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ARTICLE

Using Publicly Reported Global Hospital Rankings to Improve Dissemination of Patient-Reported Outcome Measures (PROMs)

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Patient-reported outcome measures (PROMs) represent an essential element of value-based care in health care sectors worldwide by transferring the quality definition from process- to outcome-based indicators that focus on the patients' needs. However, the adoption rate of PROMs in hospitals is still low. To address this challenge and to account for the growing importance of value-based health care, *Newsweek* and Statista developed a PROMs implementation survey along with a global board of medical experts to determine the current state of PROMs implementation in hospitals. The results of this survey were incorporated into the 2023 editions of *Newsweek*'s World's Best Specialized Hospitals and World's Best Hospitals rankings. The inclusion of PROMs adds a patient outcome–focused dimension that overcomes methodologic limitations and improves the comprehensiveness of these rankings. Furthermore, the public reporting of clinical outcomes such as PROMs serves as a catalyst to improve the quality of care. In this article, the authors describe what they believe is the increasing relevance of value-based health care and PROMs, the process of developing and launching the PROMs implementation survey, and its incorporation into hospital rankings to improve the value of care for patients on a global level.

Introduction

Patient-centered care is increasingly recognized as a fundamental part of health care systems worldwide. Providing the best possible health care, as measured by the individual patient's perceived value of care at a reasonable cost, has become the established definition of value-based health care (VBHC), creating a focus on patient-relevant outcomes over the full cycle of care as well as on efficient and sustainable health care systems.[1,2] To apply VBHC in practice, patient-reported outcome measures (PROMs) have been at the forefront for more than a decade. PROMs are defined as standardized, validated tools or questionnaires completed by patients to measure their perception of their functional well-being and quality of life related to an episode or experience of care.[3,4] The systematic measurement of PROMs requires the development of an extended evidence base, yet they are a promising means to identify patients' needs and to improve processes and health outcomes of patient care.[4,5] However, the adoption rate of PROMs in hospitals is low, and many hospitals have not implemented them at all.[6,7]

To account for the importance of VBHC and to address the slow uptake of PROMs, *Newsweek* and Statista developed a survey, measuring the implementation and use of PROMs across hospitals with the guidance of Statista's global board of medical experts (authors D.W.B., J.D.-W., G.K., G.S.K., C.A.M., and E.Z.). The results of this survey were incorporated in the 2023 editions of the World's Best Specialized Hospitals and World's Best Hospitals rankings published by *Newsweek* and Statista. Global hospital rankings were first published by *Newsweek* and Statista in March 2019 to serve as a comprehensive ranking source for hospitals at an international level.[8] However, hospital rankings are not without methodologic limitations. Rankings solely on the basis of reputation may not be current and may only consider certain aspects, mostly related to patient experience, such as hospitality and infrastructure. Therefore, it is important to analyze reputation in tandem with clinical process measures (e.g., readmission rates) and patient outcomes to improve the reliability and methodologic foundation of hospital rankings.[9]
The implementation of PROMs can help bridge this gap. This article focuses on the authors' experiences in developing and launching the PROMs implementation survey within the hospital ranking, the role of the global hospital rankings to improve the dissemination of VBHC, and tackling the issue of slow PROMs uptake in hospitals.

World's Best Hospitals

The fifth edition (2023) of the World's Best Hospitals ranking features more than 2,300 hospitals in 28 countries. The ranking was conceptualized as a resource to help patients make an informed and data-supported decision when choosing a hospital for their medical needs and to provide a composite benchmark for hospitals relative to national and international peers.[8] Eligibility of hospitals was identified on the basis of predefined inclusion criteria. The health care system and related metrics — such as standard of living and life expectancy — were considered in addition to the availability of publicly reported data sources for hospital quality data (e.g., national benchmarking initiatives). The data were analyzed at the national level to ensure comparability of the metrics. Because the ranking aims to be a guide for patients looking for the best service provider for a wide range of conditions, hospitals that are not accessible to the public and

