9 Public Reporting as a Quality Improvement Strategy: CMS and Other Rating Agencies

E. K. Chacko, D. Kosydar, and A. Schubert

Public reporting involves making provider data available free of charge or at a nominal cost. Public reporting is viewed by state, federal, and other entities as a means to improve the quality of health care by increasing transparency, improving quality, controlling cost, and providing physicians and patients useful information. Robust national comparisons in this context will lead to improved quality of care, improved health outcomes, and improved patient decision-making.

The assumptions underlying the value of public reporting are (1) given choices and information, patients and purchasers will choose higher-quality providers and (2) health-care providers will strive to provide high-quality care when information about their performance is publicly available to patients, their peers, policymakers, and the media [1].

Key Concept
Use of public reporting can be viewed as a beneficial strategy for health-care organizations. Benefits include the engagement of care teams and medical staff who can use these data to understand societal expectations around outcomes for health care.

E. K. Chacko · D. Kosydar (✉)
Medical Informatics, Center for Quality and Patient Safety, Ochsner Health, New Orleans, LA, USA
e-mail: echacko@ochsner.org; dkosydar@Ochsner.org

A. Schubert
Departments of Executive Administration and Anesthesiology, Ochsner Medical Center and University of Queensland, New Orleans, LA, USA
e-mail: aschubert@ochsner.org

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Publicly reported data used for comparisons include both clinical data and administrative data, such as billing data. Clinicians debate the accuracy of billing data as a measure of quality because billing data may or may not accurately reflect clinical care when comparing health outcomes between providers. However, such data are viewed as a more acceptable measure if risk adjustment is used to control for differences in patient populations. Additionally, the use of registries specifically for clinical data, which tend to provide more detail on patient outcomes, is on the rise. For example, during the next few years, CMS will use hybrid quality measures that incorporate electronic medical record-derived clinical data such as laboratory values and vital signs into its new digital quality measures requirements.

At Ochsner Health, we believe that public reporting as a quality improvement strategy allows us to target our efforts in areas where we have the opportunity to improve compared to national benchmarks. In this scenario, the patient wins. While the methods of standardizing, normalizing, and risk-adjusting data differ across public reporting and rating methodologies, we believe that many of them ensure reasonable comparisons of performance across different quality measures at similar health-care facilities. According to the American Hospital Association, "Public reporting will continue to improve as hospitals and health systems address their patients' needs and the broader social determinants of health in the communities they serve. This includes societal and environmental conditions such as food, housing, transportation, education, violence, social support, health behaviors and employment" [2].

While there are other rating agencies such as CareChex, IBM Watson, Healthgrades, Becker's, *Consumer Reports*, and Vizient, we focus here on three of the public and widely shared ratings and reports we use at Ochsner Health to gain perspective and guide improvement efforts: Centers for Medicare & Medicaid Services (CMS) Overall Hospital Quality Star Ratings, Leapfrog Hospitals Safety Grade, and *U.S. News & World Report* Best Hospitals Specialty Rankings. A comparison overview of data sources and ratings employed by selected rating agencies is provided in Table 9.1. Please also see Chap. 5 for further discussion of Vizient ratings.

9.1 CMS Overall Hospital Quality Star Ratings

According to the Yale Center for Outcomes Research and Evaluation, "The primary objective of the Overall Hospital Quality Star Rating project is to summarize information from the existing measures on Care Compare in a way that is useful and easy to interpret for patients and consumers through the development of a statistically sound methodology. Consistent with other CMS Star Rating programs, this methodology assigns each hospital between one and five stars, reflecting the hospital's overall performance on selected quality measures" [3, 4].

Table 9.1 Selected reporting agencies

	Care Compare	*U.S. News*	Vizient	Leapfrog	Healthgrades	CareChex comparison	Becker's	IBM Watson/Truven
Type	Government	Commercial	Commercial	Public service organization	Commercial	Commercial	Commercial	Commercial (inactive as of 1/1/21)
Ratings	Star	Best Hospitals; Honor Roll	Q&A	Hospital safety grades A–F	Best Hospitals			Best Hospitals
Data sources	MEDPAR	MEDPAR; NSHN; Survey	MED-PAR; NSHN, member uploads	MEDPAR; member survey	MEDPAR			

Q&A quality and accountability, *NSHN* National Healthcare Safety Network, *MEDPAR* Medicare Provider Analysis and Review

Key Concept
Publicly reported quality data, such as from the CMS Hospital Star Ratings, summarize information about hospitals' performance on selected quality measures. The goal is to do this in such a way that it is easy for patients and families to understand and inform their choices for hospital care.

