

# What Defines a High-Performing Health Care Delivery System: A Systematic Review

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**Background:** Purchasers, payers, and policy makers are increasingly measuring and rewarding high-performing health systems, which use a variety of definitions of *high performance*, yet it is unclear if a consistently applied definition exists. A systematic review was conducted to determine if there is a commonly used, agreed-on definition of what constitutes a “high-performing” health care delivery system.

**Methods:** Searches were conducted for English-language articles defining high performance with respect to a health care system or organization in PubMed and WorldCat databases from 2005 to 2015 and the New York Academy of Medicine Grey Literature Report from 1999 to 2016. The entity/condition to which the definition was applied was extracted from included articles. The number and type of dimensions used to define high performance within and across articles was tabulated and the number and type of metrics used by performance dimension and by article was calculated.

**Results:** No consistent definition of a high-performing health care system or organization was identified. High performance was variably defined across different dimensions, including quality (93% of articles), cost (67%), access (35%), equity (26%), patient experience (21%), and patient safety (18%). Most articles used more than one dimension to define high performance (75%), but only five used five or more dimensions. The most commonly paired dimensions were quality and cost (63%).

**Conclusion:** The absence of a consistent definition of what constitutes high performance and how to measure it hinders our ability to compare and reward health care delivery systems on performance, underscoring the need to develop a consistent definition of high performance.

Measuring the performance of health care delivery systems has become a central focus of policy makers.<sup>1–3</sup> The oft-reported poor performance of the US health care system<sup>4–6</sup> as the most expensive and worst-performing among industrialized nations has led to a push to improve the structure and functioning of health care delivery systems to achieve high performance.<sup>7,8</sup> Recent health reform efforts, such as primary care redesign and the use of alternative payment models,<sup>9–13</sup> are intended to transform how health care delivery systems deliver care to achieve high performance.

The concept of a “high-performing” health care delivery system as a goal to be achieved has gained significant traction in research and policy. To support delivery system improvement nationally, the Agency for Healthcare Research and Quality (AHRQ) recently funded three Centers of Excellence to study high-performing systems, particularly their ability to quickly move new evidence-based care practices into practice.<sup>14</sup> Research to understand what enables health care delivery systems to perform highly, and policy efforts to measure and recognize high-performing health care delivery systems, is predicated on an agreed-on definition of what it means to be high-performing. Achieving consensus on what it means to be high-performing is essential to facilitate comparisons across delivery systems and in applied

measurement activities, such as programs that designate and publicly recognize high performers.<sup>15–17</sup>

Despite the growing emphasis on identifying high-performing health care delivery systems, it is unclear whether a consistently applied definition of *high performance* exists. There has been much research about and dissemination of high performance as it applies to narrow clinical areas, such as a high-performing hospital for cardiac surgery or a high-performing health system delivering preventive services. However, we sought to determine if the literature supported a common definition of the overarching concept of high performance, as used in phrases such as “a high-performing health care system,” or if there was a definition implicit in how the term *high performance* has been used. We conducted a systematic review of the published and grey literature that used *high performance* to describe health systems and health care organizations that are the building blocks of health care delivery systems (health plans, hospitals, or provider groups), and evaluated (1) whether a definition of high performance was articulated, (2) the key elements of the definition, and (3) the metrics used to operationalize the definition, if any.

## METHODS

### Data Sources and Searches

We conducted a literature search of PubMed and WorldCat databases from January 1, 2005, through December 30, 2015,

**Table 1. Search Methodology****SEARCH 1:****DATABASE SEARCHED & TIME PERIOD COVERED:**

PubMed — 12/30/2005–12/30/2015

**SEARCH STRATEGY:**

"high performing"

AND

healthcare system\* OR healthcare organization\* OR health system\* OR health organization\* OR health plan\* OR hospital OR hospitals OR healthcare plan\*

**DATABASE SEARCHED & TIME PERIOD COVERED:**

WorldCat — 1/1/2005–12/30/2015

**LANGUAGE:**

English

**SEARCH STRATEGY:**

(kw: high w performing)

AND

(kw: health and kw: system\*) OR (kw: healthcare and kw: system\*) OR (kw: health and kw: organization\*) OR (kw: healthcare and kw: organization\*) OR kw: hospital OR kw: hospitals OR (kw: health and kw: plan\*) OR (kw: healthcare and kw: plan\*)

