

**Design for Nursing Home Compare 5-Star
Rating System:
Users Guide**

December 2008



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Introduction

The Centers for Medicare & Medicaid Services (CMS) is enhancing its Nursing Home Compare public reporting site to include several “star” ratings for each nursing home. The primary goal in launching this rating system is to provide residents and their families with an easy way to understand assessment of nursing home quality, making meaningful distinctions between high and low performing nursing homes.

The purpose of this document is to provide a comprehensive description of the design for the Nursing Home Compare Five-Star Rating System. This design was developed based on weekly discussions with the CMS Long-Term Care Task Force, input from the project’s Technical Expert Panel (TEP), and extensive data analysis. The initial version of the rating system will include an overall 5-star rating that is based on facility performance on three types of performance measures, each of which will also have its own associated 5-star rating:

- ***Measures based on outcomes from state survey inspections:*** Facility ratings for the survey domain will be based on a count of the number of deficiencies, with deficiencies weighted by scope and severity and the number of revisits required to ensure that major deficiencies are corrected.
- ***Measures based on nursing home staffing levels:*** Facility ratings on the staffing domain will be based on two measures: RN hours per resident day and total staffing hours (RN, LPN, nurse aide) per resident day. Other types of nursing home staff such as clerical, administrative, or housekeeping staff are not included in these staffing numbers. These staffing measures are derived from the CMS Online Survey and Certification Reporting (OSCAR) system and will be case mix adjusted based on the distribution of MDS assessments by RUG-III group.
- ***Measures based on MDS quality measures (QMs):*** Facility ratings for the quality measures will be based on performance on a subset of 10 QMs that are posted on the Nursing Home Compare web site. These include 7 long-stay measures and 3 short-stay measures.

In recognition of the multi-dimensional nature of nursing home quality, Nursing Home Compare will display information on facility ratings on each of these domains alongside the overall performance rating. Further, in addition to the overall staffing 5-star rating mentioned above, a 5-star rating for RN staffing will also be displayed on the new NH Compare website, when users seek more information on the staffing component.

An example of the rating information included on Nursing Home Compare is shown in the figure below. Note that users of the web site will be able to drill down on each domain to get additional details on facility performance.



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Nursing Home Compare

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Step 2 - Choose Nursing Home to Compare

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| | | |
|---|---|---|
| Search Results There are 4 Nursing Homes in Virginia . Select up to 3 Nursing Homes from the results table below and select the "Compare" button to compare your selections in more detail. | Quality of Care Ratings The number of stars shows how well the nursing homes perform. Much Above Average ★★★★★ Above Average ★★★★ Average ★★★ Below Average ★★ Much Below Average ★ | Your Search Criteria You have selected the following criteria for your search: State: Virginia • Modify Search • New Search |
|---|---|---|

There are **261** nursing homes available in Virginia. Select one or more Nursing Homes, up to 3 in total, then click "Compare".

Icon Legend **Facilities with Poor Survey Performance** - Special Focus Facility: This nursing home has a record of persistently poor survey performance, and has been selected for more frequent inspections and monitoring. To learn more, visit <http://www.cms.hhs.gov> website.

| Choose up to 3 Facilities to <input type="button" value="Compare"/> | | Sort Table By: Overall Ratings <input type="button" value="Sort"/> | | | | | | | |
|---|---|--|--|--|-----------------------|--------------------------------|--------------------------|--|--|
| Facility Name and General Information | Overall Ratings <small>What is this?</small> | Quality Measures <small>What is this?</small> | Health Inspections <small>What is this?</small> | Staffing <small>What is this?</small> | Program Participation | Total Number of Certified Beds | Type of Ownership | Continuing Care Retirement Community <small>What is this?</small> | |
| <input type="checkbox"/> Basic Spring 5755 East Main Street Fairfax, VA 22031 (555) 555-0988 <i>Located in a Hospital Resident & Family Councils: Both</i> | ★★★★★ 5 Stars | ★★★★★ 4 Stars | ★★★★★ 5 Stars | ★★★★★ 4 Stars | Medicare and Medicaid | 100 | For Profit - Corporation | Yes | |
| <input type="checkbox"/> Lakefront View 1980 West Pecos Road Fairfax, VA 22031 (555) 555-0988 <i>Resident & Family Councils: Both</i> | ★★★★ 4 Stars | ★★★★ 4 Stars | ★★★ 3 Stars | ★★★★★ 4 Stars | Medicare and Medicaid | 93 | Non Profit - Corporation | Yes | |
| <input type="checkbox"/> Glencrest Gardens 2012 West Southern Ave Fairfax, VA 22031 (555) 555-0988 <i>Resident & Family Councils: Both</i> | ★★★ 3 Stars | ★★★ 3 Stars | ★★★ 3 Stars | ★★★ 3 Stars | Medicare and Medicaid | 89 | Non Profit - Corporation | No | |
| <input type="checkbox"/> Holton Mills 2750 Lee Highway Fairfax, VA 22031 (555) 555-0988 <i>Resident & Family Councils: Resident</i> | ★★ 2 Stars | ★★ 2 Stars | ★★ 2 Stars | ★ 1 Star | Medicare | 69 | For Profit - Corporation | No | |

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Methodology

Survey Domain

Scoring Rules

Scoring rules are based on a slightly modified version of the CMS Special Focus Facility (SFF) Algorithm (Tables 1 and 2). CMS developed this algorithm for identifying nursing homes with a history of serious problems that are candidates for its SFF program. To select candidates for the SFF program, CMS references each active provider's current standard survey and two prior surveys as well as three years of complaints.