CMS uses metrics from the Hospital Inpatient Quality Reporting Program and the Hospital Outpatient Quality Reporting Program to develop star ratings for conditions and procedures that:

- Are common in the Medicare population
- May have a significant impact on patients' lives
- Are associated with poor outcomes
- Impose a high burden on the health-care system
- Show variation in outcome rates across hospitals
- Illuminate the opportunity for improvement
- Help patients choose a hospital based on quality performance

New star ratings are released twice per year, in July and December. In 2021, nationwide CMS Star Ratings for hospitals showed that 204 hospitals received a one-star rating, 690 hospitals received a two-star rating, 1018 hospitals received a three-star rating, 988 received a four-star rating, and 455 received a five-star rating. The methodology continues to evolve with the goal to ensure fair comparison across all hospitals. Recently, processes included reweighting infection measures, regrouping measures, and removing winsorization as a technique to limit extreme values.

CMS Star Rating Component Metrics Beginning with the year 2021, the way the Overall Hospital Quality Star Rating is calculated also changed. Three existing process measure groups were combined into one new group (Timely and Effective Care) as a result of measure removals, so that the Overall Star Ratings is now made up of five groups, Mortality, Safety of Care, Readmissions, Patient Experience, and Timely and Effective Care (see Table 9.2).

The Overall Hospital Star Ratings use a composite of distinct quality metrics, depending on which data are available. Hospitals may not report metrics in all five groups. An overall hospital score is calculated by weighting and aggregating the individual category scores. To receive an Overall Star Rating, the hospital must report at least three measures for three measures groups. One of the groups must specifically be the Mortality or Safety of Care group. If a hospital is missing a measure group, the weights are redistributed among the other qualifying groups, and only hospitals that have at least three measures within at least three groups (including one outcome group) are eligible for an overall rating [5].

Table 9.2 Component of CMS Star Rating categories and weights (v4.1) [6]

Category	Category description	Weight (%)	# of metrics	Metric type
Mortality	30-Day risk standardized mortality	22	7 (equally weighted)	Acute myocardial infarction (AMI) Heart failure (HF) Pneumonia (PN) Chronic obstructive pulmonary disease (COPD) Coronary artery bypass graft (CABG) Stroke PSI-4
Readmissions	30-Day readmission rate	22	11 (equally weighted)	For heart failure, pneumonia, COPD, and AMI diagnoses After CABG surgery After THA and TKA surgery OP32; OP35 ED; OP35Adm; OP36
Safety of Care	Risk-standardized complications and hospital-acquired infections	22	8 (equally weighted)	RSCR for THA, TKA CLABSI CAUTI MRSA bacteremia C-Diff infection SSI after colon surgery SSI after abdominal hysterectomy PSI-90
Patient Experience	Patients' perception of inpatient experience (HCAHPS)	22	8 (equally weighted)	Communication with nurses Communication with doctors Responsiveness of hospital staff Communication about medicines Discharge information Care transition Willingness to recommend hospital Cleanliness of hospital environment Quietness of hospital environment

(continued)

Table 9.2 (continued)

Category	Category description	Weight (%)	# of metrics	Metric type
Timely and Effective Care	Immunization, ED timeliness, testing effectiveness	12	14 (equally weighted)	ED-2B: admit decision time to ED departure time for admitted patients IMM-3: health-care personnel influenza vaccination SEP-1 = SEP-1: percentage of patients who received appropriate care for severe sepsis and septic shock OP 10 – outpatient CT scans of the abdomen that were "combination" (double) scans OP 13 – Medicare patients who got cardiac imaging stress tests to screen for surgical risk before low-risk outpatient surgery Other measures hospitals can choose to report on include PC01; OP-3b, 8, 18B, 22, 23, 29, 30, and 33

