Tej D. Azad, MD, MS[‡*]
Emily Rodriguez, BS[‡*]
Divyaansh Raj, BA[‡]
Yuanxuan Xia, MD[‡]
Joshua Materi, BA[‡]
Jordina Rincon-Torroella, MD[‡]
L. Fernando Gonzalez, MD[‡]
Jose I. Suarez, MD[§]
Rafael J. Tamargo, MD[‡]
Henry Brem, MD[‡]
Elliott R. Haut, MD, PhD[‖¶#††‡‡**]
Chetan Bettegowda, MD, PhD[‡**]

[‡]Department of Neurosurgery, Johns Hopkins Hospital, Baltimore, Maryland, USA; [§]Division of Neurosciences Critical Care, Departments of Anesthesiology and Critical Care Medicine, Neurology, and Neurosurgery, Johns Hopkins University School of Medicine, Baltimore, Maryland, USA; [‖]Department of Surgery, Johns Hopkins Hospital, Baltimore, Maryland, USA; [¶]Division of Acute Care Surgery, Department of Surgery, The Johns Hopkins University School of Medicine, Baltimore, Maryland, USA; [#]Department of Anesthesiology and Critical Care Medicine, The Johns Hopkins University School of Medicine, Baltimore, Maryland, USA; [††]Department of Emergency Medicine, The Johns Hopkins University School of Medicine, Baltimore, Maryland, USA; [‡‡]The Armstrong Institute for Patient Safety and Quality, Johns Hopkins Medicine, Baltimore, Maryland, USA; [§§]Department of Health Policy and Management, The Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, USA

*Tej D. Azad and Emily Rodriguez contributed equally to this work.

**Elliott R. Haut and Chetan Bettegowda contributed equally to this work.

Correspondence:
Chetan Bettegowda, MD, PhD,
Department of Neurosurgery,
Johns Hopkins Hospital,
600 N. Wolfe Street Phipps Building,
Suite 118,
Baltimore, MD 21287, USA.
Email: cbetteg1@jhmi.edu

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Patient Safety Indicator 04 Does Not Consistently Identify Failure to Rescue in the Neurosurgical Population

BACKGROUND: Improving neurosurgical quality metrics necessitates the analysis of patient safety indicator (PSI) 04, a measure of failure to rescue (FTR).

OBJECTIVE: To demonstrate that PSI 04 is not an appropriate measure for capturing FTR within neurosurgery.

METHODS: We conducted a single-center retrospective cohort study. Patients from January 1, 2017 to June 1, 2021, who sustained a PSI 04-attributed complication (pneumonia, deep vein thrombosis/pulmonary embolism, sepsis, shock/cardiac arrest, or gastrointestinal hemorrhage/acute ulcer), underwent a neurosurgical procedure, had inpatient mortality, and were identified using patient safety indicator 04 (PSI 04) tracking algorithm. The primary outcome was whether the attributed PSI 04 designation was the primary driver of mortality.

RESULTS: We identified 67 patients who met the PSI 04 criteria (median age, 61 years; female sex, 43.4%). Nearly 20% of patients met the PSI complication criteria before admission. Patients who underwent emergent bedside procedures were more likely to present with a poor Glasgow Coma Scale ($P = .016$), more likely to be intubated before admission ($P = .016$), and less likely to have mortality due to a PSI 04-related complication ($P = .002$). PSI 04-related complications were identified as the cause of death in only 43.2% of cases. Procedures occurring in the interventional radiology suite (odds ratio, 23.2; 95% CI, 3.5-229.3; $P = .003$) or the operating room (odds ratio, 6.2; 95% CI, 1.25-39.5; $P = .03$) were more likely to have mortality because of a PSI 04-related complication compared with bedside procedures.

CONCLUSION: In total, 65.7% of patients were inappropriately flagged as meeting PSI 04 criteria. PSI 04 currently identifies patients with complications unrelated to operating room procedures. Improvement in patient safety within neurosurgery necessitates the development of a subspecialty specific measure to capture FTR.