Table 1. Weighting for Scoring Model of the World's Best Hospitals Ranking

Recommendations from Peers (Physicians, Health Care Professionals), %				
National	International	Patient Experience, %	Hospital Quality Metrics, %	PROMs Implementation, %
49	5	14.5	29	2.5

The patient-reported outcome measures (PROMs) implementation score range was defined as 70%–100%, meaning that only hospitals that achieved a minimum of 70% (of the maximum 100% score) were eligible to be graded on the PROMs implementation score curve. Because PROMs survey participation is optional, for hospitals that did not submit a survey, the other pillars were used with adjusted weights in the scoring model. The hospital score is the weighted average of the available scores for each hospital. On the basis of this score and the chosen cutoff for list length in the given country, hospitals are ranked top to bottom in each country. Source: The authors

hospitals with a low number of beds (oriented toward the average number of hospital beds per country) were excluded from the analysis. All eligible hospitals were ranked according to the scoring model on the basis of four pillars as shown in Table 1.

> *"It must be noted that the patient-reported outcome measures implementation survey aims to measure how far along hospitals are in the implementation of such programs and patient engagement."*

To collect recommendations from medical experts, *Newsweek* and Statista conducted an online survey involving tens of thousands of doctors, hospitals managers, and other health care professionals in the featured countries. Participants were asked for national and international recommendations of hospitals, with a strict policy against recommending their own employer, resulting in a national recommendation score as well as an international recommendation score for every hospital. Patient experience forms the second pillar of the scoring model. Data from publicly available patient surveys were used to measure a patient's general satisfaction with the hospital stay. In countries where such data sources are not available, Google Star ratings were used as a proxy with lower weight. On the basis of the data, a patient satisfaction score was calculated for each hospital. The third pillar of the scoring model includes hospital quality metrics. These medical indicators were taken from publicly available data sources and include a wide range of variables, such as data on quality of care for treatments, patient safety or infection prevention measures, and waiting times.

The 2023 edition of the ranking for the first time includes a PROMs implementation score in the analysis as a new pillar of the scoring model. The score is on the basis of the voluntary PROMs implementation survey, with a weight of 2.5% of the overall hospital score.[8,10] Finally, the scores of the four pillars are weighted to calculate the overall score for each eligible hospital and determine their rank on the national lists.

It must be noted that the PROMs implementation survey aims to measure how far along hospitals are in the implementation of such programs and patient engagement. By including PROMs as a fourth pillar in the World's Best Hospitals ranking, we hope that this awareness can act as an incentive for hospitals to expand their efforts in VBHC, thus improving quality of care to the benefit of patients. Despite the heterogeneity across ranking methodologies, all rankings

share the aim of providing guidance for patients while accounting for the differences in data sources and scope of analysis.

> *"For the patient-reported outcome measures implementation survey, it was imperative that the survey include not only which patient-reported outcome measures are being collected, but also how they are being collected and to what effect the results might impact the strategy of care of hospitals."*

PROMs Implementation Survey

PROMs, the instruments that allow patients to assess and report on the effect of treatment during the course of care (including the end result of care, e.g., functional recovery, quality of life), play an increasingly important role in health care.[11,12] Not to be confused with patient-reported experience measures (which measure a patient's perception of communication with health care professionals and comfort during a hospital stay), PROMs consider the outcome of care from the patient perspective as opposed to clinician-focused process metrics related to care.[2,13] This transformation of the quality definition from process to outcome indicators is a key step toward VBHC because it is ultimately the outcome of a health care process that defines the true value for patients.[2] Public reporting of clinical outcomes is central to this transformation, serving not only as a catalyst to improve the care quality and clinical outcomes provided by health care professionals, but also to simultaneously inform consumer choice.[14,15]

Although initially used in clinical trials and health technology assessment, there has been a shift in recent years to collect PROMs in routine care.[16,17] Notably, a 2016 study found an increased likelihood for patients to make hospital selections on the basis of quality measures derived from PROMs.[18] Another example of PROMs taking their place at the forefront of the VBHC is the National Health Service PROM program in the United Kingdom, which by 2018, had more than 1 million patients providing pre- and postoperative data measuring.[17] As calls for efforts in PROMs collection expand, data collected are increasingly used to help guide patients' decision-making by hospitals.[18] Furthermore, the slow adoption rate of PROMs signals the need for the development of standardized and reliable PROMs and their integration into clinical practice.[6,7]