**SEARCH 2:****DATABASE SEARCHED & TIME PERIOD COVERED:**

PubMed—From inception to 1/8/2016

**SEARCH STRATEGY:**

"high performing" OR "high-performing"

AND

"primary care" OR medical group\* OR group practice OR "Primary Health Care"[Mesh] OR "Physicians, Primary Care"[Mesh] OR "Primary Care Nursing"[Mesh]

**DATABASE SEARCHED & TIME PERIOD COVERED:**

WorldCat—From Inception to 1/11/2016

**LANGUAGE:**

English

**SEARCH STRATEGY:**

(kw: high w performing OR kw: high-performing)

AND

(kw: primary w care OR kw: medical w group OR kw: medical w groups OR kw: group w practice OR kw: family w physician OR kw: family w physicians)

**DATABASE SEARCHED & TIME PERIOD COVERED:**

Grey Literature Report—From Inception to 1/11/2016

**SEARCH STRATEGY:**

"HIGH-PERFORMING"

to identify articles that measured health system or health care organization performance in the United States, the United Kingdom, Canada, Australia, and New Zealand. We also searched the Grey Literature Report published by the New York Academy of Medicine from inception in 1999 through January 11, 2016. We used several combinations of search terms to identify the range of health care organizations (for example, *system*, *hospital*, *provider group*, *health plan*) to which the descriptor *high-performing* was applied (see Table 1 for the full search methodology). We reference-mined any systematic reviews that were identified through our search for relevant titles not already identified in our primary search.

### Study Selection

We included documents describing studies of any design, reports, testimony, editorials, commentaries, and consensus statements that used and defined the term *high performance* with respect to a health system (that is, a national or state

system) or a health care delivery system, including hospitals, clinics, plans, nursing homes, and other health care organizations and entities that comprise the building blocks of a health care delivery system. We included documents that explicitly sought to define high performance, as well as those that implicitly offered a definition of high performance by articulating and describing dimensions of performance. We excluded non-English-language studies. We also excluded studies that used the term *high performance* without providing either an explicit or implicit definition; studies that measured performance only in the context of a single or disease-specific measure not generalizable to systems-level performance (for example, a high-performing clinic for hand-washing compliance; a high-performing health plan for glycemic control; a high-performing hospital for disease-specific readmission rates); and studies that described *attributes* of health systems that could contribute to high performance (for example, presence of health information

technology, stated vision, aligned incentives) but do not themselves define high performance. Finally, we excluded any articles that were not available for full-text review.

All articles underwent independent dual review [S.C.A., M.S.] at the title/abstract and full-text stages to minimize reviewer error and bias, with weekly team meetings to discuss the review process and refine inclusion/exclusion criteria.

### Data Extraction and Quality

Articles that were included after full-text screening were abstracted by one reviewer [M.S.] and checked by a second reviewer [S.C.A.], each of whom used a pilot-tested and standardized data extraction spreadsheet. For each article, we extracted the publication year, geographical context (country where the study took place, countries being evaluated on performance), entity or condition to which the definition was applied, specific dimensions included in the definition (for example, clinical quality, patient safety, cost), the actual definition of performance used, and if applicable, the source of the definition. Article quality was not assessed because it was not relevant.

### Data Synthesis and Analysis

Results were summarized in a narrative synthesis. We tabulated the number and type of performance dimensions used to define high performance within and across articles. We did not adjust for multiple publications from the same set of authors (such as authors from the Commonwealth Fund) because in each case, a slightly different version of the definition was used (that is, by including different dimensions, leaving some out, or emphasizing others). We also tabulated the number of studies that operationalized their definitions of high performance, and then calculated the number and type of metrics used by dimension and by article.

### Ethics

This study was reviewed and approved by RAND's Human Subjects Protection Committee.

## RESULTS

### Literature Search

Our PubMed and World Cat searches identified 309 references, our grey literature search identified an additional 59 references, and 1 additional reference was identified by expert suggestion (Figure 1). We also identified 1 systematic review, which yielded an additional 8 references not otherwise identified in our primary search, for a total of 377 references identified via our initial search. After title and abstract screening, 118 articles met our inclusion criteria for full text review, and of these, we abstracted data from 57 included articles (one of the "articles"\* is a multichapter book).<sup>3,18-73</sup>

\* One of the 57 included articles was a multichapter book which for the purposes of this study is classified as a single "article."