KEY WORDS: Cause of death, Failure to rescue, Hospital mortality, Neurosurgical procedures, Patient safety, Surgical outcomes, Quality

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Failure to rescue (FTR) is a conceptual framework that seeks to capture the ability of a hospital to quickly identify and treat preventable postoperative complications to prevent death, should they arise during a hospital stay.[1-3] In 2003, Needleman et al[4] identified the ability to use administrative data to measure the FTR concept. FTR is measured in the form of patient safety indicators (PSIs) that were developed as evidence-based, standardized measures to be captured using software from the Agency for Healthcare Research and Quality (AHRQ). Integrated into hospital electronic records, this software combines International Classification of Diseases -10-Procedure Coding System (ICD-10-PCS) procedure codes, ICD-10-CM diagnosis codes, and MS-DRG discharge codes.[5] Because computing PSI relies on administrative

ABBREVIATIONS: AHRQ, Agency for Healthcare Research and Quality; **CMS,** Centers for Medicare and Medicaid Services; **DVT,** deep vein thrombosis; **ED,** emergency department; **EVD,** external ventricular drain; **FTR,** failure to rescue; **GI,** gastrointestinal; **ICD,** International Classification of Diseases; **IR,** interventional radiology; **JHH,** The Johns Hopkins; **MS-DRG,** Medicare Severity-Diagnosis Related Groups; **OSH,** outside hospital; **PCS,** procedure coding system; **PSI,** patient safety indicator.

data, there is high variability between institutions based on coding practices and secondary data validation capabilities.[6]

As a quality metric, FTR has been translated into the ability of a clinical team to prevent death after the development of a preventable postoperative complication. This metric has been codified into policy that affects financial penalties, reputational status, and publicly reported rankings. The Centers for Medicare and Medicaid Services (CMS), in addition to several federal health programs, use AHRQ data to assess, incentivize, and report on hospital quality.[5] In particular, patient safety indicator 04 (PSI 04), which quantifies the death rate among surgical inpatients with serious treatable complications, has recently come under scrutiny.[7]

In 2010, the CMS began monitoring PSI 04 reporting, but the inclusion criteria leading to a PSI 04 penalty have not been updated since 2017.[3] As currently codified, PSI 04 tracks the rate of postoperative, in-hospital deaths with serious treatable complications—shock/cardiac arrest, sepsis, pneumonia, deep vein thrombosis/pulmonary embolism, and gastrointestinal hemorrhage/acute ulcer.[5] Although PSI 04 is currently excluded from the composite metric used to inform CMS reimbursement, it continues to be used by AHRQ and other agencies to publicly report hospital quality. Owing to the highly variable nature of surgical procedures between specialties, context-specific approaches have been developed to measure FTR,[7,8] thus highlighting the challenge of using PSI 04 as an effective universal patient safety metric. Furthermore, although intended to be for surgical patients, PSI 04 is currently being applied outside of the context of traditional surgical procedures performed in the operating room—the extent to which the PSI 04 criteria apply to procedures performed outside of the operating room, such as bedside procedures or in an interventional radiology (IR) suite, is unknown. The temporal relationship between attribution of a PSI 04 complication and patient mortality has been unexplored, particularly because it relates to a complication being deemed treatable. Importantly, the causal relationship between PSI 04 complications and mortality remains poorly understood. As currently applied, PSI 04 may not capture the spirit of FTR.

We reviewed PSI 04-attributed neurosurgery cases at a single, quaternary care academic institution to determine factors associated with attribution, hypothesizing that the applicability of the PSI 04 criteria may vary with procedure care setting and may be dependent on patient-specific factors. In this study, we interrogate associations between elements of admission, procedure, and patient characteristics among PSI 04-attributed cases. We hypothesize that the current PSI 04 measure does not accurately reflect the failure to rescue measure as intended.