For the PROMs implementation survey, it was imperative that the survey include not only which PROMs are being collected, but also how they are being collected, and to what effect the results might impact the strategy of care of hospitals. Thus, the pilot version was launched within the World's Best Hospitals survey cycle in 2020 to create awareness for the PROMs implementation survey. Participating hospitals were highlighted in the World's Best Hospitals ranking published in March 2021. The results of the survey, however, were not yet used for the scoring analysis. The first survey revision, developed in spring 2022, included four key areas of information:

- the standardized PROM instruments and departments in which they are collected,
- the condition-specific PROM instruments measured,
- the auditing and reporting process of the collected information, and
- how the results translated into the health care delivery of hospitals.

Although the pilot focused on PROMs at the hospital level, the refinement of departments in which standardized PROMs were collected was added in subsequent iterations (see the Appendix). Participants were asked to list the standardized and condition-specific PROM instruments measured in their hospital. For each PROM instrument, participants were asked whether case-mix adjustment is considered as well as the percentage of patients who completed the PROMs questionnaire. Department-level results were first considered for the ranking in World's Best Specialized Hospitals 2023. Furthermore, the focus of the survey is to assess the PROMs implementation efforts of hospitals as well as the extent of patient engagement and usage of PROMs data for improvement of practices.

> *"Factoring in patient-reported outcome measures auditing was a key addition to the survey. The external audit prior to publishing the data had the highest weight, because external auditing signals a better preparation of the data as opposed to an emphasis on volume of data only."*

The increased level of detail factored in two key criteria. First, although PROMs collection is important, the adjustment of the results to patient severity profiles is imperative to ascertain that selection biases were reduced, improving the statistical analyses of the results.[19] Thus, a higher weight was given to hospitals that collected standardized PROMs and factored in a case-mix adjustment for these results. Second, the response rate of patients is not only a signal of patient engagement, but also an opportunity for hospitals to assess the quality of care in a more robust way. Thus, the higher the collection rate of questionnaires, the higher the score.

The third section of the questionnaire focused on the auditing and reporting process. A 2012 study found that auditing and feedback generally lead to small yet potentially important improvements in professional practices.[20] Hence, factoring in PROMs auditing was a key addition to the survey. The external audit prior to publishing the data had the highest weight, because external auditing signals a better preparation of the data as opposed to an emphasis on volume of data only.[2]

Similarly, reporting results to the public had a higher weight than that of internal reporting. Public reporting provides data on health care outcomes to compare data across providers and on

a national level. Making previously inaccessible data available to the public allows for more accountability, transparency, and improvement of the health care system.[15,21,22] Because of competition, providers strive to improve their health care outcomes when data are available to patients, peers, decision-makers, and the media.[15]

Lastly, participants had to indicate whether PROMs data were used for optimizing care processes, whether the data-supported therapeutic decisions in real time, and whether the data were shared and compared with other institutions as a way of learning and/or benchmarking. This falls in line with a systematic review that found that there is justification for the use of a PROM as part of standard care.[4]

On the basis of these parameters, each question of the survey was graded (Table 2). The PROMs score range was defined as 70%–100%, meaning that only hospitals that achieved a minimum of 70% were eligible to be graded on the PROMs score curve. The threshold was set to reflect the hospitals' efforts in implementation and usage of PROMs results to optimize care processes as opposed to solely rewarding the participation in the survey. Below the threshold, hospitals did not receive a score for the PROMs section.

Moreover, the 2.5% weight of the PROMs implementation pillar was chosen carefully as a starting point on the basis of the established scoring model. The weight has the effect that hospitals that do not implement PROMs or did not participate in the PROMs implementation survey would have the incentive to do so without breaking the scoring model for hospitals that do not implement PROMs. This leads to hospitals that implement PROMs and have met the threshold having a comparative advantage within the ranking.