PSI-4 AHRQ Patient Safety Indicator 4, *PSI-90* AHRQ Patient Composite Safety Indicator, *RSCR* risk standardized complication rate, *COPD* chronic obstructive pulmonary disease, *TKA* elective primary hip arthroplasty, *TKA* elective primary knee arthroplasty, *CAUTI* catheter-associated urinary tract infection, *CLABSI* central liner-associated blood stream infection, *MRSA* methicillin-resistant *Staphylococcus aureus*, *C-diff Clostridium difficile*, *ED* emergency department, *OP-22* percentage of patients who left the emergency department before being seen, *OP-23* percentage of patients who came to the emergency department with stroke symptoms who received brain scan results within 45 minutes of arrival, *OP-29* appropriate follow-up interval for normal colonoscopy in average risk patients, *OP-30* colonoscopy interval for patients with a history of adenomatous polyps – avoidance of inappropriate use, *OP-33* external beam radiotherapy for bone metastases, *PC-01* percentage of newborns whose deliveries were scheduled too early (1–3 weeks early), when a scheduled delivery was not medically necessary, *OP-3b* average number of minutes before outpatients with chest pain or possible heart attack who needed specialized care were transferred to another hospital, *OP-18b* average time patients spent in the emergency department before being sent home, *OP-8* outpatients with low back pain who had an MRI without trying recommended treatments first, such as physical therapy

Validity of CMS Star and Other Ratings Understandable discordance between ratings occurs because of differing purpose, methodology, and outcomes used in ratings. The following discussion should be viewed in this context. The aim is not to set an expectation for perfect correlation but to provide awareness around the necessity for a deeper understanding of each rating and the need for clinical review.

Greater CMS Hospital Compare scores were significantly associated with fewer 30-day readmissions and shorter hospital lengths of stay for specific operative groups [7]. Chau et al. (2014) studied the correlation between publicly reported

hospital metrics and outcomes after pancreatic cancer surgery [8]. Hospital Compare ratings were only weakly (odds ratio < 0.4) correlated with volume and other outcome indicators, with the exception of a slightly stronger correlation with mortality ($r = 0.42$). Halasyamani et al. (2007) examined Hospital Compare scores for core measures related to care for acute myocardial infarction (AMI), congestive heart failure (CHF), and community-acquired pneumonia (CAP) [9]. Using composite scores for core measures, they determined national score quartile cut points and the distribution of Hospital Compare scores for the *U.S. News* Best Hospitals for care of cardiac conditions and respiratory disorders and for Honor Roll hospitals. Fewer than 50% of the Best Hospitals for cardiac care rated in the top quartile of Hospital Compare scores for AMI and CHF. Fewer than 15% of Best Hospitals for care of respiratory disorders scored in the top Hospital Compare quartile for CAP. Only five Honor Roll institutions ranked in the top quartile for the combined core measure score. They concluded that Hospital Compare scores are frequently discordant with *U.S. News* Best Hospital rankings. Similarly, the hospital ratings for the specialties of orthopedics and cardiac surgery by Hospital Compare, *U.S. News*, Healthgrades, and others were found to offer conflicting results with little agreement on higher or lower performance [10, 11].

Key Concept
Publicly reported hospital quality and patient safety ratings correlate poorly with each other. Hospital quality leaders and improvement teams will need to evaluate which rating is most appropriate and useful for them in the context of the stakeholders and communities they serve.

9.2 Leapfrog Hospital Safety Grade

The Leapfrog Group is a nonprofit watchdog organization that sees itself as serving as a voice for health-care consumers and purchasers using their collective influence to foster positive change in US health care. It has collected, analyzed, and published hospital data on safety, quality, and resource use for more than 2700 general acute-care hospitals across the nation for the past 20 years. The Leapfrog Hospital Safety Grade includes more than 30 national performance measures from CMS, the Leapfrog Hospital Survey, and other supplemental data. Safety grades A–F are assigned twice yearly, in the spring and fall, when additional data become available [12].

Key Concept
The Leapfrog Hospital Safety Grade focuses on structure and outcomes that are likely to associate with the safety of hospitalized patients. They include metrics relating to a hospital's ability to provide critical care 24/7, respond quickly and effectively to patients' needs, avoid preventable complications, and have safety protocols in place that are known to protect patients from harm.