METHODS

This study was identified as exempt by the institutional review board of the Johns Hopkins Hospital (IRB00306257). Owing to the retrospective nature of this study and institutional review board approval, patient consent was deemed to be not required. This study was conducted with adherence to the Strengthening the Reporting of Observational Studies in Epidemiology guidelines.[9]

Study Design and Cohort Definition

We conducted a single-institution retrospective cohort study from January 1, 2017, to June 1, 2021. Patients meeting the PSI 04 criteria (Table 1) at the Johns Hopkins Hospital during the study period (N = 70) were identified automatically using an algorithm provided by AHRQ. This algorithm encodes the inclusion and exclusion criteria for all PSI and identifies cases based on ICD-10-PCS and MS-DRG diagnostic codes. On initial review, we identified 3 patients who did not undergo neurosurgical procedures and were excluded from further analysis, leaving 67 patients in the cohort.

Data Extraction

A data extraction instrument was created for systematic electronic health record review. Variables collected included patient demographics, admission type (ie, elective, transfer, and emergency department [ED] consultation), procedure location (ie, operating room, interventional radiology [IR] suite, or bedside), procedures resulting in PSI 04 inclusion, salient laboratory values, and pertinent radiographic studies. To investigate the relationship between PSI 04 designation and mortality, details regarding intubation, clinical presentation, neurological status, palliative care consultation, and change in code status were also extracted.

Two variables, the presence of PSI 04 condition before admission and mortality attributed to assigned PSI 04 condition, were independently reviewed by 2 physicians who regularly care for this patient population (T.D.A. and Y.X.). Disagreements were reconciled through joint case review and discussion.

Statistical Analysis

Summary statistics are expressed as medians and IQRs or frequencies. Univariate comparisons were performed with the use of χ^2 tests for categorical variables. Multivariable logistic regression models were specified for binary outcomes and adjusted for patient demographics and neurological status. All P values were 2-sided, and P values of less than .05 were considered to indicate statistical significance. All statistical analysis was performed in R version 4.0.3 (R Foundation for Statistical Computing).

RESULTS

Cohort Overview

We identified 67 patients who underwent neurosurgical procedures and met the PSI 04 criteria during the study period (median age, 61 years; female sex, 43.4%, White 40.3%). PSI 04-attributed complications included pneumonia (34.3%), shock/cardiac arrest (31.3%), sepsis (26.9%), deep vein thrombosis/pulmonary embolism (6%), and gastrointestinal hemorrhage/acute ulcer (1.5%). Overall, 20 patients had cranial surgery (29.9%), 9 patients had spine surgery (13.4%), 16 patients had an endovascular procedure (23.9%), and 22 patients had an external ventricular drain/intracranial pressure monitor placement (32.8%) as their indicated PSI 04 procedure (Table 2).

TABLE 1. Definition of PSI 04 Events

Definition	In-hospital deaths per 1000 surgical discharges, among patients older than 18 years or obstetric patients, with serious treatable complications (DVT/PE, pneumonia, sepsis, shock/cardiac arrest, or GI hemorrhage/acute ulcer)
Inclusion	• Elective surgeries or any admission type with an operating room procedure within 2 days of admission • Operating room procedures are included, as defined in the PSI 04 specifications by the MS-DRG and ICD-10-PCS codes
Exclusion	• Patients transferred to an acute care facility • Patients enrolled in hospice care at admission
Numerator	No. of deaths among cases satisfying the inclusion/exclusion criteria for the denominator with ICD-10-PCS codes for an OR procedure and all of the following: • OR procedure within 2 days of admission • Satisfies inclusion/exclusion criteria for shock/cardiac arrest, sepsis, pneumonia, DVT/PE, and GI hemorrhage/acute ulcer
Denominator	No. of surgical discharges for patients older than 18 years or MDC 14 (pregnancy, childbirth, puerperium), with ICD-10-PCS and MS-DRG codes for an OR procedure and all of the following: • OR procedure within 2 days of admission • Satisfies inclusion/exclusion criteria for shock/cardiac arrest, sepsis, pneumonia, DVT/PE, and GI hemorrhage/acute ulcer

DVT, deep vein thrombosis; GI, gastrointestinal; ICD, International Classification of Diseases; MS-DRG, Medicare Severity-Diagnosis Related Groups; OR, odds ratio; PCS, procedure coding system; PE, pulmonary embolism; PSI 04, patient safety indicator 04.

