



American Hospital
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September 25, 2017

Kate Goodrich, M.D.
Chief Medical Officer
Centers for Medicare & Medicaid Services
7500 Security Boulevard
Baltimore, MD 21244

RE: Enhancements of the Overall Hospital Quality Star Rating, August 2017

Dear Dr. Goodrich:

On behalf of our nearly 5,000 member hospitals, health systems and other health care organizations, and our clinician partners – including more than 270,000 affiliated physicians, 2 million nurses and other caregivers – and the 43,000 health care leaders who belong to our professional membership groups, the American Hospital Association (AHA) appreciates the opportunity to comment on the Centers for Medicare & Medicaid Services' (CMS) proposed updates to its methodology for calculating overall hospital quality star ratings.

Patients, families and communities deserve accurate, clear and meaningful quality information to help them make important health care decisions. The AHA has long supported transparency and continues to share CMS's goal of making the data on *Hospital Compare* easier for consumers to understand. However, CMS's flawed¹ approach to star ratings undermines this goal by providing an inaccurate, misleading picture of hospital quality. That is why a majority of Congress urged² CMS to delay the reporting of star ratings last year, and why the AHA and others³ have repeatedly urged CMS to suspend the reporting of overall star ratings until the methodology is improved.

Further analyses performed after the initial release of star ratings revealed errors in the execution of the chosen methodology. CMS's proposed changes address some of these missteps, and the AHA appreciates the agency's willingness to receive stakeholder feedback on these changes. However, CMS's own analysis shows that nearly 700 hospitals would experience a change in their star ratings, amplifying our concern about the reliability and accuracy of the chosen methodology. **At a minimum, the AHA strongly urges CMS to remove the star ratings from *Hospital Compare* and not republish them until it corrects the errors and outside experts agree that the updated methodology is executed correctly.**



Even if CMS can improve the implementation of the current methodology, we continue to have significant concerns about the conceptual underpinnings of star ratings. The measures included in the ratings were never intended to create a single, representative score of hospital quality. Furthermore, the ratings often do not reflect the aspects of care most relevant to a particular patient's needs. For example, a family may be interested in selecting the best hospital for cancer care, but there are no such measures included in the current star ratings. **Therefore, the AHA continues to urge CMS to explore alternative approaches⁴ to an overall star rating, including star ratings done by topic area such as patient safety, patient experience of care and cardiac care.**

Below we briefly comment on several specific changes identified in the draft report.

PROPOSED METHODOLOGY CHANGES

At a high level, the current hospital overall star ratings methodology works as follows:

- Measure selection and grouping. CMS selects measures from the hospital inpatient and outpatient quality reporting programs and assigns the measures to seven groups – mortality, safety, readmissions, patient experience, timeliness of care, effectiveness of care and imaging efficiency. Each measure group has an assigned weight toward the overall star rating.
- Calculation of measure group scores using a latent variable model (LVM). An LVM is a statistical technique that summarizes the performance of all the measures in a group into a single score. The LVM approach assumes that there is an unobserved (or latent) dimension of quality for each hospital reflected in the available measure performance data. CMS calculates a latent variable value for each of the seven measure groups. It then takes a weighted average of those scores to create a summary score for every hospital.
- Determination of overall star rating using *k*-means clustering. Finally, to assign hospitals a star rating, CMS uses another statistical technique known as “*k*-means clustering.” The basic intent of *k*-means clustering is to ensure hospital scores within the same star rating are as similar as possible, and scores of hospitals in different star ratings are as different as possible.

Most of the methodological changes on which CMS solicits comment would affect its LVM and *k*-means clustering calculation approaches.

Inclusion of Measures with Negative Factor Loadings in the LVM. **The AHA urges CMS to remove measures with negative factor loadings from the LVM.** Each measure in a group includes a “factor loading,” which reflects the extent of a measure's correlation with the overall measure group score. Higher factor loadings indicate a stronger association with the group score. Negative factor loadings indicate an inverse relationship between the performance score and the

group score. The methodology includes measures with negative factor loadings. For measures with negative factor loadings, hospitals that perform well compared to other hospitals will receive a lower LVM score (they are penalized), and hospitals that perform poorly will receive a higher LVM score (they are rewarded). This is exactly opposite of the intent of publishing performance data and assigning scores. CMS suggests that the impact of the negative factor loadings on the overall score is relatively modest, which we believe is a strong argument for removing them from the star rating system. If the measures do not have much impact, and the impact they do have is the opposite of what was intended, then there is no reason to keep the measures in the star rating.

Measure Group Weightings. The AHA urges CMS to use a more empirical approach to measure group weightings. CMS has framed its choice of weights as a “policy decision.” Yet, as noted in the expert analysis⁵ the AHA commissioned in 2016, these decisions have enormous influence on the star ratings that hospitals receive. Moreover, it is unclear to what extent CMS’s choices were informed by any systematic assessment of patients and family preferences. To implement a less arbitrary and more patient-centered approach, we recommend that the agency survey patients and families to obtain a statistically significant sampling of views about how to weight the measure groups.

Application of Public Reporting Thresholds to *k*-means Clustering. The AHA supports CMS’s proposal to remove hospitals that do not meet the public reporting thresholds for measures from its *k*-means clustering analysis. Under the current methodology, CMS set reliability and validity criteria for a hospital to receive a star rating. Yet all hospitals, including those that fail to meet these criteria, are included in the *k*-means clustering analysis. These hospitals should not be included in the *k*-means analysis, as their presence in the data adversely affects the clusters (i.e., star ratings categories). This is inconsistent with accepted principles for conducting such analyses.

Running *k*-means Clustering Analysis to Convergence. The AHA supports CMS’s proposal to run the *k*-means clustering analysis to convergence. The *k*-means clustering algorithm involves a repeated series of computations (each repetition being one “iteration”) to find clusters that partition data (in this case, hospitals) into a specified number of groups (the five star ratings). Repeating this process until the best clusters are found is referred to as “running to convergence.” Convergence ensures that each observation within a cluster is more similar to the other observations within that cluster than to observations in the other clusters. The program used by CMS/Yale-CORE stopped well short of the number of iterations needed to achieve convergence. As a result, incorrect conclusions were drawn about which hospitals should be assigned to which groups.

We appreciate your consideration of these issues. Please contact me if you have questions or feel free to have a member of your team contact Akin Demehin, director of policy, at (202) 626-2365 or ademehin@aha.org.

Sincerely,

/s/

Ashley B. Thompson
Senior Vice President
Public Policy Analysis and Development

¹ For example, see the AHA-commissioned expert analysis of star ratings performed by Dr. Francis Vella, Chair of Economics at Georgetown University published prior to the July 2016 release of star ratings: <http://www.aha.org/presscenter/pressrel/2016/160706-pr-starratings.shtml>.

² The letters signed onto by 225 members of the House of Representatives, and 60 senators, are available at <http://news.aha.org/article/160418-225-house-members-urge-cms-to-delay-overall-hospital-quality-star-ratings>.

³ For example, see the joint letter from the AHA, Federation of American Hospitals, Association of American Medical Colleges and America's Essential Hospitals: <http://news.aha.org/article/160707-hospital-groups-urge-cms-to-address-concerns-with-star-ratings-methodology>.

⁴ This alternative approach is explained more fully in the AHA's Sept. 14, 2015 comment letter on the proposed star ratings methodology: <http://www.aha.org/advocacy-issues/letter/2015/150914-cl-StarRatings.pdf>.

⁵ Dr. Vella's analysis is available at <http://www.aha.org/content/16/16georgetownmeas.pdf>.