At A Glance

January 2012

Monthly highlights of ICES research findings for stakeholders

Serious reactions to measles, mumps and rubella vaccine uncommon: study

Wilson K, Hawken S, Kwong JC, Deeks S, Crowcroft NS, van Walraven C, Potter BK, Chakraborty P, Keelan J, Pluscauskas M, Manuel D. Adverse events following 12 and 18 month vaccinations: a population-based, self-controlled case series analysis. *PLoS One*. 2011; 6(12):e27897.

Issue Measles, mumps and rubella (MMR) are highly contagious and can cause serious illness or death. In Ontario, the MMR vaccine is administered at age 12 months with a booster at 18 months. The vaccine has the potential to cause mild reactions (fever and rashes) one to two weeks following vaccination. What is the risk of serious adverse events with these vaccinations?

Study Examined 271,495 12-month vaccinations and 184,312 18-month vaccinations of children born from April 2006 to March 2009. Determined the incidence of emergency room visits or hospitalizations in one-day intervals following vaccination. These were compared to a control period 20 to 28 days later.

Key Findings Four to 12 days after the 12-month vaccination, children were 1.33 times more likely to visit the ER or be hospitalized compared to the control period. This represented at least one excess event for every 168 children vaccinated. Ten to 12 days after the 18-month vaccination, the incidence rate was 1.25 times more than for the control period, representing at least one excess event for every 730 children vaccinated. None of the children treated at ERs required hospitalization and none died from side effects.

Implications The increase in ER visits could be a result of insufficient information being provided to parents who may not expect their child to develop a reaction a week after vaccination. Further studies should attempt to predict which children develop post-vaccination reactions and whether these events could be prevented.

Majority of asthma sufferers have active disease with lengthy periods of remission

Gershon A, Guan J, Victor JC, Wang C, To T. The course of asthma activity: a population study. *J Allergy Clin Immunol.* 2011 Dec 17 [Epub ahead of print].

Issue Asthma is a chronic respiratory disease known to persist, resolve and/or present with remissions and relapses, making its prognosis difficult to predict. What proportion of patients experience significant gaps in asthma activity? What patient factors are linked to asthma activity?

Study Identified 613,394 Ontarians with asthma as of April 1, 1994, and followed them until they left the province, died or March 31, 2009. Determined which of these individuals had one or more physician claims for asthma over the 15 years and of these, which had a gap of two or more years in asthma activity.

Key Findings In total, 504,851 individuals (82.3%) had active asthma. Of those who had complete follow-up, 314,167 (74.6%) experienced a gap of two or more years in physician claims and the remainder had persistent asthma. Females were more likely than males to have longer gaps between episodes, as were middle-aged adults and those without chronic obstructive pulmonary disease.

Implications These findings offer some insight into the course of asthma activity and support the hypothesis that once a person has asthma, he or she will have it for life. Further study is needed to confirm these results by using detailed clinical data so that asthma patients and their health care providers can actively predict and manage the disease.

Preoperative consultation rates vary widely among Ontario hospitals

Wijeysundera DN, Austin PC, Beattie WS, Hux JM, Laupacis A. Variation in the practice of preoperative medical consultation for major elective noncardiac surgery: a population-based study. *Anesthesiology*. 2012; 116(1):25–34.

Issue The preoperative medical consultation may be an opportunity to optimize factors associated with pre-existing medical conditions and begin interventions to reduce surgical risk. What factors determine whether patients undergo consultation and how does this vary by hospital?

Study Reviewed health records of 204,819 patients aged 40 and older who had major elective noncardiac surgery at 79 Ontario hospitals from April 2004 to February 2009, and identified patient- and hospital-level predictors of consultation.

Key Findings In total, 38.1% of patients had a preoperative consultation. They were typically older patients with increased burdens of co-morbid disease who had surgery at teaching or higher-volume hospitals. Rates of hospital consultation ranged from 10 to 897 per 1,000 procedures; this variation was not explained by medical comorbidities, operative risk, hospital teaching status or surgical procedure volume.

