

At A Glance

August 2011

Monthly highlights of ICES research findings for stakeholders

Study raises doubts about value of heart ultrasound before elective surgery

Wijesundera DN, Beattie WS, Karkouti K, Neuman MD, Austin PC, Laupacis A. Association of echocardiography before major elective non-cardiac surgery with postoperative survival and length of hospital stay: population-based cohort study. *BMJ*. 2011; 342:d3695.

Issue	Echocardiography, which uses sound waves to create an image of the heart, is the most commonly ordered preoperative cardiac test. Is it associated with improved survival or shorter hospital stay after major non-cardiac surgery?
Study	Identified 264,823 Ontario residents aged 40 or older who had elective intermediate to high-risk non-cardiac surgery between April 1999 and March 2008. Of these, 35,498 patients who had an outpatient echocardiogram within 180 days before surgery were matched to a control group of 70,996 untested patients. Mortality (at 30 days and one year) and length of hospital stay were compared in the two groups.
Key Findings	Overall, 40,084 patients (15.1%) had an echocardiogram before surgery. Increases in post-operative mortality in tested vs. untested patients were seen at 30 days (2.0% vs. 1.7%) and one year (7.4% vs. 6.9%). Testing was also associated with an increase in average hospital stay of 0.31 days.
Implications	The relatively common use of echocardiography represents an unnecessary health care cost and may also needlessly delay scheduled surgeries. The findings highlight the need for further research to guide better use of this test.

Ontario's recent immigrants safer drivers than long-term residents: study

Redelmeier DA, Katz D, Lu H, Saposnik G. Roadway crash risks in recent immigrants. *Accid Anal Prev*. 2011; 43(6):2128–33.

Issue	Many presume that new Canadians are accident-prone drivers, dealing with unfamiliar roads and customs and extreme weather conditions. Does the evidence support this characterization?
Study	Matched 965,829 recent immigrants with 3,272,393 long-term residents aged 16–65 and living in Ontario between April 1995 and March 2006 and followed them for at least three years.
Key Findings	Overall, 10,975 individuals were admitted to hospital as drivers involved in a motor vehicle crash; immigrant drivers were 40–50% less likely to be involved in a serious crash than long-term residents. Immigrant drivers' comparative risk of a serious crash was lowest in the years immediately following arrival in Ontario, but differences persisted beyond the fifth and sixth year after immigration. The findings extended to crashes with the highest levels of severity and to adults with the highest levels of income.
Implications	If long-term residents had the same risk profile as recent immigrants, the difference would have saved about 49 lives, 1,000 critical care unit admissions, 2,000 surgeries and 30,000 days in hospital over the study period.

Canada's nonwhite ethnic groups at higher risk for Type 2 diabetes than white counterparts

Chiu M, Austin PC, Manuel DG, Shah BR, Tu JV. Deriving ethnic-specific BMI cutoff points for assessing diabetes risk. *Diabetes Care*. 2011; 34(8):1741–8.

Issue	A body mass index (BMI) of 30 or more is considered to be a key risk factor for diabetes in white populations. Is this BMI an appropriate standard for defining diabetes risk in nonwhite populations?
Study	From population health surveys conducted between 1996 and 2005, identified a multiethnic cohort of 59,824 nondiabetic Ontarians aged 30 or older. Respondents were followed from their survey interview date to the diabetes diagnosis date, death date or March 31, 2009, whichever occurred first.
Key Findings	After adjusting for age, sex, sociodemographic characteristics and BMI, the risk of diabetes was 3.4 times higher among South Asians, 2.0 times higher for blacks and 1.9 times higher for Chinese subjects than for white subjects. The median age at diagnosis was lowest among South Asians (49 years), followed by Chinese (55 years), black (57 years), and white (58 years) persons. For the equivalent incidence rate of diabetes at a BMI of 30 in white persons, the BMI cutoff value for South Asian, Chinese and black persons was 24, 25 and 26, respectively.
Implications	As the proportion of Canada's population that is comprised of visible minority groups increases over time, there is an urgent need for ethnically appropriate diabetes education and screening programs, and for lowering current targets for ideal body weight for nonwhite populations.

ED wait times associated with higher rates of mortality and hospital admission in Ontario

Guttman A, Schull MJ, Vermeulen MJ, Stukel TA. Association between waiting times and short term mortality and hospital admission after departure from emergency department: population based cohort study from Ontario, Canada. *BMJ*. 2011; 342:d2983.

Issue	About 85% of patients who present at an emergency department (ED) go home after their visit. The effect of ED wait times on outcomes for these patients is unknown.
Study	Analyzed outcomes of all patients who attended high-volume EDs (those treating more than 13,324 patients annually) in Ontario from April 2003 to March 2008 but were not admitted; this included patients who were seen and discharged and those who left without being seen. Average length of stay was calculated separately for each ED and ED shift. Adverse events were defined as death or a hospital admission within seven days after leaving the ED.
Key Findings	<ul style="list-style-type: none"> • Overall, 13,934,542 patients were seen and discharged, and 617,011 patients left without being seen. • Patients who were seen during ED shifts in which wait times were longer were more likely to suffer an adverse event. • For high acuity patients with an ED wait time of six or more hours, the risk of death was 79% higher and of hospitalization 95% higher when compared to a wait time of one hour. • Even for low acuity, less sick patients, the relative risk of death was 71% higher and of hospitalization 66% higher for ED shifts that had wait times of six hours or more. • Patients who left the ED without being seen did not have a higher risk of death or need for hospital admission than patients who were seen by an ED physician and discharged home.
Implications	Reducing adverse events attributable to long wait times among patients who go home is probably best achieved by reducing the overall length of stay in EDs for all patients, rather than targeting for review or follow-up those patients who leave without being seen. Further research on patient safety should evaluate whether quality improvement and performance measurement initiatives prioritizing ED wait times result in reductions of adverse events.

Bronchodilators linked to bladder dysfunction in patients with COPD

Stephenson A, Seitz D, Bell CM, Gruneir A, Gershon AS, Austin PC, Fu L, Anderson GM, Rochon PA, Gill SS. Inhaled anticholinergic drug therapy and the risk of acute urinary retention in chronic obstructive pulmonary disease: a population-based study. *Arch Intern Med*. 2011; 171(10):914–20.

Issue	Inhaled anticholinergic medications (IACs) are widely used in the treatment of chronic obstructive pulmonary disease (COPD). Acute urinary retention (AUR) is common in older men with prostatic enlargement and is associated with increased morbidity and mortality. AUR can be precipitated by the use of IACs. What is the risk of AUR in seniors with COPD using IACs?
Study	Followed all individuals aged 66 and older who were added to the Ontario COPD database between April 2003 and March 2009, and matched those who had an emergency department visit, a same-day surgery visit or a hospitalization for AUR with up to five controls.
Key Findings	<ul style="list-style-type: none"> • Of 565,073 individuals with COPD, 9,432 men and 1,806 women developed AUR. • Approximately one in 263 current users of IACs developed AUR over 180 days. Compared with non-users of IACs, users had a significantly increased risk (42%) of hospitalization, ED visits or same-day surgery for AUR. • Individuals at highest risk were men prescribed both short- and long-acting IACs concomitantly (169% higher) and men with benign prostatic hyperplasia (81% higher).
Implications	Physicians should highlight for patients the possible connection between urinary symptoms and inhaled respiratory medication use to ensure that changes in urinary flow are reported. Reliable and comprehensive safety data are needed to determine whether the increasing morbidity and mortality in COPD are due to the underlying disease or are treatment-induced.

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.