Of the 61 full-text articles that did not meet our inclusion criteria for full-text review, 21 were excluded because they did not provide a definition of high performance, 17 were excluded because they described attributes of high-performing health care entities but did not provide a definition for high performance, and 18 were excluded because they defined or measured high performance narrowly in terms of a single or disease-specific measure or organizational process not generalizable to health care delivery system performance. Four articles were not available for full-text review, and the remaining article was deemed not relevant because it addressed hospital staff coding performance for quality measurement.

### Definitions of High-Performing

**Health Care Entities and Organizations.** Of the 57 included articles, the term *high performance* was applied to various types of health care entities, including health systems (21 articles).<sup>3,30,33,38,40,41,43,45-57,69</sup> Ten of these 21 articles referred to the "U.S. health system,"<sup>3,45,47-49,51,53,56,57,69</sup> 5 referred to state-level health systems,<sup>30,40,50,52,54</sup> and 4 referred to comparisons across national health systems.<sup>41,43,46,55</sup> Articles also referred to health care organizations, as follows:

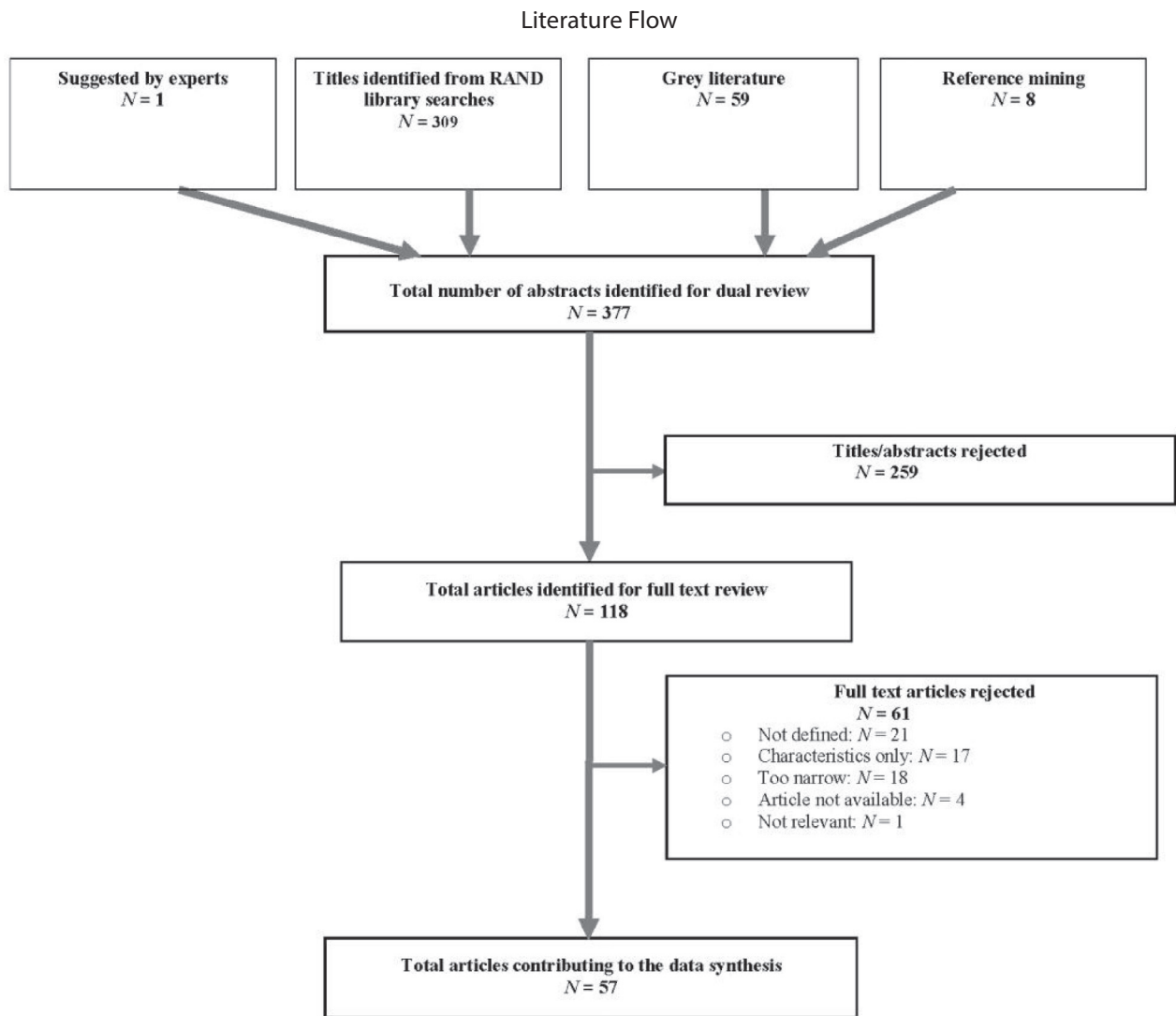
- Hospitals ( $n = 17$ )<sup>18-22,25,28,31,32,34,35,37,63,68,70-72</sup>
- Primary care sites ( $n = 10$ )<sup>23,26,27,39,58,59,61,62,64,65</sup>
- Medical groups or physician organizations ( $n = 4$ )<sup>60,66,67,73</sup>
- Nursing homes ( $n = 1$ )<sup>24</sup>
- Accountable care organizations ( $n = 1$ )<sup>44</sup>
- Trauma centers ( $n = 1$ )<sup>29</sup>
- Health plan and provider partnerships ( $n = 1$ )<sup>36</sup>
- "Health care organizations" (broadly defined) ( $n = 1$ )<sup>42</sup>

