

At A Glance

April 2013

Monthly highlights of ICES research findings for stakeholders

Targeting general hospitals may increase deceased donor organ supply in Ontario

Redelmeier DA, Markel F, Scales DC. Organ donation after death in Ontario: a population-based cohort study. *CMAJ*. 2013 Apr 2 [Epub ahead of print].

Issue	Maximizing available organs for transplantation requires that donors be identified from a wide range of hospitals. What is the difference in deceased organ donation rates between hospitals with clinical programs for transplant recipients and hospitals without these programs?
Study	Compared rates of organ donation for 79,746 patients who died from catastrophic neurological conditions between April 1994 and March 2011 in 56 Ontario acute care hospitals that were categorized as either transplant hospitals or large general hospitals with more than 20 deaths per year.
Key Findings	Of 1,898 patients who became organ donors, 1,118 were from transplant hospitals and 780 from general hospitals. The donor rate at transplant hospitals was almost 4 times that of general hospitals (5.0 vs. 1.4 per 100 deaths). The general hospital shortfall was the equivalent of 121 missed potential donors per year.
Implications	Optimizing organ donation in Ontario requires a greater focus on large general hospitals, as they account for most of the potential donors and missed opportunities for deceased organ donation.

Prescribing of prolonged antibiotic therapy common for long-term care residents

Daneman N, Gruneir A, Bronskill SE, Newman A, Fischer HD, Rochon PA, Anderson GM, Bell CM. Prolonged antibiotic treatment in long-term care: role of the prescriber. *JAMA Intern Med*. 2013; 173(8):673–82.

Issue	Given that most common antibacterial infections can be treated with antibiotic courses of 7 or fewer days, reducing standard treatment durations may serve to curtail antibiotic overuse in long-term care (LTC). Is prescriber practice a predictor of prolonged treatment duration?
Study	Analyzed 66,901 patients aged 66 and older who received a new course of antibiotic treatment in any of 630 LTC facilities in Ontario in 2010. The duration of antibiotic treatment courses was computed for each prescribing physician. Duration was defined as short-term (7 days or less) or long-term (more than 7 days).
Key Findings	Among LTC residents, 74.8% received an antibiotic treatment course, of which 44.9% exceeded 7 days. Among the 2,601 physicians prescribing antibiotics, one-fifth (21.6%) were responsible for four-fifths (79.6%) of long-term treatment courses. The characteristics of residents treated by short- and long-duration prescribers were similar. If long- and average-duration prescribers adopted the profile of short-duration prescribers, total antibiotic days would decrease by 35% and 17%, respectively.
Implications	This work can serve as the basis for the future development of systems-based antimicrobial stewardship interventions that target prescriber preferences. These might include standardized order sheets or audit-and-feedback protocols.

Study identifies predictors of positive outcomes from hip and knee replacements

Hawker GA, Badley EM, Borkhoff CM, Croxford R, Davis AM, Dunn S, Gignac MA, Jaglal SB, Kreder HJ, Sale JE. Which patients are most likely to benefit from total joint arthroplasty? *Arthritis Rheum*. 2013; 65(5):1243–52.

Issue	While demand for joint replacement surgery has increased, physicians lack a set of established criteria to help determine which patients will benefit from surgery and at what point. Which indicators predict a good outcome following total joint arthroplasty (TJA) in patients with hip and/or knee osteoarthritis (OA)?
Study	Recruited 2,411 patients aged 55 or older with hip/knee arthritis in Ontario between 1996 and 1998 and assessed them annually for demographics, troublesome joints, health status, and arthritis severity as scored by the Western Ontario and McMaster Universities (WOMAC) Osteoarthritis Index.
Key Findings	In total, 480 patients had a hip or knee replacement. Of the 202 patients studied, only half (53.5%) reported a significant improvement in pain and mobility after surgery. Four predictors were optimal: pre-TJA WOMAC score, comorbidity, number of troublesome hips/knees and arthritis type. The probability of a good outcome was higher among patients with greater preoperative pain and disability, fewer general health problems, no arthritis outside of the replaced joint, and OA rather than inflammatory arthritis.
Implications	A better understanding of the determinants of a good TJA outcome will enable the development of tools to assist policy makers, patients and clinicians in making recommendations and decisions regarding the provision of TJA.