- **Survey deficiencies:** Points are assigned to individual health citations according to their scope and severity – more points are assigned for more serious, widespread deficiencies, fewer points for less serious, isolated deficiencies (see Table 1). If the citation generates a finding of substandard quality of care, additional points are assigned. Note that the points associated with different scope/severity combinations have been changed slightly to increase the relative importance of D-I level deficiencies.
- **Number of revisits required to confirm correction of deficiencies at scope and severity level F or greater:** Points are assigned for the second, third, and fourth revisits (Table 2). If a provider fails to correct major deficiencies at the time of the first revisit, then these additional revisit points are assigned. There are no points for the first revisit and the points increase to 100 for the fourth revisit.

We calculate a total survey score for facilities based on their deficiencies and revisits. Note that a lower survey score corresponds to fewer deficiencies and revisits and thus better performance on the survey domain. In calculating the total survey score, more recent surveys are weighted more heavily than earlier surveys. The most recent period is assigned a weighting factor of 1/2, the previous period has a weighting factor of 1/3, and the second prior survey has a weighting factor of 1/6. The weighted time period scores are then summed to create the survey score for each facility.

For facilities missing data for one period, the survey score is determined based on the periods for which data are available, using the same relative weights, with the missing (third) survey weight distributed proportionately to the existing two surveys. Specifically, when there are only 2 standard health surveys, the most recent will receive 60% weight and the prior will receive 40% weight. Facilities with only one standard survey are considered not to have sufficient data to determine a survey rating and are set to missing for the survey domain. For these facilities, no composite rating will be assigned and no ratings will be reported for the staffing or QM domains even if these are available.

**Table 1
Survey Deficiency Score: Weights for Different Types of Deficiencies**

| Severity | Scope | | |
|---|--------------------------------------|--|--|
| | Isolated | Pattern | Widespread |
| Immediate jeopardy to resident health or safety | J 50 points (75 points) | K 100 points (125 points) | L 150 points (175 points) |
| Actual harm that is not immediate jeopardy | G 20 points | H 35 points (40 points) | I 45 points (50 points) |
| No actual harm with potential for more than minimal harm that is not immediate jeopardy | D 4 points | E 8 points | F 16 points (20 points) |
| No actual harm with potential for minimal harm | A 0 point | B 0 points | C 0 points |

Note: Figures in parentheses indicate points for deficiencies that are for substandard quality of care. Shaded cells denote deficiency scope/severity levels that constitute substandard quality of care if the requirement which is not met is one that falls under the following federal regulations: 42 CFR 483.13 resident behavior and nursing home practices; 42 CFR 483.15 quality of life; 42 CFR 483.25 quality of care.

Source: Centers for Medicare & Medicaid Services

**Table 2
CMS Special Focus Facility Algorithm: Weights for Different Types of Deficiencies**

| Revisit Number | Noncompliance Points |
|----------------|-----------------------|
| First | 0 |
| Second | 50 points |
| Third | 75 additional points |
| Fourth | 100 additional points |

Rating Methodology

Facility ratings on the survey domain are based on the relative performance of facilities within a state. This approach helps to control for variation between state surveys and regulatory systems. Facility ratings are determined using these criteria:

- The top 10 percent (lowest 10 percent in terms of survey deficiency score) in each state receive a 5-star rating.
- The middle 70 percent of facilities receive a rating of two, three, or four stars, with an equal number (approximately 23.33 percent) in each rating category.
- The bottom 20 percent receive a one-star rating.

This distribution is based on discussions with CMS and the Project’s TEP. The cut points will be re-set each month so that the distribution of star ratings within states remains fixed over time. This is to reduce the likelihood that the rating process will affect the survey process. As a consequence,

however, it is possible for a facility's rating to change from month to month even without a new survey in that facility because of new surveys in other facilities that affect the statewide distribution. Note that three U.S. territories (Guam, Puerto Rico, and the Virgin Islands) have fewer than 5 facilities upon which to generate the cutpoints. For facilities in these territories, the national distribution is used. Cutpoints for the data that will be displayed when the 5-star website becomes active (based on data reported to CMS as of 11/4/2008) are shown in the Appendix (Table A1).

Staffing Domain

The rating for staffing is based on two case mix adjusted measures:

- Total nursing hours per resident day (RN, LPN, and nurse aide)
- RN hours per resident day

The source data for the staffing measures is OSCAR. The data are subject to the same exclusion criteria as is currently used on Nursing Home Compare. These are intended to exclude facilities with unreliable OSCAR staffing data and exclude facilities with outlier staffing levels (less than 1.5 or more than 12 total nursing hours per resident day, facilities with large changes in reported staffing levels over time, and facilities that appear to report incomplete resident census information.)¹ Note that the OSCAR staffing data include both facility employees and contracted staffing agency hours. Consistent with the specifications on Nursing Home Compare, the RN measure includes hours for RN directors of nursing and nurses with administrative duties. Nurse aide hours include nurse aides in training and medication aides.

Case Mix Adjustment

The measures are adjusted for case mix differences based on the Resource Utilization Group (RUG-III) case-mix system. We used data from the CMS Staff Time Measurement Studies to measure the number of RN, LPN, and nurse aide minutes associated with each RUG-III group (using the 53 group version of RUG-III)². Case-mix adjusted measures of hours per resident day were calculated for each facility for each staff type using this formula:

$$\text{Hours}_{\text{Adjusted}} = (\text{Hours}_{\text{Reported}} / \text{Hours}_{\text{Expected}}) * \text{Hours}_{\text{National Average}}$$

where $\text{Hours}_{\text{National Average}}$ is the mean across all facilities of the reported hours per resident day for a given staff type. The expected values are based on the average case-mix across four quarters of RUG III data.

