In order to provide healthcare organizations with tools to seamlessly share patient ratings and reviews online, National Research Corporation offers a proven solution to further empower customer-centric healthcare across the continuum. Embracing transparency by allowing healthcare consumers to consider the experiences and perceptions of other patients encourages an open dialogue and informed decision-making.

More than twelve months ago, National Research became the first vendor to automate the ongoing conversion of existing patient experience survey data into star ratings and comments, and the publication of that information online. Now, after converting over 700,000 surveys into star ratings, National Research is clearly the industry’s authority on the topic of healthcare transparency.

The standards of methodological integrity that are enforced by the National Research transparency solution are being shared with the public to ensure consistency across healthcare organizations who choose to implement this type of transparency program, regardless of vendor affiliation. It is of utmost importance to accurately reflect the reputations of physicians while also providing actionable information to healthcare consumers in a manner which is easily understandable and consistent with familiar online rating sites.

Meeting the methodological requirements detailed in this paper will ensure a provider-based transparency initiative that is accurate, simple, and objective.

**Establishing Minimum Publishing Standards**

The most common concern about existing online ratings is that they are typically based on small sample sizes that are not representative of the patient population as a whole. A study by Loyola University in 2012 found that scores on public doctor rating websites were based on only 2.4 patient reviews on average.1 Many providers are rightfully concerned that one dissatisfied patient could have undue influence over their online reputation.

National Research’s best practice is to suppress provider-level average ratings until 30 or more survey responses have been collected. By imposing a minimum sample size of 30 verified patient responses, derived scores will be more stable and representative. Adopting this standard instills confidence with providers that their ratings are based on a representative sample of patient opinions and also provides consumers with a more reliable metric on which to base their decisions.

**Connecting with Consumers**

In order to calculate and publish patient experience ratings and patient verbatim comments for individual providers, ratings should be generated from provider-specific questionnaire items. Therefore, it is imperative that the questions included in the calculation of star ratings and comments measure and record the quality of

---

interaction between a patient and their provider, and the elements of care that are under the provider’s control.

Specifically, the recommended survey items are adopted from the Provider Communication Composite of the CAHPS Clinician and Groups patient experience survey (CGCAHPS®). Those questions include:

- Did this provider explain things in a way that was easy to understand?
- Did this provider listen carefully to you?
- Did this provider give you easy to understand instructions about taking care of these health problems or concerns?
- Did this provider seem to know the important information about your medical history?
- Did this provider show respect for what you had to say?
- Did this provider spend enough time with you?

A global item assessing the patient’s overall rating of their healthcare provider is recommended for inclusion as well:

- Using any number from 0 to 10, where 0 is the worst provider possible and 10 is the best provider possible, what number would you use to rate this provider?

Using a standardized survey in combination with a consistent methodology allows for maximum inclusion of healthcare organizations across the country.

Standardizing Response Scales
To accurately create average ratings from survey items with varying scale values, each response scale must be linearly transformed to a 5-point scale. Appendix A contains the set of conversion tables which are most applicable to CGCAHPS surveys, as well as a formula which can be used to convert any survey response scale into a 5-star scale. By first converting each individual survey question’s quantitative response to a 5-point scale, we can more accurately calculate a summary rating which correctly reflects the patient’s overall experience.

Calculating the Rating
Once converted to a 5-point scale consistent with industry-leading consumer review websites, where 1 is the lowest score and 5 is the highest score, all of the quantitative response values for each patient are averaged to yield the mean. After patient-level averages are calculated, the star rating is calculated by taking the grand mean of means for each provider. This allows for the creation of an overall summary score for each provider.

Publishing Meaningful Qualitative Data
In order to support full transparency among both providers and consumers, National Research ensures that the full range of patient comments, both positive and negative, are published by its transparency solution clients. Given the pervasiveness of online reviews across a wide spectrum of goods and services, consumers have become adept at identifying potentially fraudulent reviews and comments and have little tolerance for those they deem untruthful. The result is that the savvy consumer will be skeptical of comments that are universally positive and/or overly enthusiastic.

Despite the drive toward full transparency, occasionally patients write comments that cannot be published because they jeopardize the patient’s privacy, contain vulgar or offensive language, or contain libelous or defamatory content. In these rare instances, comment exclusion based on a strict set of exclusion criteria may be appropriate.

National Research requires that the comment exclusion criteria be clearly defined and accompany the published ratings and comments on profile web pages. To ensure adherence to exclusion criteria, National Research periodically audits client comments and exclusion practices.

Including all Patient Ratings
In the event that comments are excluded due to inappropriate content, the quantitative data associated with those responses continues to contribute to the average score and star rating. This ensures that the star rating for each provider is truly representative of the experiences of all patients contacted.