Use of heart imaging test increasing steadily in Ontario

Blecker S, Bhatia RS, You JJ, Lee DS, Alter DA, Wang JT, Wong HJ, Tu JV. Temporal trends in the utilization of echocardiography in Ontario, 2001 to 2009. *JACC Cardiovasc Imaging*. 2013; 6(4):515–22.

Issue	The use of echocardiography, a heart imaging test, has grown at an extremely high rate in the U.S. and Canada. There is ongoing concern that this growth has been influenced by nonclinical factors, such as fee-for-service incentives, increased availability, duplicate imaging and increased physician reliance on technology. What is the extent of echocardiography use in Ontario?
Study	Analyzed 4,234,166 insurance claims for outpatient echocardiograms performed in Ontario between January 2001 and December 2009. Assessed utilization rates, procedure indications and billing physician specialty.
Key Findings	<ul style="list-style-type: none"> • The number of echocardiograms rose from 345,767 in 2001 to 630,692 in 2009. • Age- and sex-adjusted rates of echocardiography grew from 39.1 per 1,000 persons in 2001 to 59.9 per 1,000 persons in 2009, for an annual rate of increase of 5.5%. • Repeat echocardiograms increased at a rate of 10.6% per year and accounted for 25.3% of all procedures in 2009 compared to 18.5% in 2002. • Billing claims for echocardiograms either lacked an associated diagnosis code or the codes available were insufficiently specific. • The majority (76.9%) of echocardiograms were done by cardiac specialists, who performed 87% more echocardiograms in 2009 compared to 2001. • The total cost of performing echocardiograms in 2009 was approximately \$130 million.
Implications	Although the burden of cardiovascular disease on the Ontario health care system was relatively stable during the study period, significant increases in echocardiography were observed. Opportunities exist to improve the clinical utility of echocardiograms performed in Ontario, including the introduction of an improved diagnostic coding system and better accessibility of echocardiographic images across facilities through a common archiving system that would reduce unnecessary repeat procedures.

Higher strength statins linked to increased risk of kidney damage

Dormuth CR, Hemmelgarn BR, Paterson JM, James MT, Teare GF, Raymond CB, Lafrance JP, Levy A, Garg AX, Ernst P. Use of high potency statins and rates of admission for acute kidney injury: multicenter, retrospective observational analysis of administrative databases. *BMJ*. 2013; 346:f880.

Issue	Statins are widely prescribed to lower blood cholesterol levels. Influenced by clinical trials showing better cardiovascular outcomes with higher potency statins, physicians have begun prescribing them at larger doses or higher strengths. Is there an association between high potency statins and the risk of acute kidney disease?
Study	Analyzed the health records of 2,067,639 residents of Canada, the U.S. and the U.K. who were aged 40 or older and newly treated with statins between January 1997 and April 2008. High potency statin treatment was defined as at least 10 mg of rosuvastatin (marketed as Crestor), at least 20 mg of atorvastatin (Lipitor) and at least 40 mg of simvastatin (Zocor). All other statins were defined as low potency. Hospitalization rates for acute kidney injury were determined.
Key Findings	Of the study participants, 33% were started on high potency statins. These patients were 34% more likely to be hospitalized for acute kidney injury than those who started low potency statins during the first 120 days of treatment. Approximately 1 in 500 patients had to be hospitalized within 2 years of starting low potency statins. Among patients on therapy for 1 to 2 years, those taking higher potency statins were at 15% greater relative risk of kidney injury.
Implications	Prescribers should consider the potential risk when contemplating use of high potency statins in clinical practice, particularly when treatment with a low potency statin is an option. Further studies are needed to determine the biological mechanism linking statins to kidney injury.

ICES is an independent, non-profit organization that conducts research on a broad range of topical issues to enhance the effectiveness of health care for Ontarians. Internationally recognized for its innovative use of population-based health information, ICES research provides evidence to support health policy development and changes to the organization and delivery of health care services.