Implications The large inter-hospital variability suggests that local hospital factors play a large role in the use of preoperative consultation. Further research is needed to better understand the basis for hospital variation and to determine which patients benefit most from the practice.

Stroke patients receiving more inpatient services have reduced mortality from pneumonia

Finlayson O, Kapral M, Hall R, Asllani E, Selden D, Saposnik G, on behalf of the investigators of the Registry of the Canadian Stroke Network and the Stroke Outcome Research Canada Working Group. Risk factors, inpatient care, and outcomes of pneumonia after ischemic stroke. *Neurology*. 2011; 77(14):1338-45.

Issue Pneumonia is the most common medical complication after stroke. What risk factors and comorbid conditions are associated with the development of pneumonia after stroke and what impact does pneumonia have on stroke outcomes?

Study Analyzed 8,251 patients over 18 years of age admitted to regional stroke centres in Ontario within 72 hours of onset of ischemic stroke from July 2003 to March 2007. Identified those who developed pneumonia within 30 days of admission and computed mortality at 7, 30 and 365 days post-stroke, controlling for a range of clinical measures. Type of stroke care was assessed.

Key Findings Pneumonia was observed in 7.1% of patients within 30 days of stroke. The majority of pneumonia cases (97.3%) occurred during hospitalization with the remainder occurring after discharge.. Pneumonia was associated with poor functional outcome and increased 30-day and 1-year, but not 7-day, mortality. Older age, dysphagia, male gender, stroke severity, preadmission dependency, and comorbid conditions (coronary artery disease and chronic obstructive pulmonary disease) were independent predictors of pneumonia. Patients who received more inpatient stroke services (occupational therapy, physiotherapy, stroke team assessment or stroke unit admission) had reduced mortality after pneumonia.

Implications These findings show that some factors associated with pneumonia are not attributable to processes of care but rather related to non-modifiable factors such as age, stroke severity and subtype, and preexisting comorbid conditions. However, care delivery was also a factor, and a better understanding of the risk factors and early outcomes of stroke-associated pneumonia may guide organized stroke care provision.

Transitions between health care settings present risks for older adults

Gruneir A, Bronskill S, Bell C, Gill S, Schull M, Ma X, Anderson G, Rochon PA. Recent health care transitions and emergency department use by chronic long-term care residents: a population-based cohort study. *J Am Med Dir Assoc*. 2011 Nov 5 [Epub ahead of print].

Issue For older adults, important health consequences are associated with transitions between health care settings. Transfer to the emergency department (ED) is an adverse event that can act as a signal for critical gaps in care during these transitions. What is the risk of ED transfer for these two transition types: initial admission into long-term care (LTC), and discharge from an acute care hospital?

Study Identified all Ontario LTC residents aged 66 and older on the day of the 2005 facility census (baseline) and categorized them as one of: newly admitted (30 days or less), shorter-stay (31–90 days) or longer-stay (91 days or more). Within each group, residents were further sub-divided based on having had a recent discharge from hospital. Residents were followed until first ED transfer, direct hospital admission, death or end of follow-up (180 days).

Key Findings Of 64,589 LTC residents, 3.0% were newly admitted, 4.9% were shorter-stay and 92.1% were longer-stay. The cumulative incidence of first ED transfer at six months was 35.0% for the newly admitted, 30.7% for the shorter-stay and 22.0% for the longer-stay. Regardless of time since LTC admission, residents with a recent discharge from hospital had a cumulative incidence of nearly 40% and an increase in the odds of ED transfer of at least 50% compared with those who had not been in hospital.

Implications These findings suggest that opportunities to improve the transitional process into LTC, particularly those from hospital, need to be identified. Policy interventions may need to include options such as implementation of standardized post-transition protocols and funding practices that account for the distinct needs of residents newly transferred from the community and hospital settings. Development of quality indicators that describe transitional care may be another policy lever to improve this process.