¹ The resident census information in OSCAR is based on residents in certified beds and may not include residents in non-certified beds.

² Note that we expect to use a case mix index based on the Staff Time and Resource Intensity Verification (STRIVE) study once these data are available. STRIVE is a national staff time measurement study that will provide data and analysis to update the Medicare Skilled Nursing Facility Prospective Payment System (SNF PPS).

Scoring Rules

The two staffing measures are given equal weight. For each of RN staffing and total staffing, a 1 to 5 rating is assigned based on a combination of the percentile-based method (where percentiles are based on the distribution for freestanding facilities³) and staffing thresholds identified in the CMS staffing study (Table 3)⁴. For each facility, we assign a total staffing score that is based on the combination of the two staffing ratings (Table 4). The percentile cut points will be determined using the most recent data available at the time that the Nursing Home Compare 5-star website goes live. The cut points will be held constant for an initial two-year period after which CMS will review results. The advantage of fixed cut-points is that it better tracks facility improvement (or decline) over time.

**Table 3:
Scoring Method and Thresholds¹ for Proposed Staffing Measures**

| Rating | Definition | Range (adjusted hours per resident day) | |
|--------|--|--|---------------|
| | | RN | Total |
| 1 | <25 th percentile of distribution for freestanding facilities | <0.220 | <2.946 |
| 2 | at least 25 th percentile but less than median of the distribution for freestanding facilities | 0.220-0.297 | 2.946-3.316 |
| 3 | greater than or equal to the median but less than the 75 th percentile of the distribution for freestanding facilities | 0.298-0.403 | 3.317 – 3.774 |
| 4 | greater than or equal to the median of the distribution for freestanding facilities but less than the CMS staffing study threshold | 0.404-0.549 | 3.775 – 4.079 |
| 5 | at or exceeding the thresholds identified in the CMS staffing study ² | ≥ 0.550 | ≥ 4.080 |

¹Except for the top cut point (to achieve a 5-star rating), the cut points shown are based on the distribution in the test data. The cutpoints that will be used at the time public reporting begins are based on data reported to CMS as of 11/4/2008, are shown in the Appendix (Table A2), and will be maintained at that fixed baseline level for two years.

²Note that the 0.55 RN threshold was identified for potentially avoidable hospitalizations (short-stay measures); the 4.08 threshold is the sum of the NA (2.78) and licensed staff (1.30) threshold for long-stay measures.

Rating Methodology

Facility rating for overall staffing is based on the combination of RN and total staffing (RNs, LPNs, LVNs, CNAs) ratings as shown in Table 4. To receive a 5-star rating, facilities must meet both RN and total nursing thresholds from the CMS Staffing Study. Note that the columns 3 and 4 are identical as are rows 3 and 4.

³ Note that we use the distribution for freestanding facilities because of concerns about the reliability of staffing data for some hospital-based facilities.

⁴ Kramer AM, Fish R. “The Relationship Between Nurse Staffing Levels and the Quality of Nursing Home Care.” Chapter 2 in Appropriateness of Minimum Nurse Staffing Ratios in Nursing Homes: Phase II Final Report. Abt Associates, Inc. Winter 2001.

Table 4**Staffing Points and Rating**

| RN rating and hours | | Total staffing rating and hours (RN, LPN and aide) | | | | |
|---------------------|----------------------------------|--|-------------------------------------|-------------------------------------|-----------------------------------|--------|
| | | 1 | 2 | 3 | 4 | 5 |
| | | <25 th pctl | ≥25 th pctl, < median | ≥ median, <75 th pctl | ≥75 th pctl, < 4.08 | ≥ 4.08 |
| 1 | <25 th pctl | ★ | ★ | ★★ | ★★ | ★★★ |
| 2 | ≥25 th pctl, < median | ★ | ★★ | ★★★ | ★★★ | ★★★★ |
| 3 | ≥ median, <75 th pctl | ★★ | ★★★ | ★★★★ | ★★★★ | ★★★★ |
| 4 | ≥75 th pctl, < 0.55 | ★★ | ★★★ | ★★★★ | ★★★★ | ★★★★ |
| 5 | ≥ 0.55 hours | ★★★ | ★★★★ | ★★★★ | ★★★★ | ★★★★★ |

Quality Measure Domain

Facility rating for the QM domain is based on performance on a subset of ten of the measures posted on Nursing Home Compare. The measures were selected based on their validity and reliability, the extent to which the measure is under the facility's control, statistical performance, and importance.

Long-Stay Residents:

- Percent of residents whose need for help with daily activities has increased
- Percent of residents whose ability to move about in and around their room got worse
- Percent of high risk residents who have pressure sores
- Percent of residents who had a catheter inserted and left in their bladder
- Percent of residents who were physically restrained
- Percent of residents with urinary tract infection
- Percent of residents with moderate to severe pain

Short-stay residents:

- Percent of residents with pressure sores
- Percent of residents with moderate to severe pain
- Percent of residents with delirium

The long-stay measures are similar to those used for the Nursing Home Value-Based Purchasing (NHVBP) demonstration except that NHVBP does not include the urinary tract infection measure or pain measure. Note that the two ADL-related long-stay measures (percent of residents whose need for help with daily activities has increased, percent of residents whose ability to move about in and around their room got worse) are incidence measures that are based on change across two MDS assessments. Table 5 contains more information on these measures.