**Countries.** Of the 57 articles, 51 described high-performing health systems or organizations in the United States, 2 described high-performing health systems or organizations in the United Kingdom,<sup>63,68</sup> and 4 compared high-performing health systems in different countries.<sup>41,43,46,55</sup> The details of the included studies are presented in the evidence table (Appendix 1, available in online article).

### Performance Dimensions in Definitions of High Performance

High performance was defined in the 57 articles using a variety of performance dimensions, as follows (Figure 2):

- Clinical quality ( $n = 53$ )<sup>3,19,21-32,34,36-73</sup>
- Cost ( $n = 38$ )<sup>3,19,23,27,30,32,33,35-38,40-58,60,62-64,66,67,69,73</sup>
- Access ( $n = 20$ )<sup>3,30,40-43,46,48-57,63,68,69</sup>
- Equity ( $n = 15$ )<sup>3,30,40-42,45,46,49,51-53,56,57,69,71</sup>
- Patient experience ( $n = 12$ )<sup>18-20,32,39,41,46,47,52,60,63,67</sup>
- Patient safety ( $n = 10$ )<sup>28,39,41,46,52,56,62,69-71</sup>
- Organizational responsiveness ( $n = 4$ )<sup>43,56,67,69</sup>
- Care coordination ( $n = 4$ )<sup>23,52,60,62</sup>
- Community service ( $n = 2$ )<sup>37,70</sup>
- Physician work-life satisfaction ( $n = 1$ )<sup>26</sup>
- Governance ( $n = 1$ )<sup>33</sup>
- Innovation ( $n = 1$ )<sup>58</sup>



**Figure 1:** This flow diagram presents the different stages of article identification, review, and selection. This process resulted in a total of 57 articles that were included in the analysis and contributed to the data synthesis. This flow diagram is presented in accordance with Moher D, et al. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *J Clin Epidemiol.* 2009;62:1006–1012.

Forty-three (75%) of the 57 articles incorporated multiple performance dimensions in their definitions of high performance. Specifically, high performance was defined in terms of the following (Figure 3):

- Two dimensions ( $n = 11$  articles)<sup>26–28,33,36,38,44,64,66,68,73</sup>
- Three dimensions ( $n = 14$ )<sup>19,23,32,37,39,45,47,48,50,54,55,58,70,71</sup>
- Four dimensions ( $n = 13$ )<sup>3,30,40,42,43,49,51,53,57,60,62,63,67</sup>
- Five or more dimensions ( $n = 5$ )<sup>41,46,52,56,69</sup>

The 5 articles using five or more dimensions to define high performance all derive from the work of the Commonwealth Fund’s Commission on a High Performance Health System<sup>41,46,52,56,69</sup> to develop a framework for a high-performing health system in the United States at both the national and state levels.

