Commentary: Is 10,000 hours enough?

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Ten thousand hours is all that it takes to master something according to Malcolm Gladwell. In his book *Outliers*, he tells stories of the Beatles in their Hamburg experience and Bill Gates programming in the middle of the night; all perfecting their craft by toiling away at it.¹ He makes a compelling and riveting argument of what is obvious—that practice makes perfect. So does this hold true in thoracic surgery for pulmonary resections for lung cancer? The Leapfrog group and other health care quality organizations certainly think so. The Leapfrog group recommends a minimum annual volume of lung resections for cancer of 40 for hospitals and 15 for surgeons to meet their surgical volume standard.

But what is the evidence for this? The data are mixed, with some studies demonstrating an inverse correlation between mortality and volume as expected, whereas others not so much or a weak correlation at best.^{2,3} In this issue of the *Journal*, Clark and colleagues⁴ present an analysis of the New York and California State Inpatient Databases to evaluate the validity of the 2018 Leapfrog guidelines for hospital and surgeon volumes for lung cancer resections (lobectomies, bilobectomies, and pneumonectomies). The authors find, as expected, that low-volume surgeons and hospitals have greater morbidity and mortality than greater-volume hospitals and surgeons, except for those deemed low risk. Greater-volume surgeons had greater rates of mortality for greater-risk patients, but the mortality decreases with greater institutional volumes.

The authors argue that the volume guidelines should emphasize hospital over surgeon volume, particularly for high-risk patients. They also argue for centralization of care. Why do we see a volume–outcome relationship in this study but not in others? There are many factors but include how volume is defined, as has been shown by others, what databases are used, and what is defined as a pulmonary resection. The inherent limitations of this study include its use of administrative databases, which lack the granularity of detail for risk stratification (such as lung function tests, cardiac function, etc), restricted geographic

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Central Message

Hospital volume for lung cancer resection is inversely correlated to mortality.

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scope (New York and California are very different in terms of health care from the rest of the country), and its lack of inclusion of sublobar resections, which are increasingly performed in the era of chest computed tomography screening.

The article also makes the case for centralization of care for high-risk lung cancer cases. Volume standards are inherently arguing for the same. Although centralization is likely to improve the quality of care for select procedures, it has its downsides. It is said that all politics is local; the same can be said for medicine. Expecting patients to travel with their families to distant locales will reduce access to care, especially for those who live in rural America. Patients who need to travel may not seek care or wait until it is too late, which in the end may be costly for the patient, their family, and the health care system. Access, quality, and cost must be carefully balanced to ensure that patients are able to obtain the care they need at reasonable cost and traveling distance.

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