Ratings for the QM domain will be calculated using the three most recent quarters for which data are available. This time period specification was selected to increase the number of assessments available for calculating the QM rating, increasing the stability of estimates and reducing the amount of missing data.

Table 5
MDS-Based Quality Measures

| Measure | Comments |
|--|---|
| Long-Stay Measures: | |
| Percent of residents whose need for help with daily activities has increased ¹ | This is a change measure that was endorsed by the National Quality Forum (NQF). Maintenance of ADLs is also related to an environment in which the resident is up and out of bed and engaged in activities. The CMS Staffing Study found that higher staffing levels were associated with lower rates of increasing dependence in activities of daily living. |
| Percent of residents whose ability to move about in and around their room got worse ¹ | This is a change measure that measures nursing home rules/practices related to use of mobility aides. Residents who lose mobility may also lose the ability to perform other activities of daily living, like eating, dressing, or getting to the bathroom. |
| Percent of high-risk residents who have pressure sores | The QM Validation Study identified a number of nursing home care practices that were associated with lower pressure sore prevalence rates including more frequent scheduling of assessments for suspicious skin areas, observations on the environmental assessment of residents, and care practices related to how the nursing home manages clinical, psychosocial, and nutritional complications. |
| Percent of residents who have/had a catheter inserted and left in their bladder | Using a catheter may result in complications, like urinary tract or blood infections, physical injury, skin problems, bladder stones, or blood in the urine. |
| Percent of residents who were physically restrained | A resident who is restrained daily can become weak, lose his or her ability to go to the bathroom by themselves, and develop pressure sores or other medical complications. |
| Percent of residents with urinary tract infection | Urinary tract infections can often be prevented through hygiene and drinking enough fluid. Urinary tract infections are relatively minor but can lead to more serious problems and cause complications like delirium if not treated. |
| Percent of residents with moderate to severe pain | This measure examines whether patients are in moderate to severe pain every day over the last 7 days. Many nursing home residents have poorly controlled pain, and this pain can be managed by nursing homes through appropriate medications and other types of therapy. Poor pain management can have a significant impact on resident quality of life. |
| Short-Stay Measures | |
| Percent of residents with pressure sores | Pressure sores can lead to complications such as skin and bone infections. |
| Percent of residents with moderate to severe pain | This measure examines whether patients are in moderate to severe pain every day over the last 7 days. Many nursing home residents have poorly controlled pain, and this pain can be managed by nursing homes through appropriate medications and other types of therapy. Poor pain management can have a significant impact on resident quality of life. |
| Percent of residents with delirium | Delirium is not a normal part of aging and residents with delirium should receive emergency medical attention. Facility practices can help prevent delirium. |

¹Indicates ADL QMs as referenced in scoring rules

Sources: Based on information from the AHRQ Measures Clearinghouse and the NHVBP Draft Design Report

Scoring Rules

Consistent with the specifications used for Nursing Home Compare, we will include long-stay measures if the measure can be calculated for at least 30 assessments (summed across three quarters of data to enhance stability). We will include the short-stay measures only if data are available for at least 20 assessments.

For each measure, points are assigned based on the facility quintile. Based on input from the project's TEP, performance on the two ADL-related measures is weighted 1.6667 times as high as the other measures. This higher weighting reflects the greater importance of these measures to many nursing home residents and ensures that the two ADL measures count for 40 percent of the overall weight on the long-stay measures. Table 6 shows the points assigned for each category for the ADL QMs and for the other QMs. The points are summed across all QMs to create a total score for each facility. Note that the total possible score ranges between 0 and 136 points.

Note that the percentiles are based on the national distribution for all of the QMs except for the two ADL measures, for which percentiles are set on a state-specific basis using the state distribution. For the ADL QMs, these cut points will be reset with each quarterly update of the QM data based on the state-specific distribution of these measures. For the other QMs, these cutpoints will remain fixed at the baseline national values for a period of two years. Note that the cut points are determined prior to any imputation for missing data (see discussion below). Also, the state-specific cut points for the ADL QMs are created for states/territories that have at least 5 facilities with a non-imputed value for that QM. In the rare case a state does not satisfy this criterion, we use the national distribution for that QM to set the cut points for that state. The cutpoints that will be used when public reporting begins are shown in the Appendix (Tables A4-A6).

| | ADL QMs | Other QMs |
|---|----------------|------------------|
| <20 th percentile | 20 | 12 |
| 20 th - <40 th percentile | 15 | 9 |
| 40 th - <60 th percentile | 10 | 6 |
| 60 th - <80 th | 5 | 3 |
| 80 th percentile or greater | 0 | 0 |

¹Note that percentiles are determined on a statewide basis for ADL QMs and on a national basis for all other QMs.

Missing Data and Imputation

Some facilities have missing data for one or more measure, usually because of an insufficient number of residents available for calculating the QM. Missing values are imputed based on the statewide average for the measure. The imputation strategy for these missing values depends on the pattern of missing data.

- For facilities that have data for at least four of the seven long-stay QMs, missing values will be imputed based on the statewide average for the measure. Points are assigned as shown in

Table 6, meaning that facilities will typically receive the middle number of points (10 for the ADL measures and 6 for the other measures) for QMs for which values are imputed.

- Similarly, for facilities that had data on at least 2 out of 3 post-acute QMs, missing values are imputed based on the state average for the QM and points are assigned as shown in Table 6.
- The QM rating for facilities with data on 3 or fewer long-stay QMs is based only on the short-stay measures. Mean values for the missing long-stay QMs are not imputed.
- Similarly, the QM rating for facilities with data with zero or 1 short-stay QM is based only on the long-stay measures. Mean values for the missing short-stay QMs are not imputed.

