discharge the patients. There are things like pulmonary embolisms, fatal arrhythmias, that are coming to bear, or the patients aren’t accessing care, and we need to support them. We started local initiatives where our patients now can call a nurse 24 h a day out to 90 days from their hospitalization, someone they can call right away. It keeps them out of the emergency department, it allows us to reach out to them, but I think until we know what we are talking about, we can’t improve it.

Certainly there is the POISE-2 study and other studies that have suggested that a bump in your troponin postoperatively puts you at increased risk; they have tried interventions like alpha blockers, beta blockers, that have not shown any improvement. But we are proposing studies like continued Holter monitors for patients (which they can now wear out to 90 days), and DVT prophylaxis. One of my partners is doing a study on that, and I think that’s where we can make improvements in care by looking closely and systematically, and logically assessing how we can continue to improve.

Dr D’Amico: Lastly, it didn’t look like that curve was plateauing at 90 days.

Dr Finley: It starts to flatten out. Their excess mortality seems to fall out.

Dr H. Eid (Dubai, United Arab Emirates): I just want to ask you, where is the benefit? We know that operative mortality occurs within 30 days from surgery. Any patient can die at any time from any disease. So what is the relationship to the resection if the patient dies after three months or six months if you don’t have statistics to show why these patients died?

Dr Finley: In Canada, the rate of death for a person between 65 and 74 is 1.5% per year. So if your mortality falls to less than 0.1% per month (longer analysis on a per-month basis), then I think that we have excess mortality, and these people are dying off at a rate of about 0.8% per month. So until their mortality falls to the same rate as their peers, we are responsible; our intervention is causing them increased mortality and we need to bear that responsibility. The 30-day mortality cut-off is an arbitrary one, as is 90 days. I think that we should be responsible until they reach the same level as their peers.

Dr J. Schirren (Wiesbaden, Germany): We learned from the States that the patient has to leave the hospital. We know that you send the patient away after three or four days. Now the question is, the follow-up: they do not go home; they are in a hotel somewhere approximating a hotel. Are the medical staff comparable with the staff in the hospital?

Dr Finley: In Canada, we don’t get to sneak them out to hotels, but you are right: we try to get our patients home very quickly. Akin to McKenna, we are aiming for postop day two, day three VATS lobectomy, discharge. But this new programme where we follow our patients I think is worthwhile, because I feel very responsible for people. I had a pneumonectomy patient die at home 12 days after surgery for no apparent reason; his wife woke up with him, and I feel horrible for that. But our responsibility is there and we need to provide the care we do in a cost effective manner, and we need to deliver the care in-hospital that needs to be delivered in-hospital, but I think that we need to feel ownership of those people forever, and any intervention and improvement that we can make as physicians we need to undertake. So I think that the old “surgical wave to them at the door” is gone. We need to sort of bear that cross forever.

Dr Schirren: Then you would also say that the perioperative care of the patient has to be in the hands of the surgeon?

Dr Finley: Yes.

Dr Schirren: Of the surgeon who has done the surgery?

Dr Finley: Preoperatively and postoperatively.

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**EDITORIAL COMMENT**

The current issue of the *European Journal of Cardio-Thoracic Surgery* publishes the remarkable work of Schneider et al. [1], which contributes to a deeper understanding of actual postoperative mortality—presently differentiated as in-hospital mortality (IHM) and 90-day post-discharge mortality (PDM)—in the framework of pulmonary lobectomy for lung cancer.

For this purpose, data from patients who underwent lobectomy over a 7-year period (2005–11) were queried from an Ontario population-based database. Of 5389 patients who underwent lobectomy for non-small-cell lung carcinoma (NSCLC), the median length of stay was 6 (1–30) days. IHM (n = 73) was 1.4% (1.1–1.6%) whereas PDM (n = 101) was an additional 1.9% (1.6–2.3%) within 90-day post-lobectomy discharge. When searching for potential predictors of mortality, the following eight variables were found to be significant predictors of IHM: age [odds ratio (OR) = 1.5], myocardial infarction (OR = 3.6), congestive heart failure (OR = 5.8), chronic obstructive pulmonary disease (OR = 1.9), preoperative positive emission tomography (OR = 2.7), peptic ulcer disease (OR = 22.1), hemiplegia (OR = 15.8) and other primary cancer (OR = 0.5). In addition, logistic regression showed that length of hospital stay [hazard ration (HR) = 1.1], male gender (HR = 1.5), age (HR = 1.1) and metastatic cancer were potential predictors of 90-day PDM. The authors concluded that PDM represents a substantive under-reported burden of mortality due to lobectomy. Patient factors play a significant role in both IHM and PDM. Finally, they emphasize that more than half of post-lobectomy mortality occurs post-discharge and the annual rate remained unchanged while IHM decreased with time, suggesting that the improvement seen in mortality might be exclusive to the smaller IHM.

The current article is the ‘mirror manuscript’ of another work published by the same team from the same Ontario database, on pneumonectomy [2]. In addition, numerous studies dealing with...
PDM after resection for lung cancer have been recently published [3–5], showing that this issue is gaining notoriety and concern within the surgical field. Schneider et al. [1] nicely demonstrated that patients undergoing lobectomy for NSCLC experience a greater risk of death after discharge from hospital compared with when they are admitted as in-patients. This raises legitimate questions as to the actual delivery of quality care and firstly, whether anything might have been done differently at the time of the discharge evaluation or immediately after discharge to prevent these deaths. As pointed out by McMillan et al. [3], a closer monitoring after discharge with earlier and repeated follow-up visits, better coordination with primary physicians and regular home visits by care providers in these high-risk patients could lead to earlier detection of problems and improvement outcomes, but there is no evidence yet to support this strategy in the literature. However, according to this stimulating article’s results, we implicitly understand that a deep exploration of the post-discharge timeframe would need to be urgently undertaken to try to elucidate reasons for this elevated mortality. This might be the clue not only to more precisely assess already known predictive factors of mortality on which prevention and/or potential intervention can be done (targeted arrhythmia management, venous thrombo-embolism prophylaxis, enhance care of elderly population, for example), but also, going one step further, to shed light on a probable insufficiency of the healthcare system and try to reverse this weakness in a well-structured postoperative quality improvement care programme.

For this purpose, the recommendation that national or international registries—such as the Society of Thoracic Surgeons or European Society of Thoracic Surgeons databases—consider the inclusion of 90-day mortality in their data collection to be of major importance. Indeed, it may well contribute in the near future to a powerful analysis of this critical period, by providing a more reliable and precise estimate of death rates and their potential predictors.

In the meantime, Schneider et al. are to be congratulated on their investigations in this area. From the standpoint of medical care, their results will certainly prove to be most beneficial to the thoracic surgery community.

REFERENCES