Table 2. PROMs Implementation: Survey Grading Scale

Question*	Description	Weight, %
1.2	Unified PROMs collection	15
2.1	Number of standardized PROMs	17
2.2	Condition-specific PROMs: case-mix adjustment and collection rate**	14
3.1	Audit before publishing the data	8
3.2	Reporting PROMs results internally	8
3.3	Reporting PROMs results to the public	10
4.1	Use PROMs data to optimize care processes	12
4.2	Using PROMs data to support therapeutic decisions in real time	8
4.3	Sharing and comparing your PROMs data with other institutions	8

*The question numbers align with those listed in the Appendix: Questionnaire Regarding Patient-Reported Outcome Measures (PROMs).
**Case-mix adjustment has a weight of 7%, and the collection rate of the questionnaires has a weight of 7%. The collection rates are evaluated on the basis of each condition-specific reported PROM, and the score is a weighted average of the collection rates across all reported PROMs of an institution; collection rates of more than 50% have the highest subweight within the corresponding 7%.
Source: The authors

Table 3. Regional Breakdown of Participating Hospitals

Continent	Number of Participants	Hospitals in Ranking	Hospitals Eligible for PROMs Score	Average PROMs Score, %*
Europe	29	26	25	80.52
Americas	48	30	45	75.10
Asia Pacific and Middle East	9	9	5	70.00
Total	86	65	75	76.40

*The average patient-reported outcome measures (PROMs) score is on the basis of the aggregated results of the hospitals' final PROMs implementation score, where 100% is the best score possible for each hospital. Source: The authors

> *"Participants had to indicate whether patient-reported outcome measures data were used for optimizing care processes, whether the data-supported therapeutic decisions in real time, and whether the data were shared and compared with other institutions as a way of learning and/or benchmarking."*

This survey cycle (a 5-month period between September 2022 and February 2023) had 86 participants. Of the participating hospitals, 87% met the threshold qualifying them for the PROMs pillar within the scoring model. The countries with the most participating hospitals were Brazil, the United States, France, and Germany. Hospitals in the United States had the highest average PROMs score within the participating hospitals. Aggregated at the continental level, the European hospitals had the highest average PROMs score of 80.52% (Table 3). The response rate of ranked hospitals was 2.7%. We must note that because participation in the survey was voluntary, it may be that hospitals that were ranked in World's Best Hospitals 2023 also implement PROMs but had not participated in the survey. However, by highlighting participation in the publication and creating awareness of the survey, we expect more ranked hospitals to participate in the upcoming cycle.

Lastly, when focusing within the survey sections, 90% of all participating hospitals reported PROMs results internally to clinicians, and 89% of participating hospitals reported optimizing their processes of care through the PROMs results (Table 4). The results of this survey cycle align with the purpose of including the survey within the scoring model of the hospital rankings. They help support our incentive for hospitals to not only implement PROMs, but to also use and share the data with clinicians, thus improving care for the patient.

Looking Ahead

Hospital rankings are a publicly reported form of benchmarking in the health care sector, which ideally should contribute to improvement of quality of care through comparison. However, some features of rankings have limitations.

Table 4. Aggregated Results of the Patient-Reported Outcome Measures Implementation Survey

Question Number	Question Group	Question Subgroup	Percentage of the 86 Hospital Respondents
1.2	Unified platform for PROMs		76%
2.1	Number of standardized PROMs		Maximum = 84, median = 23, average = 23.6
2.2	Condition-specific PROMs	Case mix	26% of hospitals reported case-mix adjustment for at least one PROM instrument
2.2	Condition-specific PROMs	Patient collection	68% of hospitals reported a collection rate of more than 50% for at least one PROM instrument
3.1	Auditing	Auditing internal	55% audit data (only) internally
3.1	Auditing	Auditing external	4% audit data (only) externally
3.1	Auditing	Auditing internal + external	17% audit data both internally and externally
3.2	Internal reporting	Clinicians	90% report internally to clinicians
3.2	Internal reporting	Patients	32% report internally to patients
3.2	Internal reporting	Management	67% report internally to management
3.3	Public reporting	Annual report	40% report externally in an annual report
3.3	Public reporting	Internet	45% report externally via the Internet
3.3	Public reporting	Overarching project	51% report externally via overarching projects
3.3	Public reporting	Scientific publication	57% report externally via scientific publications
4.1	Optimizing for care processes		89% use PROMs data for optimizing care processes
4.2	Real-time decision support		74% use PROMs data to support real-time decisions
4.3	Collaboration via data sharing/comparing		73% share and compare PROMs data with other institutions to learn from one another