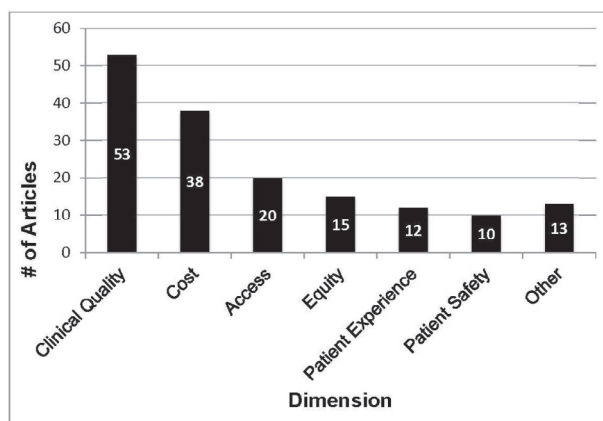
Clinical quality and cost were the most common pairing of performance dimensions across the 57 articles, with 36

(63%) of the articles<sup>3,19,23,27,30,32,36–38,40–58,60,62–64,66,67,69,73</sup> incorporating at least those two dimensions (Figure 3). This was followed by clinical quality and access, with 20 (35%) of the 57 articles<sup>3,30,40–43,46,48–57,63,68,69</sup> incorporating at least those two dimensions. The 5 Commonwealth Fund articles that used five or more dimensions all included the combined dimensions of clinical quality, cost, patient safety, access, and equity in their definition of high performance. Three of the 5 articles<sup>41,46,52</sup> also included the dimension of patient experience, 2 of the 5<sup>56,69</sup> also included the dimension of capacity to improve/responsiveness, and 1 of the 5<sup>52</sup> included the dimension of care continuity and coordination.

### Specification of Metrics

Seventeen (30%) of the 57 included articles<sup>23,26,27,39,42–45,48,51,52,55,56,58,60,64,69</sup> specified dimensions of high performance

Type and Frequency of Dimensions Used in Definitions of High Performance



**Figure 2:** This chart displays the number of identified articles that used each of the various dimensions of “high performance,” as identified through the review. For example, 53 of the included articles used clinical quality in their definition of high performance.

but did not specify metrics to operationalize their definition of performance. For example, 8 articles<sup>44,45,48,51,52,55,56,69</sup> referred to some aspect of the definition put forth by The Commonwealth Fund Commission on a High Performance Health System, which defines a high-performance health system as one that offers “high-quality, safe care; access for all people; efficient, high-value care; with the capacity to improve.”<sup>2(p. v)</sup>

Two articles broadly defined performance based on the Triple Aim of “better health, higher-quality care, and lower costs.”<sup>23,58</sup>

The majority of articles ( $n = 40$ )<sup>3,18–22,24,25,28–38,40,41,46,47,49,50,53,54,57,59,61–63,65–68,70–73</sup> used specific metrics to operationalize their definition of high performance. Of those 40 articles, 3 used only a single metric—Shih et al.<sup>25</sup> and Haas et al.<sup>29</sup> defined performance along the dimension of clinical quality (and both used risk-adjusted mortality rates to measure performance), and Kane et al.<sup>35</sup> defined performance in terms of cost and measured performance using a 5-year operating margin.

The other 37 articles used multiple metrics to assess performance. Twenty-six (70%) of those<sup>3,18–20,22,24,28,30,32,33,37,38,40,41,46,47,49,50,53,54,57,63,66,68,72,73</sup> used data drawn from existing measurement efforts and performance measure sets, such as the following:

- Commonwealth Fund’s State Scorecard on Health Systems Performance ( $n = 11$  articles)<sup>3,30,40,41,46,47,49,50,53,54,57</sup>
- CMS Hospital Compare ( $n = 4$ )<sup>19,22,31,32</sup> and Minimum Data Set ( $n = 2$ )<sup>19,24</sup>
- The National Health Service (United Kingdom) Star Rating System ( $n = 2$ )<sup>63,68</sup>
- The Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) Survey ( $n = 3$ )<sup>18–20</sup>
- Baldrige criteria ( $n = 2$ )<sup>38,72</sup>

- National Committee for Quality Assurance’s Health-care Effectiveness Data and Information Set (HEDIS) ( $n = 1$ )<sup>32</sup>

The remaining 11 articles<sup>21,25,34,36,59,61,62,65,67,70,71</sup> did not use data from an existing performance measure set but instead used a number of different individual metrics to operationalize their definition of high performance, such as adherence to clinical practice guidelines for multiple conditions or in-hospital mortality rates to measure quality and costs per episode of care or hospital operating performance to measure costs.