TABLE 2. Cohort Demographics

Characteristics	N (%)
Median age (y, IQR)	61 (49.5-72.5)
Female sex (%)	29 (43.3)
Race	
White	27 (40.3)
Black	26 (38.8)
Other	14 (20.9)
Insurance type	
Private	20 (29.9)
Medicare	13 (19.4)
Medicaid	10 (14.9)
Uninsured	3 (4.5)
Multiple	21 (31.3)
Admission type	
Transfer	30 (44.8)
ED consult	28 (41.8)
Elective/planned	9 (13.4)
GCS at presentation	
3-8	31 (46.3)
9-12	8 (11.9)
13-15	28 (41.8)
Intubation location	
Outside hospital or field	15 (22.4)
ED	17 (25.4)
Inpatient	35 (52.2)
PSI 04 assigned	
Pneumonia	23 (34.3)
Shock/cardiac arrest	21 (31.3)
Sepsis	18 (26.9)
DVT/PE	4 (6.0)
GI hemorrhage/acute ulcer	1 (1.5)
PSI 04-attributed procedure	
Cranial surgery	
Trauma	7 (10.4)
Tumor	3 (4.5)
Cerebrovascular	6 (9.0)
Infection	2 (3.0)
Other	2 (3.0)
Spine surgery	
Tumor	5 (7.5)
Other	4 (6.0)
Endovascular procedure	16 (23.9)
Cranial procedure (EVD, ICP monitor)	22 (32.8)
PSI 04 present before admission	13 (19.4)
PSI 04 identified as cause of mortality	29 (43.2)

DVT, deep vein thrombosis; ED, emergency department; EVD, external ventricular drain; GCS, Glasgow Coma Scale; GI, gastrointestinal; ICP, intracranial pressure; PE, pulmonary embolism; PSI 04, patient safety indicator 04.

Indications for endovascular intervention were ischemic stroke (N = 10), ruptured aneurysmal subarachnoid hemorrhage (N = 4), and other (N = 2). Indications for external ventricular drain/intracranial pressure monitor placement were spontaneous intracerebral/intraventricular hemorrhage (N = 9), aneurysmal subarachnoid hemorrhage (N = 7), traumatic brain injury (N = 4), and acute hydrocephalus (N = 2).

The Glasgow Coma Scale (GCS) on admission was 3 to 8 for 31 patients (46.3%), 9 to 12 for 8 patients (11.9%), and 13 to 15 for 28 patients (41.8%). Nine patients (13.4%) were admitted electively, 28 patients (41.8%) were admitted after ED consultation, and 30 patients (44.8%) were transferred from other hospitals. We found that 32 patients (47.8%) were intubated emergently—17 in the ED (25.4%) and 15 patients in the field or outside hospital ED (22.4%). The PSI 04 criteria flagged as the cause of death was present in 13 patients (19.4%) before admission. After 2 independent physician reviews, 23 patients (34.3%) were identified as having mortality attributed primarily to the associated PSI 04 complication and may have been preventable (Table 2).

Associations With Procedure Location

We found that the type of PSI 04 condition was not significantly associated with procedure location (ie, bedside, IR suite, or operating room; Table 3). We identified a significant association between procedure location and presenting GCS (P = .016), finding that patients undergoing bedside procedures were more likely to present with GCS <8. The location of intubation was found to have a significant association (P = .016) with procedure location, showing that patients undergoing a bedside procedure were more likely to have been intubated in an emergent fashion

TABLE 3. Univariate Associations Between PSI 04 Procedure Location and Key Variables