The question numbers and categories align with the full survey that is provided in the Appendix. PROM = patient-reported outcome measure. Source: The authors

Rankings solely on the basis of reputation rely on expert opinions to determine the ranking positions, and they are limited by the lack of consideration of other factors, such as data on outcomes or other clinical factors.[23-25] Rankings reliant on publicly reported data, however, must account for data quality and its impact on the analysis, and clinical process data, by default, only measure certain aspects of hospital quality.[9]

> *"With an ever-increasing focus on value-based health care, incorporating patient-reported outcome measures into hospital rankings can further incentivize hospitals to recalibrate their efforts and subsequently improve the quality of care."*

These limitations serve as a driver toward the inclusion of outcome- and patient-oriented data. This underscores the importance of implementing PROMs in hospital rankings and the necessary shift to outcome-based data. Such improvements will further strengthen hospital rankings as valuable sources for patients to make informed decisions on where they should seek care. Thus, with an ever-increasing focus on VBHC, incorporating PROMs into hospital rankings can further incentivize hospitals to recalibrate their efforts and subsequently improve the quality of care.[14,26] Likewise, as the ranking expands and further sources of data are added, our goal is to decrease the weight allotted to expert recommendations.

The slow uptake of PROMs across medical fields, facilities, and geographical borders is probably in part because of challenges ranging from barriers to patient engagement and data collection, to a lack of incentives within the payment systems, as well as support and cooperation from larger entities (e.g., ministries of health).[26,27] The PROMs implementation survey as presented in this article can thus be a valuable incentive that promotes the adoption of VBHC in the health care market. To that end and with the goal of establishing this questionnaire as the leading measure for PROMs on an international level, Statista and the global board of experts will continue to develop and refine the survey and the underlying methodology.

One process improvement implemented in the 2023 World's Best Hospitals ranking was the expansion of the survey field phase to 15 weeks from 4 weeks to increase the participation and response rate from hospitals. Although this extended field phase provided hospitals more time to participate, the overlap with the holiday period, as well as the increase in participation close to the deadline, was a signal that the field phase may have been too long. Because the PROMs implementation survey is now an established component in the ranking, in future editions, the cycle will take place once a year for 8 weeks. Furthermore, the next iteration of the survey will incorporate learnings from previous cycles and feedback from the participating hospitals. The aim is to capture efforts toward the implementation of PROMs and delivering VBHC as well as the resulting influence on decision-making by leading hospitals across the globe. To accurately reflect the growing importance of these topics on the global hospital landscape and to promote the use of PROMs on a global level, the weight of the PROMs implementation score will increase in future editions of the World's Best Hospitals and World's Best Specialized Hospitals rankings. Lastly, the long-term goal is to compare hospitals not only on their stage of implementation, but also on their PROMs performance, showcasing hospitals that provide better outcomes as measured by the patients. Overall, we feel that rankings of this type can help drive improvement in health care broadly, and explicit inclusion of PROMs represents an important step forward.

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Appendix

Questionnaire Regarding Patient-Reported Outcome Measures

Disclosures: David W. Bates, Jens Deerberg-Wittram, Gregory Katz, Gary S. Kaplan, Christoph A. Meier, and Eyal Zimlichman serve on the expert committee for Newsweek *and Statista. Katharina Braeger, Lena S. Hirsch, Lukas Kwietniewski, and Camila Plaza de Laifer work for Statista. Jens Deerberg-Wittram and Gary S. Kaplan also serve on the editorial board of* NEJM Catalyst Innovations in Care Delivery *and were not involved in the publication decision related to this article.*

References

1. Porter ME, Teisberg EO. Redefining health care: creating value-based competition on results. Boston: Harvard Business School Press, 2006.

