# At A Glance

November 2010

***Monthly highlights of ICES research findings for stakeholders***

## After heart failure, outpatients better off if they see both their family doctor and a specialist

Lee D, Stukel T, Austin P, Alter D, Schull M, You J, Chong A, Henry D, Tu J. Improved outcomes with early collaborative care of ambulatory heart failure patients discharged from the emergency department. *Circulation.* 2010; 122(18):1806–14.

**Issue**

Does the type of physician care received after an emergency department (ED) visit for heart failure affect patient outcomes?

**Study**

Examined the care and outcomes of 10,599 patients in Ontario who visited an ED for heart failure and were discharged without hospital admission between April 2004 and March 2007. Patients were subdivided into four groups according to discharge care: no physician visit (n=1,990), primary care only (6,596), cardiologist only (535), and collaborative care including a primary care (PC) physician and a cardiologist (1,478). Outcomes measured included death and hospitalizations or repeat ED visits for heart failure within one year.

**Key Findings**

- One in three patients who visited an ED with heart failure symptoms was discharged home without hospitalization, and the care that they received after discharge from the ED varied widely.
- About one in five patients (19%) did not see any physician within 30 days of ED discharge despite the seriousness of heart failure; these patients had the highest rates of death, repeat ED visits and hospitalizations.
- Collaborative care patients had the lowest rates of death, repeat ED visits and hospitalizations, compared to those who were seen by either a PC physician or a cardiologist alone.
- Collaborative care patients were more likely to undergo assessment of left ventricular function (57.4% vs. 28.7%), noninvasive stress testing (20.1% vs. 7.8%) and cardiac catheterization (11.6% vs. 2.7%), compared with patients being treated by a PC physician alone.
- Collaborative care patients were also more likely to be treated with ACE inhibitors (58.8% vs. 54.6%), angiotensin receptor blockers (22.7% vs. 18.1%) and beta-blockers (63.4% vs. 48.0%) than PC-only patients.

**Implications**

Patients discharged from the ED for heart failure are vulnerable to recurrent events and death, and are often left to navigate the healthcare system with variable degrees of medical guidance. These patients should be provided with a follow-up option that includes a cardiac specialist in conjunction with primary care, or a comparable variant of care.

## Higher stroke case fatality in patients admitted to hospital on weekends

Fang J, Saposnik G, Silver F, Kapral M, for the Investigators of the Registry of the Canadian Stroke Network. Association between weekend hospital presentation and stroke fatality. *Neurology*. 2010; 75(18):1589–96.

**Issue**

Processes and outcomes of care for patients acutely treated on weekends have been shown to be inferior. Is this the case for stroke where many specialized services are required?

**Study**

Followed 20,657 consecutive patients with acute stroke or transient ischemic attack (TIA) seen in the emergency department (ED) or admitted to hospital at 11 stroke centres in Ontario between July 2003 and March 2008. In-hospital stroke care and seven-day mortality rates were compared between patients seen on weekends and weekdays.

**Key Findings**

As compared to those seen on weekdays, patients seen on weekends:

- were slightly older, more likely to be transported to hospital by ambulance, had a shorter time from stroke onset to hospital arrival and were more likely to have a moderate or severe stroke rather than a mild stroke.
- were more likely to receive thrombolysis (14.7% vs. 12.5%) and had a shorter time from ED arrival to neuroimaging (91 minutes vs. 110 minutes); they were similarly likely to undergo neuroimaging or dysphagia screening or be admitted to a stroke unit.
- had a higher mortality rate at seven days after stroke or TIA (8.1% vs. 7.0%), even after adjusting for age, sex, stroke severity and other medical conditions.

**Implications**

Outcomes for stroke were inferior for patients treated on weekends, despite a similar quality of care for the indicators examined. It is likely that the data available do not reflect the overall quality of care delivered on weekends vs. weekdays. These findings do not negate the need for initiatives aimed at improved staffing and access to resources on weekends and off hours.

## Rural living associated with higher pediatric appendectomy rates in Ontario

To T, Langer J. Does access to care affect outcomes of appendicitis in children? A population-based cohort study. *BMC Health Serv.* 2010; 10:250.

