Enhancing the effectiveness of health care for Ontarians through research

ICES Institute for Clinical Evaluative Sciences

At A Glance

September 2011

Monthly highlights of ICES research findings for stakeholders

Emergency department triage of heart attack patients improved in Ontario

Atzema CL, Schull MJ, Austin PC, Tu JV. Temporal changes in emergency department triage of patients with acute myocardial infarction and the effect on outcomes. *Am Heart J.* 2011; 162(3):451–9.

Issue In 2000/01, approximately half of patients with acute myocardial infarction (AMI) presenting at an emergency department (ED) in Ontario were given a low-priority triage score. Was this appropriate and how does it compare to more recent findings?

Study Identified 6,605 patients with AMI admitted to 96 Ontario hospitals in 2004/05 and compared them to similar cohorts at those sites in 2000/01 according to the rate of low-priority ED triage (score of 3, 4 or 5), and its effect on the time to diagnosis and therapy, length of hospital stay and mortality.

Key Findings Among patients with AMI, low-priority triage in 2004/05 was less frequent than in the earlier cohort (33.3% vs. 50.3%). In patients with ST-segment elevation myocardial infarction, it was 25.9%, vs. 43.8% previously. Being assigned a low-priority triage score was linked to an increase in median door-to-electrocardiogram and door-to-needle time of 12.2 and 20.7 minutes, respectively, longer than in the earlier cohort (4.4 and 15.1 minutes); and was associated with a longer hospital stay and higher 90-day and one-year morality.

Implications Given that triage is performed on all ED patients, is associated with patient outcomes, and is amenable to improvement, hospital systems should consider adopting a standardized triage system, monitoring ED triage and supporting ongoing systems-level initiatives that could improve it.

One in four Ontario adults will be diagnosed with COPD: study

Gershon AS, Warner L, Cascagnette P, Victor JC, To T. Lifetime risk of developing chronic obstructive pulmonary disease: a longitudinal population study. *Lancet*. 2011; 378(9795):991–6.

Issue Chronic obstructive pulmonary disease (COPD) is a progressive respiratory disease linked to smoking and exposure to air-borne pollutants. Although it is one of the most prevalent and costly chronic diseases, there has never been a comprehensive estimate of the risk of developing COPD in the general population.

Study Identified all Ontario residents aged 35 to 80 who were free of COPD in April 1996 and monitored them until March 2010 for three possible outcomes: diagnosis of COPD by a physician, reached 80 years of age, or death. The cumulative incidence of physician-diagnosed COPD over a lifetime was calculated.

Key Findings A total of 579,466 adults were diagnosed with COPD by a physician over the study period. The lifetime risk of physician-diagnosed COPD for adults aged 35 and older was 27.6% at age 80. The risk was higher in men than in women (29.7% vs. 25.6%), in those living in a rural setting compared with urban areas (32.4% vs. 26.7%), and in those in the lowest versus the highest socioeconomic groups (32.1% vs. 23.0%).

Implications These findings draw attention to the huge burden of COPD on society and can be used to educate the public about the need for resources to combat the disease. They can also be used to support the need for smoking cessation programs and the development of other strategies to optimize COPD care.

Few Ontario women with gestational diabetes receive followup testing for type 2 diabetes

Shah BR, Lipscombe LL, Feig DS, Lowe JM. Missed opportunities for type 2 diabetes testing following gestational diabetes: a population-based cohort study. *BJOG*. 2011 Aug 22 [Epub ahead of print].

Issue Canadian clinical practice guidelines recommend testing women with gestational diabetes mellitus (GDM) between six weeks and six months after delivery to detect the presence of type 2 diabetes. To what extent are these guidelines being followed in Ontario?

Study Identified 47,691 women aged 17 to 49 with GDM who had live births at an Ontario hospital between April 1994 and March 2008, and matched them to similar women without GDM. The type of diabetes test administered up to six months postpartum and the specialty of the ordering physician were determined.

