Letter to the Editor

What Hides Beyond the Numbers: Statistics or Real Practice?

Re: Stolzhus KC, Shen B, Tchelebi L, et al. Impact of facility surgical volume on survival in patients with cancer. *J Natl Compr Canc Netw* 2021; 19(5):495–503.

We warmly congratulate Stolzhus et al¹ on their excellent article, “Impact of Facility Surgical Volume on Survival in Patients With Cancer,” published in the May 2021 issue of *JNCCN*. This is a pioneer great effort to evaluate the impact of surgical volume on survival in patients with cancer. The statistics convince that patients treated surgically at high-volume centers have higher survival rates. As a part of conclusions, the authors firmly state that patients with pancreatic and esophageal cancer should be referred to high-volume centers.

However, thoughtful reading raises a few questions. First, what are the real numbers behind the presented statistics? During the early years of the study, up to 60% of cases were excluded due to unknown clinical staging. All patients who received neoadjuvant chemoradiotherapy were also excluded.¹ Furthermore, inaccurate clinical staging can result in both undertreatment and overtreatment of patients.² In our opinion, inclusion of patients with 0–I disease may also cause deviation of the results and influence conclusions.

Another limitation is the classification of hospital volume based on total surgical volume rather than procedure-specific volume. Additionally, no data on procedure-related surgical complications are provided. The registry included tumor characteristics, but data regarding treatments are missing.

Awareness of these findings is crucial when research and decision-making is based on a registry.³

The comparison of patient data during 2004 through 2013 may also affect results, given that oncologic treatment changed rapidly during these years with new biologic and immunologic therapies, which were likely available mainly in high-volume centers, mostly in the early period. Then, enrollment of patients in clinical trials and the availability of innovative technologies (eg, FDG-PET, molecular sequencing) was also a “privilege” of such centers.

Further investigation of the most impactful factors on survival is needed. Several studies have shown that surgeon volume, rather than hospital volume, is an important factor.⁴ Another study supported the evidence that lower-volume hospitals with excellent resources have similar results as high-volume centers.⁵ Furthermore, in a large study evaluating the impact of volume on pancreatic cancer results, despite its conclusion, found differences only when comparing hospitals with as little as 5 versus 50 cases annually.⁶ The opening of new surgical units and the subsequent relocation of personnel is common, and therefore it remains unclear whether the moving of experienced staff to lower-volume hospitals will affect the results.

We greatly appreciate the article by Stolzhus et al,¹ but believe that the authors’ strong conclusions are somewhat premature. A stratified prospective data collection is strongly needed.

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Authors’ Reply

To the Letter to the Editor by Kessel et al

We thank Kessel et al for their letter regarding our article published in the May 2021 issue of *JNCCN*,¹ and thank the editors for the opportunity to respond. Kessel et al present 3 concerns. First, they perceive that up to 60% of patients with “unknown” clinical staging were excluded from the analysis, and that patients with neoadjuvant chemoradiotherapy were excluded. Exclusion of these patients would limit the implications of the results. They believe inclusion of patients with stage 0–I disease also influences the conclusion. Second, they believe

that the use of facility total surgical volume is limited, and that procedure-specific or provider-specific volume would be better, along with procedure-related complications. Third, they believe that comparison of data across the study period (2004–2013) is limited due to advancement of available treatment options, including novel systemic therapies. In this response letter, we clarify these points and address their concerns.

First, our team performed the survival analysis with all patients as well as with

only those with complete information on stage and found essentially the same results. A total of 32.5% of patients had unknown stage (Table 1 in our article), and this may be because in the National Cancer Database (NCDB) there are separate variables for TNM stages and for “overall” clinical stage, based on TNM values. TNM stage information is available for most everyone, whereas overall stage is not always available due to evolution of the database and limitations with the NCDB,² as discussed in our article. There were