

Simple, active intervention program after major thoracic surgery reduces ER visits and saves money

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Post-surgical hospital readmission after discharge and repeat emergency room (ER) visits are not unusual for patients who have undergone major thoracic surgery. Recognizing this problem, clinicians at McMaster University have implemented an innovative, active post-discharge intervention for thoracic surgery patients that is based on the principle of a "one team-one approach" that is initiated while the patient is still hospitalized. The program, known as the Integrated Comprehensive Care (ICC) Project, resulted in shorter hospital stays, fewer ER visits, cost savings, and no increase in adverse outcomes, as well as a trend toward fewer hospital admissions, according to Yaron Shargall, MD, who will be presenting the results of this research at the 95th AATS Annual Meeting in Seattle on April 28.

"Given the simplicity of the ICC model, we believe that it could straightforwardly be duplicated within other healthcare systems and will likely result in better outcomes and reduced costing. Indeed, the Ministry of Health and Long Term Care in Ontario has just approved the expansion of the ICC program regionally and to other patient groups. Our hospital is leading this initiative," explained Dr. Shargall, who is Head of the Division of Thoracic Surgery and holds the Juravinski Professorship in Thoracic Surgery at McMaster University (Hamilton, ON).

The ICC team consists of a nurse coordinator, eight registered and

practical nurses, and six physiotherapists, with additional support available as needed from respiratory therapists, dietitians, and occupational therapists. Within the first 48 hours after surgery, the nurse coordinator meets with the patients and families to develop a discharge plan. Pertinent data regarding pre-operative co-morbidities, surgical procedure, and post-operative course are electronically stored for access by the designated homecare team. The homecare team contacts each patient within 24 hours of arrival at home and develops a visit plan based on the patient's needs. Patients have round-the-clock telephone access to the ICC coordinator, who in turn can quickly consult with staff surgeons.

To evaluate the effectiveness of the ICC project, the researchers conducted a retrospective case-control analysis of a prospective database. They compared 355 patients who underwent major [thoracic surgery](#) between April 1, 2012 and March 31, 2013 and received ICC care to a historical control group of 331 patients who underwent similar major thoracic surgeries between April 1, 2011 and March 31, 2012, prior to the implementation of ICC. Patients were operated on for primary lung cancer, metastases, and benign conditions. Surgeries included lung resections and pleural decortication. The median follow-up was 22 months for the ICC group and 20 months for controls.

Three-quarters of the ICC patients made use of telephone support from the ICC coordinator. Overall, each ICC patient received an average of six hours of homecare during 8.7 visits post discharge, with an average cost of \$500 per patient enrolled. Registered practical nurses saw 75% of the patients. As needed, assistance was provided by respiratory therapists, occupational therapists, dietitians, and speech pathologists. Patient satisfaction with the program was high, with more than 90% rating it as excellent or very good.

The researchers compared the ICC vs. control groups by stratifying by type and extent of resection to minimize selection bias (i.e. open partial,

open total, VATS partial, VATS total). Sixty-day mortality was similar for both groups (1%). Overall, no significant differences were found in 60-day readmission rates (8.4% ICC vs. 12.2% controls, $p=0.105$), although there was a trend for fewer readmissions in the subgroups (e.g. open partial: 7.0% ICC vs. 18.3% controls, $p=0.145$).

Within 30-days post-discharge, ICC patients made fewer visits to the ER. For example, in the open total subgroup 18.3% of patients enrolled in the ICC made ER visits compared to 30.0% of controls ($p=0.042$) and in the VATS total subgroups the rates were 10.2% vs. 23.5% ($p=0.048$, respectively). Hospital length of stay tended to be lower in the ICC groups, but the differences reached statistical significance only in the open partial subgroups.

The ICC program yielded economic benefits, too. For example, total costs in the VATS partial ICC group were \$8,505 compared to \$11,038 for controls ($p=0.007$). Part of these savings comes from the training of relatively low-cost personal support workers or registered practical nurses, who are taught to recognize post-thoracic surgical complications early.

Another advantage of the ICC program is that when ICC patients do require hospital re-admission, they do so to the hospital where their surgery took place. Dr. Shargall noted that studies have shown that the risk of mortality is higher for patients who are readmitted into a hospital that is different from the one where the initial surgery occurred. Factors influencing this outcome include the facility not knowing the details of the patient's history or differences in healthcare practice. All of the ICC [patients](#) were admitted back into the releasing hospital, in part because of the earlier and more rapid communication available through the ICC program.

More information: "The Integrated Comprehensive Care (ICC)

program: A novel homecare initiative after major thoracic surgery," 95th AATS Annual Meeting in Seattle on April 28.

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