To keep patients with COPD out of hospital, look beyond the lungs

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Chronic obstructive pulmonary disease (COPD) is the fifth leading cause of death in Canada, with an age-standardized prevalence of 9% among Canadians aged 35 years and older.[1] In 2016/17, COPD exacerbations were responsible for nearly 90 000 admissions to Canadian hospitals — more than any other disease — with an average stay of 7 days.[2] Exacerbations of COPD place a tremendous burden on emergency departments, surpassed only by pneumonia in volume of admitted patients.[3] Solving this critical health and health systems problem will require not only better tools for risk assessment, but also a systematic change in our approach to COPD management.

Although most COPD exacerbations can be managed on an outpatient basis, accurately distinguishing patients requiring admission from those who do not poses an everyday clinical challenge for emergency physicians. A COPD exacerbation represents respiratory decompensation or failure, and thus carries inherent risk of progression to death without timely intervention. Diagnosing presence of lung decompensation and its associated complications in patients with COPD exacerbation is challenging, because physical examination, peak flow rates and oxygen saturation are not, on their own, reliable measures of lung failure and its short-term prognosis. The resulting uncertainty makes the decision whether to admit a patient for close surveillance and intensive treatment difficult.

In 2014, Stiell and colleagues found that patients with COPD exacerbations were admitted to hospital 38% of the time, whereas those who were discharged accounted for 50% of adverse events.[4] In this issue of *CMAJ*, the same author group reports an overall 9.5% rate of short-term serious outcomes that include death, admission to a monitored setting, assisted ventilation, coronary events or readmission.[5] More than 10% of these events occurred in those who were admitted, but 8.3% of them occurred in those who had been initially discharged from the emergency department.

The primary objective of Stiell and colleagues' study was to validate the Ottawa COPD Risk Scale (OCRS), a measure designed to predict risk of one of these short-term serious outcomes.[5] The authors report that an admission threshold of more than 1 point on the scale would increase sensitivity for these serious outcomes by 50% but require 25% more admissions. Alternately, a threshold of more than 2 points would improve sensitivity by 38% while leading to a slight increase in admissions. Although this improvement may seem relatively modest, this is in a setting where guesswork is substantial and errors have important consequences.

Only 4 of the OCRS's 10 items are directly related to the respiratory system — an equal number relate to cardiovascular disease, with additional items representing renal insufficiency and anemia. That prognosis of COPD exacerbations is driven primarily by extrapulmonary factors is striking, but not surprising. Nearly two-thirds of patients admitted to hospital for COPD exacerbations have 1 or more comorbidities that affect their COPD.[6] In Canada, half of the excess costs attributable to COPD — driven mostly by hospital admissions — are due to comorbidities, with only a quarter due to COPD itself.[7] Yet research and evidence-based guidelines directed at management of multimorbidity in the context of COPD are almost entirely lacking.

The findings of Stiell and colleagues hold implications for the whole health care system. The suggestion that our country's high rates of COPD admissions may not be high enough comes at a time when provincial and territorial governments, and health policymakers are devoting much effort to developing interventions to reduce COPD admissions. Recognition that multimorbidity is a key driver of this problem is critical to the success of such endeavours. We must invest in research in this area, but we cannot wait for results to act. We must instead move away from a disease-specific silo approach to COPD management, and move toward a coordinated approach to multimorbidity management in conjunction with other health care providers; greater promotion of pulmonary rehabilitation and vaccination; and continued efforts toward primary prevention, importantly, tobacco control and smoking cessation. Until we succeed in doing better at this, the hallways of Canada's hospitals seem destined to remain crowded.

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