**Issue** Is there an association between sociodemographic factors and access to health care among children undergoing surgery for appendicitis in Ontario?

**Study** Used Ontario hospital discharge data from April 1992 to March 2000 to calculate appendectomy rates in children aged less than 19 years. Regional variations in those rates were correlated with socio-demographic indicators (including availability of surgeons and ultrasound use). Appendectomies were categorized as positive (evidence of appendicitis or perforation) or negative (no appendicitis).

**Key Findings** The positive appendectomy rate was stable from 1993 to 2000 with an average rate of 93.2 per 100,000 children; the negative appendectomy rate declined between 1994 and 2000, from 16.0 to 10.2 per 100,000 children. There was a four-fold regional variation in negative appendectomy with the highest rate of 26.0 per 100,000 children in the northern regions of Ontario. Areas with higher abdominal ultrasound use were associated with a lower risk of perforated appendectomy. After adjusting for demographic factors (income, education, language, immigrant status), rural living was the single significant factor associated with a higher chance of negative or perforated appendectomy.

**Implications** Geographical distance to available health facilities, ultrasound use and surgeons, rather than socioeconomic status of the patient or family, most strongly influences timely diagnosis and treatment of acute appendicitis. Complex barriers to health care persist in rural communities.

## Proportion of Ontario seniors taking more than 10 medications triples in 10 years

Bajcar J, Wang L, Moineddin R, Nie J, Tracy S, Upshur R. From pharmaco-therapy to pharmaco-prevention: trends in prescribing to older adults in Ontario, Canada, 1997–2006. *BMC Fam Pract.* 2010; 11:75.

**Issue** What are the trends in medication prescribing to Ontario seniors by family physicians?

**Study** Analyzed prescription claims of all eligible Ontarians aged 65 and older between January 1997 and December 2006.

**Key Findings** Over the 10 years, prescription claims by seniors increased by 214%, far exceeding their 18.5% growth in the population. The steepest increases were for preventive therapies: medications for preventing osteoporosis increased 2,347% and lipid-lowering agents used to prevent cardiovascular disease increased 697%. Prescription claims for symptom-based medications declined. The average number of claims per person was 3.2 in 1997 and 9.5 in 2006. The proportion of seniors prescribed 4 to 9 classes of medications increased by 34%; those prescribed 10 or more classes increased by 188%.

**Implications** These findings raise important questions about quality of care, patient safety and cost sustainability. Further research is urgently needed on the health outcomes (both beneficial and harmful) associated with these dramatic increases in prescribing rates.

## Acid suppressants not linked to increased risk of postoperative pneumonia in the elderly

Redelmeier D, McAlister F, Kandel C, Lu H, Daneman N. Postoperative pneumonia in elderly patients receiving acid suppressants: a retrospective cohort analysis. *BMJ.* 2010; 340:c2608.

**Issue** The use of gastrointestinal acid suppressants has been linked to bacterial overgrowth in the stomach. Is the use of these agents associated with postoperative pneumonia in the elderly?

**Study** Identified 593,265 patients aged 66 or older admitted to Canadian acute care hospitals for elective surgery between April 1992 and March 2008. Inpatient charts were examined for the presence of post-operative pneumonia and linked to patients with two or more prescriptions for acid suppressants in the year before surgery.

**Key Findings** Approximately 21% of patients were taking an acid suppressant before surgery. Overall, 6,389 patients developed postoperative pneumonia, with a rate significantly higher for those taking acid suppressants (13 per 1,000 patients) than those not (10 per 1,000). After adjusting for patient and surgical characteristics (age, sex, type of surgery, duration of anesthesia, chronic lung disease, prior pneumonia and hypoalbuminemia), acid suppressants were not associated with an increased risk of postoperative pneumonia. Findings were consistent across different drug classes and doses of acid suppressants.

**Implications** Minimizing a patient's risk of postoperative pneumonia might be better prioritized through focusing on smoking cessation, optimizing nutrition, reducing psychoactive medications, prompt discontinuation of nasogastric tubes, chest expansion manoeuvres, and other opportunities for protecting the respiratory tract around the time of an operation.

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