2. EIT Health. Implementing Value-Based Health Care in Europe: Handbook for Pioneers. 2020. Accessed September 27, 2023. https://eithealth.eu/wp-content/uploads/2020/05/Implementing-Value-Based-Healthcare-In-Europe_web-4.pdf.

3. Johnston BC, Patrick DL, Devji T, et al. Patient-reported outcomes. In: Higgins JPT, Thomas J, Chandler J, et al., eds. Cochrane handbook for systematic review of interventions. 2nd ed. Hoboken, NJ: Wiley-Blackwell, 2019:479-92.

4. Ishaque S, Karnon J, Chen G, Nair R, Salter AB. A systematic review of randomised controlled trials evaluating the use of patient-reported outcome measures (PROMs). Qual Life Res 2019;28:567-92 https://link.springer.com/article/10.1007/s11136-018-2016-z https://doi.org/10.1007/s11136-018-2016-z.

5. Gibbons C, Porter I, Gonçalves-Bradley DC, et al. Routine provision of feedback from patient-reported outcome measurements to healthcare providers and patients in clinical practice. Cochrane Database Syst Rev 2021;10:CD011589 https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD011589.pub2/information https://doi.org/10.1002/14651858.CD011589.pub2.

6. Ernst SK, Steinbeck V, Busse R, Pross C. Toward system-wide implementation of patient-reported outcome measures: a framework for countries, states, and regions. Value Health 2022;25:1539-47 https://www.valueinhealthjournal.com/article/S1098-3015(22)01926-X/fulltext https://doi.org/10.1016/j.jval.2022.04.1724.

7. Stover AM, Haverman L, van Oers HA, Greenhalgh J, Potter CM. Using an implementation science approach to implement and evaluate patient-reported outcome measures (PROM) initiatives in routine care settings. Qual Life Res 2021;30:3015-33 https://link.springer.com/article/10.1007/s11136-020-02564-9 https://doi.org/10.1007/s11136-020-02564-9.

8. Statista. World's Best Hospitals 2023 — Extended Methodology. Newsweek.com. March 1, 2023. Accessed June 11, 2023. https://d.newsweek.com/en/file/465681/wbh-hospitals-2023-extendedmethodology.pdf.

9. Mackenzie SJ, Goldmann DA, Perla RJ, Parry GJ. Measuring hospital-wide mortality — pitfalls and potential. J Healthc Qual 2016;38:187-94 https://onlinelibrary.wiley.com/doi/abs/10.1111/jhq.12080 https://doi.org/10.1111/jhq.12080.

10. Statista. World's Best Specialized Hospitals 2023 — Extended Methodology. Newsweek.com. August 17, 2022. Accessed December 6, 2022. https://d.newsweek.com/en/file/464567/worlds-best-specialized-hospital-2023-methodology.pdf.

11. Bausewein C, Simon ST, Benalia H, et al. Implementing patient reported outcome measures (PROMs) in palliative care — users' cry for help. Health Qual Life Outcomes 2011;9:27 https://hqlo.biomedcentral.com/articles/10.1186/1477-7525-9-27 https://doi.org/10.1186/1477-7525-9-27.

12. Gutacker N, Street A, Gomes M, Bojke C. Should English healthcare providers be penalised for failing to collect patient-reported outcome measures? A retrospective analysis. J R Soc Med 2015;108: 304-16 https://journals.sagepub.com/doi/10.1177/0141076815576700 https://doi.org/10.1177/0141076815576700.

13. Kingsley C, Patel S. Patient-reported outcome measures and patient-reported experience measures. BJA Educ 2017;17:137-44 https://academic.oup.com/bjaed/article/17/4/137/2999278 https://doi.org/10.1093/bjaed/mkw060.

14. Campanella P, Vukovic V, Parente P, Sulejmani A, Ricciardi W, Specchia ML. The impact of public reporting on clinical outcomes: a systematic review and meta-analysis. BMC Health Serv Res 2016; 16:296 https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-016-1543-y https://doi.org/10.1186/s12913-016-1543-y.