		GCS at presentation			Intubation location		PSI 04 present before admission		PSI 04 identified as cause of death	
	Total	3-8	9-12	13-15	ED, OSH, field	JHH inpatient	Yes	No	Yes	No
Procedure location										
Bedside	22	16 (72.3%)	2 (9.1%)	4 (18.2%)	16 (72.3%)	6 (27.7%)	5 (22.7%)	17 (72.3%)	3 (13.6%)	19 (86.4%)
IR suite	16	7 (43.8%)	3 (18.7%)	6 (37.5%)	6 (37.5%)	10 (62.5%)	2 (12.5%)	14 (87.5%)	11 (68.8%)	5 (31.2%)
Operating room	29	8 (27.6%)	3 (10.3%)	18 (62.1%)	10 (34.5%)	19 (65.5%)	6 (20.7%)	23 (79.3%)	15 (51.7%)	14 (48.3%)
		χ^2, P = .016			χ^2, P = .016		χ^2, P = .71		χ^2, P = .002	

ED, emergency department; GCS, Glasgow Coma Scale; IR, interventional radiology; JHH, The Johns Hopkins; OSH, outside hospital; PSI 04, patient safety indicator 04.
P values computed using the χ^2 test.

(P = .016). There was no association between the PSI 04 designated condition being present before admission and procedure location. However, we did find that PSI 04-related complication being identified as the primary driver of mortality was significantly associated with procedure location (P = .002). In total, 68.6% of the patients undergoing a procedure in the IR suite had a PSI 04 complication identified as the primary cause of death, in contrast with 86.4% of bedside procedures having alternative conditions identified as the primary cause of mortality.

Associations With Admission Type

We found that the assigned PSI 04 (P = .03), GCS on admission (P = .003), and the setting of intubation (P = .004) were associated with the type of admission (ie, ED, transfer, or elective admission; Table 4). Shock/cardiac arrest attributions accounted for 66.7% of elective procedures, whereas pneumonia (22.2%) and sepsis (0%) attributions were uncommon. By contrast, transfer patients more commonly had a sepsis PSI 04 complication (43.3%) than shock/cardiac arrest (26.7%) or pneumonia (26.7%). Patients admitted through the ED most commonly had a pneumonia PSI 04 complication (46.6%), compared with shock/cardiac arrest (25.0%) or sepsis (17.9%).

Patients admitted through the ED were most likely to present with GCS <8 (60.7%), followed by transfer patients (46.7%) and elective patients (0%). By contrast, patients admitted to the ED rarely presented with GCS 13 to 15 (25.0%) and elective admissions all presented with GCS 13 to 15, followed by transfer patients (40.0%). There was no association between admission type and PSI 04 being identified as the cause of death.

Association With Assigned PSI 04 as Primary Cause of Mortality

We specified a multivariable logistic regression model to identify variables associated with assigned PSI 04 as the primary cause of mortality (Table 5). After adjusting for age, sex, race, and presenting GCS, we found that only procedure location was significantly associated with assigned PSI 04 as the true cause of mortality. Relative to procedures performed at the bedside, procedures performed in the operating room (odds ratio, 6.2; 95% CI, 1.2-39.5; P = .03) and in the IR suite (odds ratio, 23.2; 95% CI, 3.5-229.3; P = .003) were significantly more likely to have an assigned PSI 04 identified as the reason for inpatient mortality.

DISCUSSION

PSI 04 does not adequately measure failure to rescue in neurosurgical patients. Some events were present on admission (before any procedure), and many cases were identified for which the surgical procedure was, in fact, a bedside invasive procedure performed outside the operating room. We found variation in the types of PSI 04 complications when stratified by admission type, but not by procedure location. We further identified associations between procedure location, presenting GCS, and intubation location with PSI 04-attributed complication being the primary driver of mortality. Multivariable analysis further confirmed a robust association between PSI 04-attributed complication being the primary driver of mortality and procedure location (Table 5). Procedures performed at the bedside were much less likely to have PSI 04-attributed complications identified as the primary driver of mortality. The patients undergoing these urgent/emergent procedures represent a fundamentally different population than patients undergoing surgery in the operating room or patients undergoing neuroendovascular procedures in an interventional neuroradiology suite. Patients undergoing bedside neurosurgical procedures have more severe neurological injuries, indicated by their significantly lower presenting GCS and greater likelihood of being intubated before hospital arrival (Table 3). Further supporting this conclusion is the preponderance of PSI 04 pneumonias in this population, potentially because of aspiration events during acute neurological decompensation or emergent intubation.

