Editorial

Readmissions

PETER D. ANGEVINE, M.D., M.P.H.,
AND PAUL C. MCCORMICK, M.D., M.P.H.

Department of Neurological Surgery, Columbia University, College of Physicians and Surgeons, New York, New York

Quality-assessment efforts have developed contemporaneously with the proliferation of administrative databases. These databases, in general, are not primarily designed to serve clinical purposes. Policymakers, institutions, insurance companies, and clinicians frequently attempt to extract clinically relevant information from such data sets, however, because they are accessible and contain data for a large number of patients.

There are several pitfalls, however, to using administrative databases for quality assessment or clinical research. Errors may be introduced at virtually every step of the data recording, extraction, and analysis process. Because the selection of variables included in the databases is determined by its purpose, important clinical information is frequently omitted. Data entry specialists work from the medical record; if documentation is incorrect, unclear, or incomplete, erroneous information may be entered. Finally, despite accurate entry of data for appropriate end points, the interpretation of the results may be faulty. It is this last issue that Amin et al.¹ address in their paper, “Pitfalls of calculating hospital readmission rates based on nonvalidated administrative data sets” in this issue of the *Journal of Neurosurgery: Spine*.

In a review of over 5000 patient encounters with 10 spine surgeons at one institution, the authors found that 281 patients, almost 5%, were readmitted within 30 days. In reviewing the charts of these patients, the investigators determined that almost one-quarter of the readmissions were for reasons other than possible complications of spine surgery at the index procedure. More than 12% of readmissions were for planned second-stage operations, and approximately 5% each were readmitted for rescheduled surgery and reasons unrelated to the spine surgery. The authors express concern that, had the raw readmission data been used as a quality metric, the results would have been inflated by the inclusion of these cases.

Amin et al. have a valid point, and one of which neurosurgeons, and indeed all clinicians, should be aware. It is for this reason, among others, that neurosurgeons should

be engaged in designing quality-assessment programs regardless of the data sources used; only we can provide the important clinical perspective to projects that otherwise may become bureaucratic exercises. On the other hand, it would be improper to attempt to discredit all aspects of administrative database research. The majority of readmissions in this study were, in fact, related to spine surgery. Furthermore, centers such as the University of California, San Francisco, where a large number of complex spine surgeries are performed, are likely to have a significantly higher proportion of staged operations; these results may not generalize to other institutions.

The authors’ attempt to find clinical variables that are predictive of an increased risk of readmission also illustrates some of the problems with the use of these data sets to investigate clinical problems. First, the strength of the associations is often misinterpreted because of the small p values. The size of these databases virtually guarantees multiple “statistically significant” results because p values depend heavily on sample size. Only the p values for the analysis of risk of death and age greater than 65 years are provided, and not the more important odds ratio. Second, investigators are limited to the information in the database, regardless of whether it is clinically important. In the authors’ study, the type of admission (urgent/emergency vs elective) is likely a surrogate for many other factors more likely to be the proximate cause of the difference in risk of readmission. Although such findings are interesting and may spur further research, we must be careful not to attach undue importance to them.

The authors have succinctly illustrated one potential source of inaccurate classification of early readmission for patients undergoing spine surgery. Neurosurgeons must work to ensure the accuracy of all quality initiatives that involve our patients and the care we deliver them through engagement in their design and execution and through our own highly clinically relevant initiatives such as the National Neurosurgery Quality and Outcomes Database (N²QOD).

(<http://thejns.org/doi/abs/10.3171/2012.9.SPINE12856>)

Disclosure

The authors report no conflict of interest.

Reference

1. Amin BY, Tu TH, Schairer WW, Na L, Takemoto S, Berven S, et al: Pitfalls of calculating hospital readmission rates based

Editorial

on nonvalidated administrative data sets. Clinical article. **J Neurosurg Spine** [epub ahead of print November 27, 2012. DOI: 10.3171/2012.10.SPINE12559]

Response

BEEJAL Y. AMIN, M.D.,¹ TSUNG-HSI TU, M.D.,¹⁻³
AND PRAVEEN V. MUMMANENI, M.D.¹

¹Department of Neurosurgery, University of California, San Francisco, California; ²Department of Neurosurgery, Neurological Institute, Taipei Veterans General Hospital; and ³School of Medicine, National Yang-Ming University, Taipei, Taiwan

We would like to thank Drs. Angevine and McCormick for their thoughtful review of our article. Their commentary highlights the concerns that arise when using administrative databases as a source for benchmarking and quality assessment.

An analysis of administrative claims for evaluating hospital readmissions assumes that after a hospitalization, all subsequent rehospitalizations within a given time period are unintentional and may represent poor-quality health care. Our study shows that this assumption is not

true. Readmissions for staged surgeries, rescheduled surgeries, and unrelated reasons must be taken into account if we are to use the rate of readmission as a performance metric.

The results of this study reveal pitfalls in the current calculation of readmission rates in spine surgery when using administrative databases. Although this study is based on the administrative data from a tertiary referral medical center, we speculate that the findings may be applied to other clinical settings because the staged surgeries can be a common strategy for certain pathologies (for example, spinal deformity surgeries). A more clinically relevant algorithm is necessary, especially because quality measures will be increasingly tied to payment. We agree that neurosurgeons' input is vital in ensuring the accuracy of all quality initiatives that involve our patients.

Again, we appreciate Drs. Angevine and McCormick's thoughtful commentary. We hope that our findings help bring light to the clinical issues that are not captured by the all-cause readmission rate algorithm.

Please include this information when citing this paper: published online November 27, 2012; DOI: 10.3171/2012.9.SPINE12856.