Based on these rules, after imputation, facilities will be in one of three categories:

- They will have points for all of the QMs.
- They will have points only for the 7 long-stay QMs (long-stay facilities).
- They will have points only for the 3 short-stay QMs (short-stay facilities)

So that all facilities will be scored on the same 136 point scale, points are rescaled for long and short-stay facilities:

- If the facility has data only for the three short-stay measures (total of 36 possible points), its score is multiplied by 136/36.
- If the facility has data for only the seven long-stay measures (total of 100 possible points), its score is multiplied by 136/100.

For states or territories with a small number of facilities, it may be impossible to impute the state average for a particular QM for which we would otherwise impute, because all the facilities in that state or territory are missing values for that QM. For example, a facility in the Virgin Islands may have information on all of its QMs except for “% Long stay residents with ADL worsening.” If no facility in the Virgin Islands has information on that QM then we cannot impute the state average. Instead we add up the points the facility earned for the 9 QMs it does report. Next, we divide by the total number of points (in this case, 116) it could have received for having those 9 QMs. Finally, we multiply by 136 points to calculate its adjusted number of points.

Rating Methodology

Once the summary QM score is computed for each facility as described above, the 5-star QM rating is assigned based on the nationwide distribution of these scores, as follow:

- The top 10 percent receive a 5-star rating.
- The middle 70 percent of facilities receive a rating of two, three, or four stars, with an equal number (23.33 percent) in each rating category.

- The bottom 20 percent receive a one-star rating.

The cut points associated with these star ratings will be held constant for a period of two years, allowing the distribution of the QM rating to change over time. The cut points are shown in the Appendix (Table A7).

Overall Nursing Home Rating (Composite Measure)

Based on the 5-star rating for the survey domain, the direct care staffing domain and the MDS quality measure domain, the overall 5-star rating is assigned in four steps as follows:

Step 1: Start with the survey deficiency 5-star rating.

Step 2: Add one star to the Step 1 result if staffing rating is 4 or 5 stars and greater than the deficiency rating; subtract 1 star if staffing is 1 star. The composite rating cannot be more than 5 stars or less than 1 star.

Step 3: Add one star to the Step 2 result if MDS rating is 5 stars; subtract 1 star if MDS rating is 1 star. The composite rating cannot be more than 5 stars or less than 1 star.

Step 4: If the rating after step 3 is 4 or 5 stars and the facility is a special focus facility that has not graduated, the overall rating is downgraded to 3 stars.

The rationale for upgrading facilities in step 2 that receive either a 4- or 5-star rating for staffing is the quite stringent criteria for the staffing rating. To earn 4 stars on the staffing measure, a facility must meet or exceed the CMS staffing study thresholds for RN or total staffing; to earn 5 stars on the staffing measure, a facility must meet or exceed the CMS staffing study thresholds for both RN and total staffing. However, requiring that the staffing rating be greater than the deficiency rating in order for the score to be upgraded ensures that a facility with 4 stars on deficiencies and 4 stars on staffing (and more than 1 star on MDS) will not receive a 5-star overall rating.

This method of determining the overall nursing home rating does not assign specific weights to the survey, staffing, and QM domains. The survey rating is the most important dimension in determining the overall rating, but, depending on their performance on the staffing and QM domains, a facility's overall rating may be up to two stars higher or lower than their survey rating.

If the facility has no survey deficiency rating, no overall rating will be assigned. If the facility has no survey deficiency rating because it is too new to have two standard surveys, no ratings for any domain will be displayed.

Appendix:
NH Compare: 5-star Nursing Home Ratings – Cutpoints Used in Construction of Ratings

Table A1. Star Cutpoints for Health Inspections - by State - (11-04-2008)¹

| State | 1/2 star (80th %-ile) | 2/3 star (56.66 %-ile) | 3/4 star (33.33 %-ile) | 4/5 star (10th %-ile) | Number of facilities | *=National Cutpoints Used² |
|----------------------|----------------------------------|-----------------------------------|-----------------------------------|----------------------------------|---------------------------------|--|
| Alaska | 68.000 | 48.667 | 33.333 | 27.333 | 15 | |
| Alabama | 73.500 | 42.667 | 25.333 | 10.667 | 230 | |
| Arkansas | 165.333 | 102.667 | 70.333 | 39.000 | 230 | |
| Arizona | 97.333 | 56.000 | 36.667 | 18.667 | 132 | |
| California | 92.000 | 58.000 | 39.333 | 20.000 | 1247 | |
| Colorado | 113.333 | 78.667 | 51.333 | 22.000 | 210 | |
| Connecticut | 81.333 | 55.333 | 36.667 | 19.333 | 241 | |
| District of Columbia | 216.667 | 160.333 | 64.000 | 32.000 | 18 | |
| Delaware | 114.667 | 85.333 | 62.667 | 34.667 | 43 | |
| Florida | 82.667 | 55.333 | 38.667 | 20.000 | 678 | |
| Georgia | 68.000 | 37.667 | 23.333 | 10.000 | 358 | |
| Guam | 86.000 | 48.667 | 28.000 | 10.667 | 1 | * |
| Hawaii | 62.000 | 32.000 | 25.333 | 11.333 | 46 | |
| Iowa | 65.333 | 36.667 | 22.000 | 6.667 | 444 | |
| Idaho | 109.833 | 68.667 | 46.667 | 20.667 | 75 | |
| Illinois | 89.000 | 46.000 | 24.667 | 8.000 | 784 | |
| Indiana | 123.833 | 73.333 | 44.667 | 14.667 | 505 | |
| Kansas | 146.667 | 82.667 | 50.667 | 22.000 | 338 | |
| Kentucky | 74.667 | 35.333 | 20.000 | 8.667 | 287 | |
| Louisiana | 109.333 | 66.667 | 38.667 | 17.333 | 283 | |
| Massachusetts | 60.667 | 34.000 | 18.667 | 6.000 | 433 | |
| Maryland | 98.667 | 62.667 | 40.667 | 15.333 | 229 | |
| Maine | 84.000 | 44.667 | 29.333 | 10.667 | 112 | |
| Michigan | 110.667 | 75.333 | 48.333 | 24.000 | 417 | |
| Minnesota | 80.167 | 54.333 | 37.667 | 19.333 | 389 | |
| Missouri | 105.667 | 60.667 | 35.333 | 13.333 | 511 | |
| Mississippi | 75.333 | 40.000 | 21.333 | 8.000 | 200 | |
| Montana | 83.333 | 54.000 | 28.667 | 13.333 | 91 | |
| North Carolina | 50.667 | 27.333 | 15.333 | 6.667 | 419 | |
| North Dakota | 33.333 | 20.667 | 12.667 | 8.000 | 83 | |

