in 2001. Yearly national drug prescription costs for statins increased over 200% [\$348M to \$1.1B]; ARBs (angiotensin receptor blockers) increased more than 1800% [\$14M to \$275M]; and, ACEIs (angiotensin-converting enzyme inhibitors) increased 84% [\$414M to \$761M]. Drug expenditures were highest in Nova Scotia (\$9.4M/100,000 population) and lowest in British Columbia (\$5.5M/100,000 population).
Implications	The increasing use of cardiovascular drugs is placing a tremendous, perhaps unsustainable, strain on drug budgets. There is a need to ensure that these drugs are being given only to those patients for whom their use is cost-effective (i.e. people at high risk of cardiovascular disease) and reconsider the use of these drugs in low-risk patients for whom these are less cost-effective.

Lower income people with diabetes suffering excessive hospitalizations

Booth G, Hux J. Relationship between avoidable hospitalizations for diabetes mellitus and income level. *Arch Intern Med.* 2003; 163 (1): 101-106.

Issue	In Canada, the relationship between socioeconomic status (SES) and hospital admissions for acute complications of diabetes is unknown.
Study	Analyzed the number of hospitalizations and emergency room visits for hyper- and hypoglycemia (high or low blood sugar) for over 600,000 people with diabetes (1992–1999).
Key Findings	Individuals in the lowest income quintile were 43% more likely to have an avoidable hospitalization (AH) or an emergency department (ED) visit than those in the highest income quintile. For each drop in quintile level (roughly a \$12,000 decrease in household income) the risk of having an AH or ED visit increased by 10%.
Implications	Strategies to reduce the variation across SES groups could include subsidizing the cost of expensive medications, while also increasing awareness of diabetes education programs. Physicians should obtain support for vulnerable populations from diabetes educators and social workers, and consider early referral of these patients to a diabetes specialist.

ACE inhibitors do not cause acute pancreatitis in the elderly

Cheng R, Mamdani M, Jackevicius C, Tu K. Association between ACE inhibitors and acute pancreatitis in the elderly. *Ann Pharmacother.* 2003; 37 (7): 994-998.

Issue	No studies have examined the potential association between angiotensin-converting enzyme inhibitors (ACEI) and acute pancreatitis, despite clinical evidence of ACEI induced pancreatitis.
Study	Tracked acute pancreatitis hospitalization and surgery rates for over 1.4 million Ontario residents 66 years of age and older who started ACEI, warfarin (as a baseline group), or dihydropyridine calcium-channel antagonists (DCCAs) (as a disease control group).
Key Findings	Per 10,000 person-years, the incidence rates of acute pancreatitis were 9.0 for the ACEI group, 7.1 for the DCAA group, and 7.6 for the warfarin group. Relative to warfarin users, neither ACEI users, nor DCAA users were at significantly higher risk of hospitalization for acute pancreatitis or pancreatic surgery.
Implications	Concern of acute pancreatitis should not prevent the use of ACEIs in elderly patients.

High-volume surgeons improve outcomes for patients undergoing certain high-risk procedures

Birkmeyer J, Stukel T, Siewers A, Goodney P, Wennberg D, Lucas F. Surgeon volume and operative mortality in the United States. *N Engl J Med.* 2003; 349 (22): 2117-2127.

Issue	Previous research has shown that hospitals with high annual volumes of certain types of surgical procedures have lower operative death rates than do hospitals where the volume of such surgeries is low. However, few studies have closely examined why high volume hospitals do better and little is known about relationships between hospital volume and surgeon volume in relation to surgical patient death rates.
Study	Examined the relationship between operative mortality and surgeon and hospital volume (both in terms of total procedures performed per year) for over 400,000 U.S. Medicare patients who underwent one of eight cardiovascular or cancer surgeries between 1998 and 1999.
Key Findings	Compared with low-volume surgeons, patients of high volume surgeons had greater survival odds that varied widely according to procedure – from 24% greater for lung resection to nearly 400% greater for pancreatic resection surgery. The role surgeon volume played in explaining the differences in death rates ranged from 100% for aortic valve replacement, to 24% greater for lung cancer surgery. High-volume surgeons' patients had lower death rates even when operated on in low-volume hospitals, while the patients of low-volume surgeons had higher death rates regardless of where they had their surgery.
Implications	Restricting selected high-risk operations to high-volume surgeons, as well as looking for opportunities to improve the quality of surgical care delivered by low-volume surgeons, are strategies that should be considered by hospitals across North America.

Certain patient characteristics can predict risk of stroke or death after carotid endarterectomy

Tu J, Wang H, Bowyer B, Green L, Fang J, Kucey D. Risk factors for death or stroke after carotid endarterectomy: observations from the Ontario Carotid Endarterectomy Registry. *Stroke.* 2003; 34 (11): 2568-2573.

Issue	Despite a dramatic increase in carotid endarterectomy (CEA) as a method of preventing stroke, post-operative stroke or death are still major concerns. Previous research on surgical risk factors has had a number of limitations.
Study	Assessed patient characteristics and 30-day post-operative stroke or death rates for over 6,000 Ontario patients who underwent CEA between 1994 and 1997.
Key Findings	The overall 30-day stroke or death rate after surgery was 6%. The following 5 characteristics were significant predictors of 30-day mortality or stroke: a history of ischemic heart attack or stroke, atrial fibrillation, heart failure, and diabetes.
Implications	These 5 characteristics were combined into a simple risk score that can be used to stratify patients into different risk groups for complications after CEA. Use of the risk score tool may help clinicians counsel patients and contribute to studies "benchmarking" the outcomes of CEA in the community setting.

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