A key concern in the development of quality metrics is accurate attribution. Overall, 65.7% of patients were inappropriately categorized as having a PSI 04 complication, suggesting that the criteria need to be re-examined in the neurosurgical population. We found that nearly 20% of PSI 04-attributed cases (Table 2) had the attributed complication before admission (N = 13), with most of these cases representing pneumonia (N = 6) and shock/cardiac arrest (N = 4), a known limitation of the PSI 04 measure.[7]

TABLE 4. Univariate Associations Between PSI 04 Admission Type and Key Variables

	Total	GCS at presentation			Intubation location		PSI 04 present before admission		PSI 04 identified as cause of death	
		3-8	9-12	13-15	ED, OSH, field	JHH inpatient	Yes	No	Yes	No
Admission type										
Elective	9	0 (0%)	0 (0%)	9 (100%)	0 (0%)	9 (100%)	0 (0%)	9 (100%)	5 (55.6%)	4 (44.4%)
Transfer	30	14 (46.7%)	4 (13.3%)	12 (40.0%)	14 (46.7%)	16 (53.5%)	4 (13.3%)	26 (86.7%)	16 (53.3%)	14 (46.7%)
ED consult	28	17 (60.7%)	4 (14.3%)	7 (25.0%)	18 (64.3%)	10 (35.7%)	9 (32.1%)	19 (67.9%)	6 (38.6%)	20 (71.4%)
		χ^2, P = .003			χ^2, P = .004		χ^2, P = .056		χ^2, P = .12	

ED, emergency department; GCS, Glasgow Coma Scale; JHH, The Johns Hopkins; OSH, outside hospital; PSI 04, patient safety indicator 04.
P values computed using the χ^2 test.

Although PSI 04 was excluded from their analysis, in a study of the prevalence of patient safety indicators present on admission, Houchens et al[10] found that several patient safety indicators were often present on admission in an analysis of state-level databases. Specific efforts focusing on identifying the presence on admission may help minimize this misclassification.

Moreover, we sought to identify whether the specification of PSI 04, in its current formulation, captured the spirit of the rule that is capturing preventable mortality in postoperative patients. We found that more than 50% of patients were identified as their PSI 04 designation not being the primary cause of mortality and not meeting the intended rational of the measure (Table 2). This "false positive" rate is comparable with the findings of Farrow et al.[11] Focusing on a patient safety indicator specific to venous thrombosis, Farrow et al[11] found that 60% of patients identified as having potentially preventable venous thromboembolism by the meaningful use venous thromboembolism 6 measure were false positives and did not meet the rationale of the measure. These results stand in contrast to the high positive predictive value for patient safety indicators, including a 100% positive predictive value of the PSI 04 indicator, as reported by Hefner et al.[6] This discrepancy likely lies in the definition of true positives. Hefner et al[6] defined true positives as events meeting AHRQ inclusion and exclusion criteria, while Farrow et al[11] further contextualized the events to determine whether the true rationale of the rule was met.

We posit that achieving the spirit of FTR is a critical objective of any patient safety indicator. In our analysis, we have found that the procedure location is a key factor in determining whether a PSI 04 complication is the primary cause of death. Specifically, PSI 04 attribution for neurosurgical bedside procedures seems misguided. These patients are critically ill from neurological and systemic perspectives and commonly die because of their primary neurological pathology (ie, traumatic brain injury and intracranial hemorrhage). The PSI 04 attribution is often coincidental to their mortality.