Table A1. Star Cutpoints for Health Inspections - by State - (11-04-2008)¹

| State | 1/2 star (80th %-ile) | 2/3 star (56.66 %-ile) | 3/4 star (33.33 %-ile) | 4/5 star (10th %-ile) | Number of facilities | *=National Cutpoints Used ² |
|----------------|--------------------------|---------------------------|---------------------------|--------------------------|-------------------------|--|
| Nebraska | 76.000 | 50.000 | 32.000 | 12.000 | 221 | |
| New Hampshire | 59.333 | 32.667 | 14.000 | 4.000 | 78 | |
| New Jersey | 69.333 | 35.333 | 22.000 | 7.333 | 361 | |
| New Mexico | 145.333 | 82.167 | 43.333 | 14.667 | 69 | |
| Nevada | 64.667 | 53.333 | 32.667 | 16.000 | 48 | |
| New York | 63.333 | 30.000 | 16.333 | 7.333 | 650 | |
| Ohio | 58.833 | 35.333 | 20.000 | 6.667 | 945 | |
| Oklahoma | 144.333 | 90.000 | 57.333 | 34.000 | 318 | |
| Oregon | 79.333 | 46.000 | 22.000 | 8.000 | 138 | |
| Pennsylvania | 56.000 | 31.333 | 17.333 | 8.000 | 705 | |
| Puerto Rico | 373.833 | 287.667 | 213.667 | 124.667 | 7 | |
| Rhode Island | 39.333 | 21.667 | 12.000 | 4.000 | 85 | |
| South Carolina | 82.333 | 44.000 | 25.333 | 11.333 | 175 | |
| South Dakota | 41.667 | 26.000 | 16.000 | 7.000 | 110 | |
| Tennessee | 72.667 | 41.333 | 24.000 | 12.000 | 317 | |
| Texas | 93.333 | 49.333 | 29.333 | 11.333 | 1108 | |
| Utah | 45.000 | 32.667 | 15.333 | 3.000 | 90 | |
| Virginia | 64.667 | 41.333 | 23.333 | 9.333 | 275 | |
| Virgin Islands | 86.000 | 48.667 | 28.000 | 10.667 | 1 | * |
| Vermont | 68.667 | 51.667 | 42.000 | 17.667 | 40 | |
| Washington | 100.667 | 54.000 | 28.667 | 10.667 | 237 | |
| Wisconsin | 74.333 | 39.333 | 22.000 | 7.333 | 388 | |
| West Virginia | 93.333 | 68.000 | 36.000 | 18.000 | 130 | |
| Wyoming | 108.667 | 79.333 | 60.000 | 25.333 | 39 | |

¹Cutpoints for Health Inspection Scores used as follows: 5 stars: $\leq 10^{\text{th}}$ percentile; 4 stars: $>10^{\text{th}}$ percentile and $\leq 33.33^{\text{rd}}$ percentile; 3 stars: $>33.33^{\text{rd}}$ percentile and $\leq 56.66^{\text{th}}$ percentile; 2 stars: $>56.66^{\text{th}}$ percentile and $\leq 80^{\text{th}}$ percentile; 1 star: $>80^{\text{th}}$ percentile

²Cutpoints based on national distribution are used when fewer than 5 facilities in state/territory have data available

Table A2. National Cutpoints for Staffing Measures (11-04-2008)¹

| Staff type | 1/2 points (25th %-ile) | 2/3 points (50th %-ile) | 3/4 points (75th %-ile) | 4/5 points (CMS staffing study) |
|------------|----------------------------|----------------------------|----------------------------|------------------------------------|
| RN | 0.222 | 0.298 | 0.402 | 0.550 |
| Total | 2.997 | 3.375 | 3.841 | 4.080 |

¹Cutpoints for RN 5-star and Total staffing (RN,LPN, and CNA) used as follows based on case-mix adjusted hours per resident day: 5 points: \geq CMS staffing study threshold; 4 points: $<$ CMS staffing study threshold and $\geq 75^{\text{th}}$ percentile; 3 points: $< 75^{\text{th}}$ percentile and $\geq 50^{\text{th}}$ percentile (median); 2 points: $< 50^{\text{th}}$ percentile and $\geq 25^{\text{th}}$ percentile; 1 point: $< 25^{\text{th}}$ percentile. The RN staffing 5-star is then simply assigned as 1 star per point. The overall Staffing (combined RN and total staffing) 5-star rating is constructed as shown in Table A3.