Calculating Scores across Survey Types
Larger health systems may find it more representative to incorporate patient responses from different surveys to more effectively measure the performance of different types of provider groups within their organizations. For example, an organization may use the CGCAHPS survey to measure patient experience

---

2 https://cahps.ahrq.gov/surveys-guidance/cg/visit/index.html
within physician groups while using the HCAHPS surveys for other providers in an inpatient setting. Provided that the surveys contain appropriate and comparable items, and that the organization is able to attribute the provider-specific HCAHPS survey items to a physician, scores can be aggregated at the facility level across different care settings and survey tools.

**Conclusion**
The guidelines above were created through the collaborative efforts of industry-leading healthcare systems and a team of PhD data scientists at National Research Corporation. Implementing National Research’s transparency solution allows healthcare providers and organizations to unlock the value and potential in their existing patient experience data. This methodology was published in support of the industry-wide movement toward greater transparency and in hopes of inspiring the changes necessary to elevate healthcare performance and improve the patient experience.

---

**Appendix A: Conversion Formula and Tables for CAHPS Response Scales**
This appendix contains detailed instructions about how each CAHPS response scale can be converted to a 1-5 star scale, as well as a general formula for converting any response scale into a 1-5 star scale.

### CAHPS conversion charts:
As described above, all rating question responses are linearly converted to a 5-point scale. For the affected CAHPS questions, one of the three tables below can be referenced to perform this conversion.

#### Questions Response Scale (p=11) Star Rating Conversion

<table>
<thead>
<tr>
<th>Questions Response Scale (p=11)</th>
<th>Star Rating Conversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 (r=11)</td>
<td>5 Stars</td>
</tr>
<tr>
<td>9 (r=10)</td>
<td>4.6 Stars</td>
</tr>
<tr>
<td>8 (r=9)</td>
<td>4.2 Stars</td>
</tr>
<tr>
<td>7 (r=8)</td>
<td>3.8 Stars</td>
</tr>
<tr>
<td>6 (r=7)</td>
<td>3.4 Stars</td>
</tr>
<tr>
<td>5 (r=6)</td>
<td>3 Stars</td>
</tr>
<tr>
<td>4 (r=5)</td>
<td>2.6 Stars</td>
</tr>
<tr>
<td>3 (r=4)</td>
<td>2.2 Stars</td>
</tr>
<tr>
<td>2 (r=3)</td>
<td>1.8 Stars</td>
</tr>
<tr>
<td>1 (r=2)</td>
<td>1.4 Stars</td>
</tr>
<tr>
<td>0 (r=1)</td>
<td>1 Stars</td>
</tr>
</tbody>
</table>

#### Questions Response Scale (p=3) Star Rating Conversion

<table>
<thead>
<tr>
<th>Questions Response Scale (p=3)</th>
<th>Star Rating Conversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, Definitely (r=3)</td>
<td>5 Stars</td>
</tr>
<tr>
<td>Yes, somewhat (r=2)</td>
<td>3 Stars</td>
</tr>
<tr>
<td>No (r=1)</td>
<td>1 Stars</td>
</tr>
</tbody>
</table>

#### Questions Response Scale (p=4) Star Rating Conversion

<table>
<thead>
<tr>
<th>Questions Response Scale (p=4)</th>
<th>Star Rating Conversion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Always (r=4)</td>
<td>5 Stars</td>
</tr>
<tr>
<td>Usually (r=3)</td>
<td>3.66 Stars</td>
</tr>
<tr>
<td>Sometimes (r=2)</td>
<td>2.33 Stars</td>
</tr>
<tr>
<td>Never (r=1)</td>
<td>1 Stars</td>
</tr>
</tbody>
</table>

### Universal Conversion Formula:
The following formula can be used to perform a linear conversion of any rating response scale into a 1-5 star rating scale.

\[
\text{Star Rating} = \left( \frac{4}{p-1} \right) \times (r - 1) + 1
\]

In this formula, the variables are defined as follows:

- \( p \) = the number of possible response values on the original response scale
- \( r \) = patient’s raw numerical response number (responses are ordered with 1 being the worst response counting upward to \( p \) being the best response)

Note: In response scales containing the option of a response value of “0” (e.g., the overall 11-point rating question with a 0 to 10 response scale), the lowest possible response value is assigned the lowest possible star rating value of 1.

**Example:** Using the 11-point rating scale with response options ranging from 0 to 10, let’s examine the application of this formula to arrive at our answer. The \( p \) in this case is 11, and if the respondent selected “7” for their response, the \( r \) would be 8 (as 7 represents the 8th ordered response value). Applying the formula gives us \( 0.4 \times 7 + 1 \) which calculates to 3.8 stars for this question.