Regionalization of care has been proposed as a potential way to improve outcomes for patients undergoing complex surgeries.^{5,6} Would referring patients to hospitals meeting these quality measures improve outcomes? Interestingly, high-volume academic centers actually had lower adherence with coordination of care measures, such as referral for chemotherapy for stage II tumors and obtaining a biopsy before radiation treatment, which may be due to difficulty coordinating care in larger medical centers and communicating with outside hospitals.

Although gaps in quality were identified, additional research and more granular data are needed to determine how these quality measures should be used to improve the delivery of lung cancer care. Just as one should take caution when stepping onto the London Underground, it is important that surgeons make a conscious effort to “mind the gap,” remaining mindful of gaps in lung cancer care and focusing on quality improvement (Figure 1).

See Article page 649.

Commentary: Nonadherence to guidelines: It is important to investigate the reasons and survival outcomes

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To ensure patients are receiving guideline-concordant care, the Thoracic Surgery Outcomes Research Network developed a list of quality measures for the management of non-small cell lung cancer. Khorfan and colleagues¹ aimed to evaluate baseline adherence to these Thoracic

References

1. Khorfan R, Cooke DT, Meguid RA, Backhus L, Varghese TK, Farjah F, et al; the ThORN Collaborative. the ThORN Collaborative. Institutional factors associated with adherence to quality measures for stage I and II non-small cell lung cancer. *J Thorac Cardiovasc Surg*. 2021;162:649-60.e8.
2. Samson P, Crabtree T, Broderick S, Kreisel D, Krupnick AS, Patterson GA, et al. Quality measures in clinical stage I non-small cell lung cancer: improved performance is associated with improved survival. *Ann Thorac Surg*. 2017;103:303-11.
3. Kozower BD, O'Brien SM, Kosinski AS, Magee MJ, Dokholyan R, Jacobs JP, et al. The Society of Thoracic Surgeons composite score for rating program performance for lobectomy for lung cancer. *Ann Thorac Surg*. 2016;101:1379-87.
4. Brunelli A, Rocco G, Van Raemdonck D, Varela G, Dahan M. Lessons learned from the European thoracic surgery database: the composite performance score. *Eur J Surg Oncol*. 2010;3(suppl 1):S93-9.
5. Wakeam E, Hyder JA, Lipsitz SR, Darling GE, Finlayson SR. Outcomes and costs for major lung resection in the United States: which patients benefit most from high-volume referral? *Ann Thorac Surg*. 2015;100:939-46.
6. Resio BJ, Chiu AS, Hoag JR, Brown LB, White M, Omar A, et al. Motivators, barriers, and facilitators to traveling to the safest hospitals in the United States for complex cancer surgery. *JAMA Netw Open*. 2018;1:e184595.

Dr Yang Zhang, MD (left), and Professor Haiquan Chen, MD, PhD (right)

CENTRAL MESSAGE

This study highlights the need for improvement in adherence to guidelines. However, it is important to further investigate the reasons and survival outcomes associated with nonadherence.

Surgery Outcomes Research Network quality measures. They investigated 253,182 patients from 1324 hospitals in the National Cancer Database. It can be expected that they found lower-volume and nonacademic institutions were associated with inadequate nodal sampling and nonanatomic resection. However, it is quite surprising that greater-volume and academic institutions were

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associated with nonadherence to coordination of care measures, including adjuvant chemotherapy and radiation therapy measures. The reasons behind the phenomenon are not clarified, although the authors provided several plausible explanations.

The findings of this study highlight the need for improvement in adherence to guidelines for health care workers from both high-volume and low-volume hospitals. For example, we believe it is mandatory to acquire pathologic diagnosis before radiation therapy. However, approximately 17% of patients receiving radiation therapy did not have pathologic diagnosis before treatment. Lung lesions suspected to be malignant radiologically may turn out to be benign. Unnecessary radiation to benign lesions may lead to medical malpractice. Adjuvant chemotherapy should also be recommended if the patients have indications and are tolerable to chemotherapy.

On the other hand, although guidelines should be followed, they should also be updated when new evidence emerges. Lung cancer is a highly heterogeneous disease in terms of clinicopathologic features and molecular profiles and therefore requires individualized treatment. The disease spectrum as well as the optimal individualized treatment

strategies are evolving rapidly with time. Health care workers, especially those in high-volume and academic centers, have the responsibility of not only following the guidelines but also creating new guidelines based on new evidence. Unfortunately, it is not clear whether the nonadherence to guidelines was just the ignorance of guidelines or because the health care workers were trying to conduct clinical studies.

Guidelines are evidence-based, and the most important evidence is from survival analysis. The authors did analyze the association of measure adherence with survival in the overall patient cohort. However, using the National Cancer Database, they are not able to determine whether nonadherence to a quality measure in a specific patient cohort affected survival outcomes. If nonadherence to guidelines is associated with equivalent or even better survival outcomes, maybe the guidelines should be revised. Therefore, it is important to further investigate survival outcomes associated with nonadherence.

Reference

1. Khorfan R, Cooke DT, Meguid RA, Backhus L, Varghese TK, Farjah F, et al. Institutional factors associated with adherence to quality measures for stage I and II non-small cell lung cancer. *J Thorac Cardiovasc Surg*. 2021;162:649-60.e8.