Table A3. Assignment of Staffing 5-star Rating Based on RN and Total Staffing Ratings

| RN rating and hours | | Total staffing rating and hours (RN, LPN and aide) | | | | |
|---------------------|---|--|---|---|---|-------------------------------------|
| | | 1 | 2 | 3 | 4 | 5 |
| | | $< 25^{\text{th}}$ percentile | $\geq 25^{\text{th}}$ percentile and $<$ median | \geq median and $< 75^{\text{th}}$ percentile | $\geq 75^{\text{th}}$ percentile and $<$ CMS staffing study threshold | \geq CMS staffing study threshold |
| 1 | $< 25^{\text{th}}$ percentile | ★ | ★ | ★★ | ★★ | ★★★ |
| 2 | $\geq 25^{\text{th}}$ percentile & $<$ median | ★ | ★★ | ★★★ | ★★★★ | ★★★★★ |
| 3 | \geq median & $< 75^{\text{th}}$ percentile | ★★ | ★★★★ | ★★★★★ | ★★★★★ | ★★★★★ |
| 4 | $\geq 75^{\text{th}}$ percentile & $<$ CMS staffing study threshold | ★★ | ★★★★ | ★★★★★ | ★★★★★ | ★★★★★ |
| 5 | \geq CMS staffing study threshold | ★★★ | ★★★★★ | ★★★★★ | ★★★★★ | ★★★★★ |

Table A4. National Quintile Cutpoints for Non-ADL QMs (11-04-2008)¹

| Quality Measure | 20th %-ile | 40th %-ile | 60th %-ile | 80th %-ile |
|--------------------------------------|-------------------|-------------------|-------------------|-------------------|
| LS: Moderate to Severe Pain | 0.02198 | 0.04294 | 0.06944 | 0.11364 |
| LS: High Risk Pressure Ulcers | 0.06623 | 0.09722 | 0.12745 | 0.16738 |
| LS: Indwelling Catheter | 0.02899 | 0.04808 | 0.06731 | 0.09325 |
| LS: Urinary Tract Infections | 0.05000 | 0.07458 | 0.09821 | 0.12844 |
| LS: Restraints | 0.00000 | 0.01493 | 0.03865 | 0.07813 |
| PA: Delirium | 0.00000 | 0.00806 | 0.02326 | 0.05128 |
| PA: Moderate to Severe Pain | 0.08537 | 0.14925 | 0.21429 | 0.30508 |
| PA: Pressure Ulcers | 0.10000 | 0.14474 | 0.18852 | 0.25000 |

LS = Long-stay; PA = Post-acute

¹Quintiles for these cutpoints used to assign points towards the summary score as follows: 12 points: $\leq 20^{\text{th}}$ percentile; 9 points: $> 20^{\text{th}}$ percentile and $\leq 40^{\text{th}}$ percentile; 6 points: $> 40^{\text{th}}$ percentile and $\leq 60^{\text{th}}$ percentile; 3 points: $> 60^{\text{th}}$ percentile and $\leq 80^{\text{th}}$ percentile; 0 points: $> 80^{\text{th}}$ percentile.

Table A5. Quintile Cutpoints for ADL QM Late Loss ADL Worsening (11-04-2008)

| State | 20th %-ile | 40th %-ile | 60th %-ile | 80th %-ile | Number of facilities | *=National Cutpoints Used |
|-----------------------------|-------------------|-------------------|-------------------|-------------------|-----------------------------|----------------------------------|
| Alaska | 0.08163 | 0.12717 | 0.14286 | 0.19167 | 11 | |
| Alabama | 0.07576 | 0.10180 | 0.12883 | 0.17241 | 223 | |
| Arkansas | 0.08333 | 0.11454 | 0.14689 | 0.19192 | 218 | |
| Arizona | 0.08571 | 0.11551 | 0.15789 | 0.21642 | 121 | |
| California | 0.05263 | 0.08264 | 0.11538 | 0.16667 | 1123 | |
| Colorado | 0.09524 | 0.13077 | 0.17355 | 0.22222 | 199 | |
| Connecticut | 0.11475 | 0.14378 | 0.18421 | 0.21930 | 237 | |
| District of Columbia | 0.08772 | 0.10337 | 0.15886 | 0.20952 | 17 | |
| Delaware | 0.11246 | 0.14745 | 0.17332 | 0.22768 | 40 | |
| Florida | 0.08416 | 0.10914 | 0.13636 | 0.17526 | 657 | |
| Georgia | 0.09554 | 0.12389 | 0.15615 | 0.20000 | 342 | |
| Guam | 0.08898 | 0.12340 | 0.15966 | 0.20767 | 0 | * |
| Hawaii | 0.06228 | 0.11111 | 0.16204 | 0.19903 | 38 | |
| Iowa | 0.09211 | 0.11594 | 0.14724 | 0.18333 | 422 | |
| Idaho | 0.09375 | 0.14286 | 0.17808 | 0.20388 | 69 | |
| Illinois | 0.08108 | 0.11782 | 0.14773 | 0.20175 | 718 | |
| Indiana | 0.16667 | 0.20661 | 0.24419 | 0.28727 | 476 | |
| Kansas | 0.09388 | 0.12685 | 0.16098 | 0.20145 | 325 | |
| Kentucky | 0.09700 | 0.14922 | 0.19389 | 0.23635 | 265 | |
| Louisiana | 0.13343 | 0.18547 | 0.22009 | 0.26327 | 265 | |
| Massachusetts | 0.10296 | 0.13052 | 0.15801 | 0.19221 | 420 | |
| Maryland | 0.09583 | 0.12757 | 0.15702 | 0.20245 | 217 | |
| Maine | 0.10370 | 0.13699 | 0.16667 | 0.20548 | 109 | |
| Michigan | 0.08295 | 0.11374 | 0.14634 | 0.19692 | 399 | |
| Minnesota | 0.10909 | 0.13636 | 0.16352 | 0.20219 | 382 | |
| Missouri | 0.07453 | 0.10497 | 0.13402 | 0.17582 | 484 | |
| Mississippi | 0.10040 | 0.13188 | 0.16445 | 0.21618 | 190 | |
| Montana | 0.10309 | 0.12766 | 0.17033 | 0.21196 | 84 | |
| North Carolina | 0.17031 | 0.20769 | 0.24306 | 0.28516 | 392 | |
| North Dakota | 0.12583 | 0.14961 | 0.18349 | 0.21111 | 79 | |
| Nebraska | 0.10610 | 0.14014 | 0.16909 | 0.21227 | 215 | |
| New Hampshire | 0.12397 | 0.15789 | 0.18644 | 0.23109 | 76 | |

