At A Glance

June 2012

Monthly highlights of ICES research findings for stakeholders

New decision-support tool helps ED physicians predict risk of death in heart failure patients

Lee DS, Stitt A, Austin PC, Stukel TA, Schull MJ, Chong A, Newton GE, Lee JS, Tu JV. Prediction of heart failure mortality in emergent care: a cohort study. *Ann Intern Med*. 2012; 156(11):767–75.

Issue Despite the substantial resource and economic implications of hospitalizing patients with heart failure, acute care decisions may not be guided by evidence. There is need for a prediction model to guide hospitalization decisions in the emergency department (ED).

Study Studied the data of 12,591 patients who presented at 86 Ontario EDs for heart failure from April 2004 to March 2007 and were either hospitalized or discharged. Derived and validated a 10-factor algorithm (the Emergency Heart Failure Mortality Risk Grade) for 7-day mortality using initial vital signs, clinical and presentation features and readily available laboratory tests.

Key Findings The algorithm showed a high level of discrimination in both the derivation and validation cohorts and accurately predicted the 7-day mortality of both patients who were discharged and those who were hospitalized. The 10 factors significantly associated with a greater likelihood of dying within 7 days were: transportation by emergency medical services, elevated serum troponin, use of metolazone at home, active cancer, potassium level of 4.6 mmol/L or higher, lower triage systolic blood pressure, older age, higher creatinine, reduced oxygen saturation and higher triage heart rate.

Implications This model may be useful in assessing the appropriate setting for the care of patients with acute heart failure. However, symptomatic improvement, ability of the patient to seek follow-up care and social circumstances also should be considered.

Influenza vaccine coverage very low for Ontario children under age two

Campitelli MA, Inoue M, Calzavara AJ, Kwong JC, Guttmann A. Low rates of influenza immunization in young children under Ontario's Universal Influenza Immunization Program. *Pediatrics*. 2012; 129(6):e1421–30.

Issue In 2000, Ontario launched a universal influenza vaccination program that made vaccines freely available to all residents. Little is known about predictors of vaccine administration to young children.

Study Identified over 760,000 infants aged 6–23 months who were born in Ontario hospitals between April 2002 and March 2008 and linked their influenza immunization status (full, partial, none) to infant, physician and maternal characteristics.

Key Findings Physician-administered influenza vaccine coverage of children was very low: full coverage of 4.5–8.5% and partial coverage of 5–10% fell well below the target of 70%. Children with chronic conditions or low birth weight were more likely to be immunized. Maternal influenza immunization, having a pediatrician as a primary caregiver, high visit rates and better continuity of care were all significantly associated with full immunization, whereas measures of social disadvantage were associated with non-immunization.

Implications Interventions to improve influenza vaccine coverage should target both families and physicians. Further research is needed to explore barriers to effective vaccine promotion and delivery.

Antidepressant exposure linked to form of glaucoma in older adults

Seitz DP, Campbell RJ, Bell CM, Gill SS, Gruneir A, Herrmann N, Newman AM, Anderson G, Rochon PA. Short-term exposure to antidepressant drugs and risk of acute angle-closure glaucoma among older adults. *J Clin Psychopharmacol*. 2012; 32(3):403–7.

Issue Acute angle-closure glaucoma (AACG) is an ocular emergency that may be caused by certain medication types. Is there an association between AACG and recent exposure to antidepressant drugs in older adults?

Study Identified 6,470 Ontario adults aged 66 and older with AACG from April 1998 to March 2010, and from prescription drug claims, determined their antidepressant exposure both in the 30 days immediately preceding the diagnosis of AACG and in two control periods (60–90 days and 90–120 days preceding diagnosis). To focus on intermittent drug use, those with more than 180 days of cumulative antidepressant use in the previous year were excluded.

Key Findings The average age of the patients was 74.3 years and 66% were female. Overall, 5.6% of patients were intermittent users of antidepressants in the year preceding AACG. The likelihood of antidepressant exposure in the 30 days immediately preceding AACG was 62%.

Implications Clinicians should remain vigilant for the development of this uncommon but potentially serious adverse event after initiating antidepressant therapy.

Better safe than sorry not always true when it comes to diagnoses

Moynihan R, Doust J, Henry D. Preventing overdiagnosis: how to stop harming the healthy. *BMJ.* 2012; 344:e3502

Issue Evidence is mounting that medicine is harming healthy people through ever earlier detection and ever wider definitions of disease.

Study Identified several examples of overdiagnosis, including:

- Asthma – a Canadian study found that almost 30% of people with the diagnosis did not have asthma, and 66% of those did not require asthma medication or care during follow-up.
- High cholesterol – there are estimates that up to 80% of people with near normal cholesterol who are treated for life may be overdiagnosed.
- Gestational diabetes – an expanded definition classifies almost one in five pregnant women.
- Pulmonary embolism – increased diagnostic sensitivity leads to detection of small emboli, many of which may not require anticoagulant treatment.
- Prostate cancer – the risk that a cancer detected by prostate specific antigen (PSA) testing is overdiagnosed may exceed 60%.

Key Findings Drivers of overdiagnosis include technological changes detecting ever smaller "abnormalities," commercial and professional vested interests, excessively widened definitions of disease, legal incentives that punish underdiagnosis, health system incentives that favour more tests and treatments, cultural beliefs that more is better, and faith in early detection unmodified by its risks.

Implications Resources wasted on unnecessary care can be better spent preventing and treating genuine illness. There is a clear need for more independent disease definition processes free from financial conflicts of interest. Also required is a change to the incentives that reward overdiagnosis.

Richest and poorest people in Toronto hospitalized for different reasons

Murphy K, Glazier R, Wang X, Holton E, Fazli G, Ho M. *Hospital Care For All: An Equity Report on Differences in Household Income Among Patients at Toronto Central Local Health Integration Network (TC LHIN) Hospitals, 2008–2010.* Toronto: CRICH and ICES; 2012.

Issue Inadequate information about patients' socioeconomic status is a major obstacle to planning health care initiatives that eliminate inequities in access to hospital services.

Study Determined household income level for patients admitted to 20 hospitals in the Toronto Central Local Health Integration Network (LHIN) between 2008 and 2010 for major clinical services, including inpatient admission, same-day surgery, emergency department and urgent care visits, and admissions to complex continuing care and rehabilitation.

Key Findings Hospitals fell into three categories: those who treated high- and low-income patients in the same numbers (St. Michael's, University Health Network); those who treated mainly low-income patients (St. Joseph's, Toronto East General); and those who treated mainly high-income patients (Mount Sinai, Sunnybrook). In all of the hospitals, middle-income patients were admitted the least. Other findings:

- At almost every hospital, surgical patients had higher incomes than medical patients.
- High-income patients were more likely than low-income patients to have same-day surgery.
- At almost every hospital, more low-income patients than high-income patients were admitted for mental health services.
- Patients designated as waiting for alternate level of care, meaning they occupied an acute hospital bed but did not require the intensity of services/resources provided in that setting, were more likely to have low incomes. In most of the hospitals, alternate level of care patients had lower incomes than the hospital's overall patient population.
- Overall, more low-income patients visited emergency departments for non-urgent reasons than did high-income patients.

Implications These findings will help guide the development and evaluation of equity-focused health care services within and across hospitals. Homeless patients were not accounted for in this study; strategies to document their hospitalization patterns need to be standardized across all hospitals.

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.