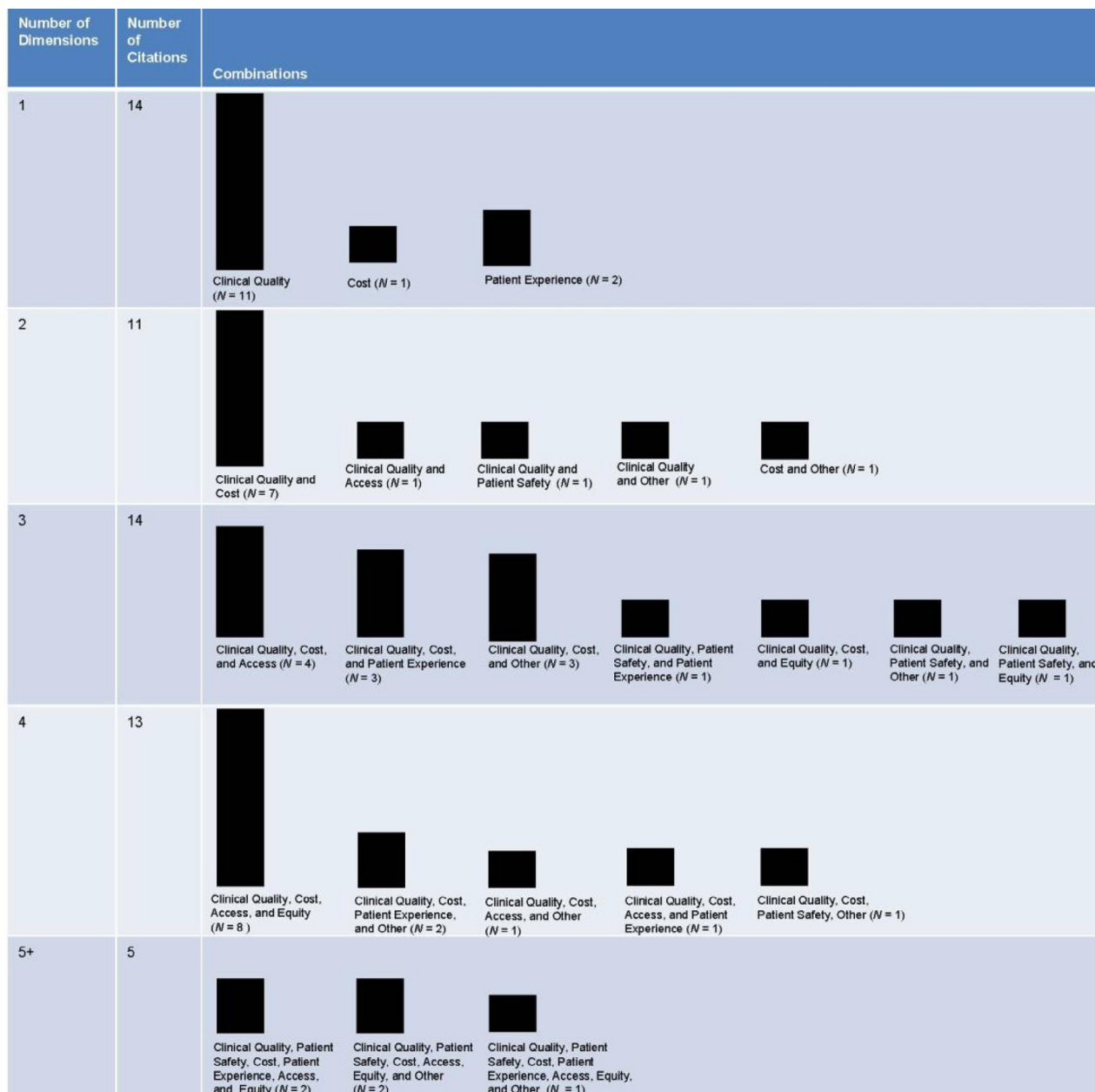
## DISCUSSION

The most important finding from our review is the absence of a consistently used definition regarding what it means to be high-performing for a health care delivery system and its component parts. This is in contrast to other key concepts such as “quality” and “safety,” that, like high performance, are attributes important for characterizing health care delivery systems but for which there exists an authoritative or commonly referenced definition<sup>74,75</sup> that facilitates shared understanding and comparisons across contexts.

In an effort to be as inclusive and unbiased as possible, we applied an inductive approach to identifying the dimensions of performance used in the current literature. The most commonly used dimensions that we identified (quality, cost, access, equity, patient experience, and patient safety) align with the six specific aims for health care improvement proposed by the Institute of Medicine’s (IOM) Committee on Quality of Health Care in America: safety, timely access, effectiveness, efficiency, equity and patient-centeredness,<sup>74</sup> suggesting a general consensus regarding the salience of these dimensions. However, we also identified other dimensions not explicitly addressed in the IOMs six aims: organizational responsiveness, care coordination, community service, physician work-life satisfaction, governance, and innovation, indicating that there are other aspects of performance that may be meaningful to consider in evaluating health systems.

Although most (75% of the included articles) authors conceptualized high performance across multiple dimensions, there was considerable variation in the number and type of dimensions used beyond that; most included at least clinical quality (93%), sometimes in combination with cost (63%), or less frequently, with access (35%). In addition, almost a third of the articles we found conceptualized a definition of high performance but did not include specific metrics to operationalize that definition. Among the articles that did operationalize their definition of high performance, we found considerable variation in the number and type of metrics selected to represent high performance, with some using a very narrow set of metrics to represent a given dimension. Identifying meaningful and representative metrics of performance that can be consistently applied across health care

Number and Specific Combinations of Performance Dimensions Used in Definitions of High Performance



**Figure 3:** This figure presents the included articles by the number of dimensions reflected in their definitions of “high performance” and by the specific combinations of dimensions reflected in the definition. For example, 11 of the included articles used definitions of high performance covering 2 dimensions. Of these 11 articles, 7 used the combination of clinical quality and cost in their definitions of high performance.

organizations is critical to efforts by payers and policy makers to recognize and distinguish high-performing systems.