15. Prang K-H, Maritz R, Sabanovic H, Dunt D, Kelaher M. Mechanisms and impact of public reporting on physicians and hospitals' performance: a systematic review (2000–2020). PLoS One 2021;16: e0247297 https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0247297 https://doi.org/10.1371/journal.pone.0247297.

16. Organisation for Economic Co-operation and Development. Ministerial Statement: The Next Generation of Health Reforms. January 17, 2017. Accessed February 10, 2023. https://www.oecd.org/health/ministerial/ministerial-statement-2017.pdf.

17. Gutacker N, Street A. Calls for routine collection of patient-reported outcome measures are getting louder. J Health Serv Res Policy 2019;24:1-2 https://journals.sagepub.com/doi/pdf/10.1177/1355819618812239.10.1177/1355819618812239 https://doi.org/10.1177/1355819618812239.

18. Gutacker N, Siciliani L, Moscelli G, Gravelle H. Choice of hospital: which type of quality matters? J Health Econ 2016;50:230-46 https://www.sciencedirect.com/science/article/pii/S0167629616301370 https://doi.org/10.1016/j.jhealeco.2016.08.001.

19. Sibert NT, Pfaff H, Breidenbach C, Wesselmann S, Kowalski C. Different approaches for case-mix adjustment of patient-reported outcomes to compare healthcare providers-methodological results of a systematic review. Cancers (Basel) 2021;13:3964 https://www.mdpi.com/2072-6694/13/16/3964 https://doi.org/10.3390/cancers13163964.

20. Ivers N, Jamtvedt G, Flottorp S, et al. Audit and feedback: effects on professional practice and healthcare outcomes. Cochrane Database Syst Rev 2012;6:CD000259 https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD000259.pub3/abstract https://doi.org/10.1002/14651858.CD000259.pub3.

21. Marshall MN, Shekelle PG, Leatherman S, Brook RH. The public release of performance data: what do we expect to gain? A review of the evidence. JAMA 2000;283:1866-74 https://jamanetwork.com/journals/jama/article-abstract/192586 https://doi.org/10.1001/jama.283.14.1866.

22. Lindenauer PK, Remus D, Roman S, et al. Public reporting and pay for performance in hospital quality improvement. N Engl J Med 2007;356:486-96 https://www.nejm.org/doi/full/10.1056/nejmsa064964. https://doi.org/10.1056/NEJMsa064964.

23. Mendu ML, Kachalia A, Eappen S. Revisiting US News & World Report's hospital rankings—moving beyond mortality to metrics that improve care. J Gen Intern Med 2021;36:209-10 https://link.springer.com/article/10.1007/s11606-020-06002-x https://doi.org/10.1007/s11606-020-06002-x.

24. Mehta R, Merath K, Farooq A, et al. U.S. News and World Report hospital ranking and surgical outcomes among patients undergoing surgery for cancer. J Surg Oncol 2019;120:1327-34 https://onlinelibrary.wiley.com/doi/abs/10.1002/jso.25751 https://doi.org/10.1002/jso.25751.

25. Hofstede SN, Ceyisakar IE, Lingsma HF, Kringos DS, Marang-van de Mheen PJ. Ranking hospitals: do we gain reliability by using composite rather than individual indicators? BMJ Qual Saf 2019;28:94-102 https://qualitysafety.bmj.com/content/28/2/94 https://doi.org/10.1136/bmjqs-2017-007669.

26. Effective Health Care Program, Agency for Healthcare Research and Quality. Research Protocol: Public Reporting as a Quality Improvement Strategy: A Systematic Review of the Multiple Pathways Public Reporting May Influence Quality of Health Care. August 17, 2011. Accessed February 12, 2023. https://effectivehealthcare.ahrq.gov/products/public-reporting-quality-improvement/research-protocol.

27. Steinbeck V, Ernst S-C, Pross C. Patient Reported Outcome Measures — An International Comparison: Challenges and Success Strategies for the Implementation in Germany. Technical University Berlin, Department of Healthcare Management, Bertelsmann Stiftung. May 2021. Accessed August 3, 2023. https://www.bertelsmann-stiftung.de/fileadmin/files/user_upload/BSt_PROMs-Implementation_final.pdf.