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CMAJ headlines:

- Hospital harms total \$1 billion for health care system in Ontario in fiscal year 2015/16**
- Managing ovarian cancer in women with *BRCA1/2* genetic variants**

Hospital harms total \$1 billion for health care system in Ontario in fiscal year 2015/16

Experiencing harm in hospital significantly increases the length of stay, length of recovery after discharge and health system costs, which amounted to more than \$1 billion in Ontario in fiscal year 2015/16, according to new research in CMAJ (Canadian Medical Association Journal).

“We were able to estimate, for the first time, the total health system impact of hospital harm in Ontario,” says Lauren Tessier, PhD student, Institute of Health Policy, Management and Evaluation, University of Toronto, Toronto, Ontario. “This amounted to more than \$1 billion in 2017 Canadian dollars and 407,696 acute hospital days — equivalent to a 1117-bed hospital operating at 100% capacity every day for a year.”

Using new hospital harm methodology developed by the Canadian Institute for Health Information (CIHI) to measure adverse events, the study provides useful information on the total cost to the health care system from a harm experienced in hospital as well as subsequent health care usage. Researchers used person-centred episodes of care (PCEs) to look at the entire use of health care services, from the adverse event in hospital through all related hospital and post-discharge care until an individual had returned to the community and was stabilized for 30 days without any further admissions. They looked at harm in four categories: health care/medication, infection, patient accidents and hospital procedures.

“The PCE methodology enables all acute and post-acute care, including hospital, physician, pharmacy and home care readmissions, to be captured in the episode of care — an important advance, as many studies on the costs of adverse events have treated readmissions as initial admissions, leading to bias,” says Tessier.

The study included 610 979 patients aged 18 to 105 years in Ontario who had an acute hospital admission between April 2015 and March 2016. Of all patients in the study, 36,004 (6%) experienced a harm during their first hospital admission during that period. The most common harm was in the health care/medication-associated conditions

category, making up half (50%) of all harms. The additional length of stay for patients who experienced hospital harm ranged from 0.4 days (pregnancy PCE) to 24 days (mental health PCE). Costs ranged from \$800 (pregnancy PCE) to \$51,067 for an unplanned surgical PCE.

“Our finding that hospital harm significantly increases length of PCE is a novel contribution to the literature, as the PCE methodology has only recently been developed,” says Tessier.

In a linked commentary, Drs. Lauren Lapointe-Shaw and Chaim Bell, internal medicine specialists, University of Toronto, Toronto, Ontario, write, “The linked study will benefit policy-makers in several ways: the authors have clarified the costs of adverse events in Canada, provided a baseline from which to assess changes over time, quantified the investment that could be justified to prevent adverse events and offered estimates to be used in economic evaluations of future interventions. Because most interventions target a particular condition, costing by type of adverse event would be a valuable addition. The substantial costs of adverse events are far-reaching and cannot be ignored. An improved understanding of their overall impact can only reinforce our efforts at preventing them.”

“*The impact of hospital harm on length of stay, costs of care and length of person-centred episodes of care: a retrospective cohort study*” is published August 12, 2019.

MEDIA NOTE: Please use the following public links after the embargo lift:

Research: <http://www.cmaj.ca/lookup/doi/10.1503/cmaj.181621>

Commentary: <http://www.cmaj.ca/lookup/doi/10.1503/cmaj.190912>

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Managing ovarian cancer risk in women with *BRCA1/2* genetic variants

Podcast pre-embargo link: <https://soundcloud.com/cmajpodcasts/190281-view/s-GTaXq>

A new review to help physicians manage the risk of ovarian cancer in women who carry the *BRCA1/2* gene mutations is published in *CMAJ (Canadian Medical Association Journal)*.

BRCA1 and *BRCA2* genetic variants are a clinically important risk factor for the development of ovarian and breast cancer, and women who carry these variants have a lifetime risk of ovarian cancer of 39%–44% and 11%–17%, respectively.

“Given the substantial lifetime risk and high mortality of ovarian cancer in women with *BRCA1/2* variants, risk reduction is a priority,” says Dr. Melissa Walker, a fifth-year resident in obstetrics and gynecology at the University of Toronto, Toronto, Ontario.

The review, which looked at 46 articles published between 2014 and 2019, provides guidance on screening, preventive surgery, contraception and management of menopausal symptoms.

Highlights:

- Testing** – women with a family history of *BRCA1/2* should be tested for the variants, as should women with a diagnosis of ovarian cancer but without family history.
- Screening** – there is no effective screening test to detect ovarian cancer accurately. Ultrasonography and blood tests have high levels of false positives, which can cause anxiety and lead to unnecessary surgery, early menopause and other harms.
- Surgery to reduce risk** – as there are no effective screening programs, surgery to remove ovaries and fallopian tubes can reduce the lifetime risk by 80%. Surgery should be performed between ages 35 and 40 years in women with *BRCA1* and between 40 and 45 years in women with *BRCA2*. Other types of surgery, such as fallopian tube removal and hysterectomy, are also discussed.
- Contraception and fertility** – although evidence is controversial, it appears hormonal contraception is safe for this population. Given that decisions around fertility and family planning are complex, early consultation with a fertility specialist is encouraged.
- Management of menopausal symptoms** – the risk of early menopause resulting from removal of ovaries can be managed with hormone replacement therapy to reduce the negative effects of bone loss, heart disease and other conditions. Women who have had breast cancer are at increased risk of recurrence and should be treated with non-hormonal options. Referral to a menopause specialist is recommended.

“Women with these variants have unique and broad medical needs that cross medical specialties and areas of expertise, from surgery to genetics, oncology to nursing, menopause specialists to social work.” says Dr. Walker. “Multidisciplinary management of these women is essential.”

MEDIA NOTE: Please use the following public links after the embargo lift:

Review: <http://www.cmaj.ca/lookup/doi/10.1503/cmaj.190281>

Podcast post-embargo link: <https://soundcloud.com/cmajpodcasts/190281-view>

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