Each of the Leapfrog Safety Grade component measures is grouped into one of two domains: (1) process and structural measures or (2) outcome measures, each accounting for 50% of the overall score (see Table 9.3). Process measures represent how often a hospital gives patients recommended treatment for a given medical

Table 9.3 Leapfrog Group data sources, standard measures, and weights [13]

Measure name	Primary data source	Measure weight (%)	Overall weight (%)
Process and structural measures			
Computerized Physician Order Entry (CPOE)	Leapfrog Survey	5.9	50
Bar Code Medication Administration (BCMA)	Leapfrog Survey	5.8	
ICU Physician Staffing (IPS)	Leapfrog Survey	7.1	
Safe Practice1 (SP-1): Leadership Structures and Systems	Leapfrog Survey	3.2	
Safe Practice 2 (SP-2): Culture Measurement, Feedback & Intervention	Leapfrog Survey	3.3	
Safe Practice 9 (SP-9): Nursing Workforce	Leapfrog Survey	4.3	
Hand Hygiene	Leapfrog Survey	4.9	
H-Comp-1: Nurse Communication	Leapfrog Survey	3.1	
H-Comp-2: Doctor Communication	Leapfrog Survey	3.1	
H-Comp-3: Staff Responsiveness	Leapfrog Survey	3.1	
H-Comp-5: Communications about Medicines	Leapfrog Survey	3.1	
H-Comp-6: Discharge Information	Leapfrog Survey	3.1	
Outcomes measures			
Foreign Objects Retained	CMS	4.3	50
Air Embolism	CMS	2.5	
Falls & Trauma	CMS	4.7	
CLABSI	Leapfrog Survey	4.6	
CAUTI	Leapfrog Survey	4.5	
SSI: COLON	Leapfrog Survey	3.4	
MRSA	Leapfrog Survey	4.5	
CDIFF	Leapfrog Survey	4.3	
PSI 3	CMS	4.0	
PSI 4	CMS	2.0	
PSI 90	CMS	15.2	

PSI AHRQ Patient Safety Indicator

condition or procedure. For example, "Responsiveness of hospital staff" looks at patients' feedback on how long it takes a staff member to respond when they request help. Structural measures represent the environment in which patients receive care. For example, "Doctors order medications through a computer" represents whether a hospital uses a computerized order entry system to prevent errors when prescribing medications. Outcome measures represent what happens to a patient while receiving care. For example, "Dangerous object left in patient's body" measures how many times a hospital reports as code of retained foreign object in a patient undergoing surgery, like a sponge or tool, left in the abdomen. Hospitals missing more than six process measures or more than five outcome measures are not graded. Hospitals can voluntarily report additional safety data through the Leapfrog Hospital Survey, but this is not a requirement.

Annually, in January, Leapfrog publishes the data snapshot dates for each of the two Leapfrog Hospital Safety Grade public releases to give hospitals and other stakeholders advance notice so that they can be prepared to submit a Leapfrog Hospital Survey and monitor their performance on CMS measures used in the safety grade. Because of COVID-related data reporting disruptions, several of the Leapfrog component metrics were not updated in recent safety grade releases.

9.3 *U.S. News & World Report* Best Hospitals Specialty Rankings

U.S. News estimates that nearly 2 million hospital inpatients a year face the prospect of surgery or special care that poses either unusual technical challenges or significantly heightened risk of death or harm because of age, physical condition, or existing conditions. The rating agency states that *U.S. News* rankings are a tool that can help these patients find sources of specially skilled inpatient care [14]. It reports the US top 50-ranked hospitals for complex care in 16 specialty areas, 12 data-driven specialties, and 4 expert-opinion-based specialties. Hospitals whose specialties rank in the top 10% are reported as "high performing." Methodology enhancements occur every year, and future modifications to analytic methods will likely account for the impact of COVID-19 on the measures evaluated.

A hospital's overall score reflects performance in three interlocked dimensions of health care: structure, process, and outcomes. A fourth component, patient experience, that overlaps both process and outcomes, and a fifth component, public transparency, within relevant specialties were added recently. These five major components and their weights in the overall score for each specialty are depicted in Table 9.4.