Key Findings Overall, 2.8% of pregnancies were complicated by GDM. Postpartum administration rates of the oral glucose tolerance test (OGTT) increased by approximately 0.8% per year for women with GDM, an increase of 11% from 1994 to 2008. Nonetheless, by the end of the study period, fewer than one in six women with GDM received an OGTT. As expected, postpartum OGTT for women without GDM was uncommon and did not change over time. Virtually all women with GDM had postpartum visits with a family physician or obstetrician; 4.5% had an OGTT ordered by one of these physicians.

Implications Interventions to change test ordering that target family physicians and obstetricians are most likely to increase the proportion of women with GDM who receive postpartum diabetes testing.

Many seniors fail to renew prescriptions after discharge from hospital

Bell CM, Brener SS, Gunraj N, Huo C, Bierman AS, Scales DC, Bajcar J, Zwarenstein M, Urbach DR. Association of ICU or hospital admission with unintentional discontinuation of medications for chronic diseases. *JAMA*. 2011; 306(8):840–7.

Issue At hospital discharge, patients may be susceptible to prescription errors of omission as responsibility shifts from one physician to another. For patients taking medications for chronic diseases, what is the risk of unintentionally discontinuing these drugs after discharge?

Study Analyzed hospitalization and prescription records of all Ontario residents between 1997 and 2009 and identified 396,380 patients aged 66 or older with long-term use of at least one of five medication groups (statins, antiplatelet/anticoagulant agents, levothyroxine, respiratory inhalers and gastric acid suppressants). Patients were stratified into three groups: those admitted to the ICU (n=16,474), those hospitalized without ICU admission (171,438), and a nonhospitalized control group (208,468). Their rates of medication discontinuation at 90 days after hospital discharge were compared.

Key Findings Hospitalized patients had a higher rate of discontinuation across all medication groups compared to the controls. The antiplatelet/anticoagulant group had the highest discontinuation rate (19.4%) of all medication groups. Within that group, 22.8% had an ICU admission and after hospital discharge discontinued their medication, compared to only 11.8% in the control group. ICU admission was associated with an additional risk of discontinuation in 4 of the 5 medication groups versus hospitalizations without ICU admission.

Implications Better interdisciplinary communication that includes primary care physicians and large-scale organizational innovations based on electronic health records are advocated as solutions to improve medication continuity and patient safety.

Cholinesterase inhibitors not linked to postsurgery complications in seniors with dementia

Seitz DP, Gill SS, Gruneir A, Austin PC, Anderson G, Reimer CL, Rochon PA. Effects of cholinesterase inhibitors on postoperative outcomes of older adults with dementia undergoing hip fracture surgery. *Am J Geriatr Psychiatry*. 2011; 19(9):803–13.

Issue Cholinesterase inhibitors (ChEIs), which may provide short-term cognitive improvements in older adults with mild dementia, have been reported to interact with muscle relaxants given during general anesthesia, increasing the risk of postoperative complications. What effect do ChEIs have on outcomes of older adults who have undergone hip fracture surgery?

Study Analyzed all individuals with dementia aged 66 and older who underwent hip fracture surgery between April 2003 and December 2007 in Ontario. Patients were stratified by type of anesthesia used (general or regional; regional does not involve the use of muscle relaxants), residence type (community dwelling or long-term care), and use or nonuse of ChEIs. Mortality and morbidity rates were calculated.

Key Findings Of the 11,787 patients with hip fracture and dementia, 45% received general anesthesia for surgery and 49% resided in long-term care. ChEIs were used by 26% of patients before surgery. High rates of post-operative mortality and complications were observed in both users and non-users of ChEIs in the matched samples. There was no evidence of an increased risk of adverse postoperative outcomes associated with ChEIs for patients receiving general anesthesia.

Implications Poor postoperative outcomes overall reinforce the need to prevent fractures and improve outcomes in older adults with dementia.