Given the variability in the number and type of metrics used to define or evaluate performance in the articles we found, there is likely to be overlap in metrics across each of the dimensions used to define performance. For example, readmission rates might be used as a measure of clinical quality as well as a measure of resource use affecting cost and efficiency. To date, some work has been done to attempt to specify the work and measures within individual performance

dimensions such as patient safety or clinical quality, as well as to outline the organizational processes that might be undertaken to increase the specificity of such measures (for example, the use of a quality analytics council to identify appropriate quality metrics).<sup>76</sup> Although not an objective of the current study, future work might continue to address the need for greater specificity in measures of performance and their ability to evaluate discrete dimensions such as quality or safety. Reducing the overlap between dimensions may make them more useful to apply in practice.

It is important to note that 17 identified articles were ultimately excluded from our study because they outlined *attributes* of high-performing health care entities; that is, they identified what a high-performing health care organization looks like but did not define high performance. Although information about the factors that contribute to getting to high performance (for example, use of an integrated electronic health record, organizational commitment to learning, leadership support) can help drive performance improvement efforts, these factors do not measure actual performance or represent what it means to be high-performing.

The growing emphasis in the health care marketplace on rewarding high-performing health systems underscores the need to develop an agreed-on definition of high performance. Moreover, the expectation by patients, payers, and policy makers that health care delivery systems provide high-quality and reliable care that is safe, affordable, accessible, and patient-centered, demand that any definition of high performance be necessarily multidimensional. Our review findings indicate that, currently, clinical quality and, to a lesser extent, cost, are frequently used dimensions by which to define high performance, yet alone they do not represent what it likely means to be high-performing. Defining an organization as high-performing across only one or two performance dimensions, while informative, is reflective of only a particular slice of performance and is naturally limited in its ability to characterize and evaluate performance in the broader sense. On the basis of our findings and prior efforts to define high performance more comprehensively,<sup>74</sup> we propose that a six-dimension definition of high performance—incorporating clinical quality, cost, patient experience, access, patient safety, and equity, as identified in our review—can advance the field by establishing a rigorous foundation for measuring performance and setting a necessary and achievable standard for health care delivery systems in the United States. Such a multidimensional definition also aligns with the IOM's six aims for health care improvement,<sup>74</sup> which offer a useful starting point for developing a comprehensive definition of high performance.