Structure refers to hospital resources related directly to patient care. Examples of structure metrics in the *U.S. News* Best Hospitals rankings methodology include intensity of nurse staffing, availability of desirable technologies and patient services, and special status conferred by a recognized external body, such as designation as a nurse Magnet Hospital by the American Nurses Credentialing Center or as

Table 9.4 2020–2021 components and overall weights for *U.S. News* Specialty Rankings [15]

Component	Cardiology and heart surgery weights (%)	Neurology and neurosurgery weights (%)	Weights, all other specialties (%)
Outcomes	37.5	37.5	37.5
Structure	30.0	30.0	30.0
Process/expert opinion	24.5	25.5	27.5
Patient experience	5.0	5.0	5.0
Public transparency[a]	3.0 (ACC; STS)	2.0 (GWTG)	0.0

[a]Participation in the American College of Cardiology (ACC) and Society of Thoracic Surgeons (STS) registries; participation in the American Hospital Association Get With The Guidelines (GTWG) program

a National Cancer Institute (NCI) comprehensive or clinical cancer center by the National Institutes of Health. Process refers to the delivery of care. In *U.S. News* rankings, it is represented by the expert opinion of a hospital to develop and sustain a system that delivers high-quality care. Such expert opinion is thought by *U.S. News* to indicate an institution's ability to develop and sustain systems that can deliver high-quality care to patients with high complexity. A hospital's expert opinion score is based on the average number of nominations from the three most recent annual surveys of board-certified physicians conducted for the Best Hospitals rankings.

In the data-driven rankings, the primary outcome measure is 30-day survival after an inpatient hospital admission. Starting with the 2019–2020 rankings, "patients discharged to home" was added as an outcome measure. The data-driven specialty areas are cancer, cardiology and heart surgery, diabetes and endocrinology, ENT (ear, nose, and throat), gastroenterology and gastrointestinal surgery, geriatrics, gynecology, nephrology, neurology and neurosurgery, orthopedics, pulmonology and lung surgery, and urology. Each hospital analyzed in the data-driven rankings receives an overall score from 0 to 100 based on four elements [14].

Data for *U.S. News* rankings are taken primarily from the following sources:

- Publicly available indicators. Measures of performance in the public domain were obtained from the websites of Hospital Compare maintained by CMS, STS, and NCI.
- Inpatient Limited Data Set Standard Analytical Files (Inpatient LDS SAF).
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- American Hospital Association Annual Survey.
- Hospital Consumer Assessment of Healthcare Providers and Systems Survey.
- Orthopedic Board certification data.
- Total volume data from the American Hospital Directory.

To compare outcomes between hospitals that treat varying diseases among different patient populations, *U.S. News* uses multilevel logistic regression models to

adjust for differences in case mix. The risk adjustment variables used in these models include the following:

- Age at admission
- Gender: male or female
- Inbound transfer status
- Year of hospital admission (since the quality of care tends to improve over time)
- Elixhauser comorbidities
- Medicare status code
- Socioeconomic status (patients with lower incomes are typically sicker when they arrive at the hospital and may face more challenges in obtaining or managing their care after they are discharged)
- ICD version
- Medical cohort risk adjusters
- Surgical cohort risk adjusters
- Source of admission
- History of stroke

For four specialties (ophthalmology, psychiatry, rehabilitation, and rheumatology), ranking is determined by expert opinion only, based on responses from 3 years of surveys of physician specialists who were asked to name the hospitals to which they would be inclined to refer their sickest patients. In addition to its Best Hospitals Specialty Rankings, *U.S. News* also publishes Best Hospitals Honor Roll, Best Hospitals Procedure and Conditions Ratings [16], Best Regional Hospitals, and Best Children's Hospitals.

9.4 Healthgrades

Healthgrades is a for-profit hospital and physician rating agency that makes ratings available to the public. According to the Healthgrades website [17], their aim is to "take the guesswork out of finding the right doctors, hospitals and care" for patients. Healthgrades states that it empowers patients to make decisions based on information, not just instinct, by making health care more transparent. Healthgrades publishes reports entitled America's Best Hospitals (Best 50, 100, and 250) and America's 50 and 100 Best Hospitals for Specialty Care. Specialties or service lines included are cardiac care, coronary intervention, critical care, gastrointestinal care, general surgery, joint replacement, orthopedic surgery, pulmonary care, stroke care, cardiac surgery, and vascular surgery. The organization also publishes hospital Patient Safety Excellence and Outstanding Patient Experience Awards for top honors in this these domains.

In summary, health-care provider organizations are rated by a variety of governmental, community, and commercial agencies. Given the different methods

employed by these agencies and the various challenges with their ratings, hospital quality leaders and improvement teams will need to evaluate which rating is most appropriate and useful for them in the context of the stakeholders and communities they serve.

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