Properly capturing the spirit of FTR in the neurosurgical population is vital to ensure patient safety and quality improvement. Our findings indicate that revisions to PSI 04 are required. Alternatively, development of a neurosurgery specific metric (ie, context-specific) that captures the spirit of PSI 04 may be warranted. In 2021, the Society of Thoracic Surgery developed a new FTR measurement modality that captures preventable postoperative complications that are often associated with cardiac operations (eg, stroke and kidney injury).[12] Similarly, the development of a metric specific to neurologically injured patients is likely to better capture quality of care and FTR after neurosurgery. Retaining the current method of tracking FTR using PSI 04 may disincentivize the performance of certain procedures and not allow patients the optimal care if physicians are concerned about the metric.

Limitations

This analysis is subject to several limitations. The primary limitation of this study is that data were abstracted from a single large academic hospital and thus may limit the generalizability of these findings. Although we suspect the acuity and neurosurgical

TABLE 5. Multivariable Logistic Regression for Associations With PSI 04 Identified as Primary Driver of Mortality

	OR	95% CI	*P* value
Age	1.00	0.96-1.04	.98
Male sex	0.70	0.17-2.85	.62
Race			
Black		REF	
White	0.25	0.04-1.35	.12
Other	1.55	0.23-11.0	.65
GCS category			
3-8		REF	
9-12	2.75	0.26-43.1	.43
13-15	3.71	0.4-44.0	.26
Procedure location			
Bedside		REF	
Operating room	6.18	1.25-39.5	.03
IR	23.21	3.5-229.3	.003
Admission type			
Elective		REF	
Transfer	1.93	0.26-14.6	.52
ED consult	0.76	0.08-6.6	.80
Intubated after admission	0.93	0.08-9.7	.95

ED, emergency department; GCS, Glasgow Coma Scale; IR, interventional radiology; OR, odds ratio; REF, reference comparator; PSI 04, patient safety indicator 04.

pathology in our sample is comparable with that of large academic, level 1 trauma centers in urban settings, it is possible that there are differences in the baseline health and socioeconomic status of patient population. The small sample size led to insignificant associations that may have profound clinical implications. The 2-person review, although performed by trained experts familiar with this specific patient population, may be subjective due to reliance on interpretation of death records most often signed by members of that specific department. Moreover, we cannot exclude potential bias introduced by having the review conducted by 2 reviewers from the same institution at which this study was conducted. Despite these limitations, we feel this detailed characterization of the shortcomings of PSI 04 in the neurosurgical population may have important lessons for patients, providers, and policymakers.

CONCLUSION

FTR is a critical health care quality metric that must be accurately measured for hospitals to effectively mitigate complications and enhance patient care. In this analysis, we identify important limitations in the ability of PSI 04 to capture the spirit of FTR in the neurosurgical population. Modification of PSI 04 or the development of a subspecialty specific measure to achieve this aim may be necessary.

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Disclosures

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COMMENTS

The authors present a distinctive single-center cohort study evaluating the efficacy of Patient Safety Index (PSI) 04 in predicting and capturing failure to rescue cases in a neurosurgical population. In addition, they demonstrate the ineffectiveness of using PSI 04 as a universal quality metric for identifying failure to rescue cases and elucidates the need for the implementation of more specialty-specific quality measurement systems. The authors use various parameters in their analysis such as age, GCS category, intubation status, and procedural location to provide an all-encompassing collection of data supporting their assertion. The study plays a key role by elucidating pertinent information that is commonly excluded in quality measurement metric analyses such as procedure location, preadmission status, and confounding patient comorbidities. The paper provides valuable insight into possible pitfalls organizations may fall into when evaluating neurosurgical procedures for failure to rescue rates. Overall, the paper effectively provides substantial evidence that the PSI 04 is an ineffective modality for predicting and capturing failure to rescue cases and that healthcare organizations should reconsider utilizing this modality as a primary tool of measurement. Furthermore, it provides compelling evidence of the need for more specialty-specific quality measurement systems and how we, as a healthcare system, should progress towards more appropriate and reliable metrics of healthcare scrutiny.

Cameron Brown
Jonathan H. Sherman
Martinsburg, West Virginia, USA