Our goal in the current article was to identify the dimensions by which high performance is characterized in the literature. An important next step will be to define the meaningful components of patient care that comprise each of these dimensions and could serve as individual measures of performance. For example, operationalizing the dimension of patient experience might involve measuring patient satisfaction, access, doctor-patient interaction, and care continuity and coordination. The Commonwealth Fund Scorecard on State Health System Performance<sup>77</sup> is one example of an attempt to produce a comprehensive definition of high performance, with 5 dimensions and 42 metrics of performance. However, this effort was aimed at assessing state- and national-level performance and included a number of population-based metrics that would not be relevant to assessing the performance of a health care delivery system (for example,

the percentage uninsured, suicide deaths per 100,000). Such an effort provides a useful foundation from which to build a definition of high performance, modified to apply to health care delivery systems.

To be as inclusive as possible in our search for existing definitions of high performance, we purposefully searched across a range of article types, including, for example, published research studies, congressional testimony, reports, and editorials. Any differences we identified in definitions of high performance across these articles may be due to the differing objectives of each article type and the perspectives of individual authors. Despite this expected variation, groups releasing public performance data still utilize summary measures of performance that aggregate various dimensions, underscoring the salience of developing a single agreed-on and multidimensional definition of high performance.

Our review has a number of limitations, chief among them being that a search for definitions of high performance cannot benefit from easily identifiable index terms the same way that a search for a specific medical intervention does. We searched for use of *high performance* and similar terms in the title or abstract of an article. Therefore, we may have missed potentially relevant articles if high performance was not mentioned in either place. Nevertheless, it is unlikely that additional articles would alter the conclusion that a common definition is lacking. Second, we limited our search to English-language articles describing work in the United States or other English-speaking countries. Given our broader objective to understand high-performing health care delivery systems in the United States, these limitations seem reasonable. Third, as part of our analytic process, we made some decisions about which dimensions were addressed in each of the identified articles. For example, we considered measures of population health (for example, proportion of patients in a defined population with a body mass index [BMI] over 30 m<sup>2</sup>/kg) as reflective of the dimension of clinical quality. Population health is growing in importance and may be considered by some, now or in the future, as its own dimension of performance. It will be important to constantly evaluate any accepted definition of performance for its relevance to current knowledge and practice. Similarly, when included articles did not explicitly specify dimensions of performance, we made decisions about the dimensions based on the metrics used; for example, when an article used HCAHPS data to measure performance, we classified it as having defined performance along the dimension of patient experience, whereas when an article used Hospital Compare, we classified it as clinical quality. These decisions seem straightforward, but they nevertheless involve assumptions on our part. Finally, we do not report on articles' methods for determining what counts as "high" performance within their definition (for example, if a definition was based on HCAHPS or Hospital Compare scores we did not capture what threshold was used to classify performance as "high"). This is necessarily an important component of any definition, but one that we

judge more appropriate to leave to a later date, after first determining the dimensions of the definition and the metrics to be used.

## CONCLUSION

The literature does not support a shared understanding or common use of a definition of high performance with respect to a health care delivery system or the components of a delivery system, including hospitals, clinics, or nursing homes. Absent a consistent definition with agreed-on metrics, we are significantly limited in our ability to compare health care delivery systems by performance and to develop and implement meaningful policies to achieve high performance. The critical need for a definition of high performance that comprehensively and accurately reflects our expectations for health care is made apparent by policy makers and payers' growing focus on high performance. It is important to develop a shared common understanding of high performance and identify and agree on common metrics that in aggregate could be used to identify health care delivery systems that are high-performing in the broader sense.

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## ONLINE-ONLY CONTENT

See the online version of this article for Appendix 1. Evidence Table.

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