Table A5. Quintile Cutpoints for ADL QM Late Loss ADL Worsening (11-04-2008)

| State | 20th %-ile | 40th %-ile | 60th %-ile | 80th %-ile | Number of facilities | *=National Cutpoints Used |
|----------------|------------|------------|------------|------------|----------------------|---------------------------|
| New Jersey | 0.08197 | 0.10455 | 0.12782 | 0.15094 | 339 | |
| New Mexico | 0.12610 | 0.16578 | 0.20209 | 0.23850 | 65 | |
| Nevada | 0.16667 | 0.18919 | 0.22302 | 0.29630 | 43 | |
| New York | 0.07836 | 0.09790 | 0.12109 | 0.15517 | 639 | |
| Ohio | 0.08571 | 0.11881 | 0.15179 | 0.19048 | 907 | |
| Oklahoma | 0.06299 | 0.09155 | 0.11934 | 0.16129 | 303 | |
| Oregon | 0.04673 | 0.07821 | 0.10465 | 0.14035 | 134 | |
| Pennsylvania | 0.14417 | 0.18333 | 0.22051 | 0.26364 | 656 | |
| Puerto Rico | 0.08898 | 0.12340 | 0.15966 | 0.20767 | 0 | * |
| Rhode Island | 0.08487 | 0.11410 | 0.14412 | 0.17522 | 85 | |
| South Carolina | 0.07692 | 0.10695 | 0.14521 | 0.19079 | 163 | |
| South Dakota | 0.12316 | 0.14689 | 0.17963 | 0.20909 | 110 | |
| Tennessee | 0.08721 | 0.11364 | 0.14286 | 0.18421 | 298 | |
| Texas | 0.08898 | 0.12037 | 0.15254 | 0.19620 | 1042 | |
| Utah | 0.07303 | 0.11340 | 0.15079 | 0.20952 | 78 | |
| Virginia | 0.13149 | 0.16414 | 0.19786 | 0.24419 | 260 | |
| Virgin Islands | 0.08898 | 0.12340 | 0.15966 | 0.20767 | 1 | * |
| Vermont | 0.14863 | 0.17404 | 0.20942 | 0.25825 | 40 | |
| Washington | 0.08594 | 0.11047 | 0.14352 | 0.17949 | 226 | |
| Wisconsin | 0.09827 | 0.13061 | 0.16129 | 0.19580 | 377 | |
| West Virginia | 0.12821 | 0.16981 | 0.20313 | 0.26437 | 117 | |
| Wyoming | 0.11565 | 0.14414 | 0.16667 | 0.21693 | 36 | |

LS = Long-stay

¹Quintiles for these cutpoints used to assign points towards the summary score as follows: 20 points: $\leq 20^{\text{th}}$ percentile; 15 points: $> 20^{\text{th}}$ percentile and $\leq 40^{\text{th}}$ percentile; 10 points: $> 40^{\text{th}}$ percentile and $\leq 60^{\text{th}}$ percentile; 5 points: $> 60^{\text{th}}$ percentile and $\leq 80^{\text{th}}$ percentile; 0 points: $> 80^{\text{th}}$ percentile.

Table A6. Quintile Cutpoints for ADL QM Worsening Locomotion (11-04-2008)

| State | 20th %-ile | 40th %-ile | 60th %-ile | 80th %-ile | Number of facilities | *=National Cutpoints Used |
|----------------------|------------|------------|------------|------------|----------------------|---------------------------|
| Alaska | 0.07527 | 0.11538 | 0.12057 | 0.19588 | 8 | |
| Alabama | 0.07813 | 0.10217 | 0.13081 | 0.16583 | 220 | |
| Arkansas | 0.07692 | 0.10638 | 0.13568 | 0.17143 | 217 | |
| Arizona | 0.08285 | 0.10965 | 0.14349 | 0.19936 | 115 | |
| California | 0.06061 | 0.09559 | 0.13393 | 0.18033 | 1087 | |
| Colorado | 0.07975 | 0.11594 | 0.16471 | 0.21622 | 198 | |
| Connecticut | 0.09677 | 0.13968 | 0.17568 | 0.21495 | 236 | |
| District of Columbia | 0.08434 | 0.09677 | 0.09890 | 0.13855 | 16 | |
| Delaware | 0.10969 | 0.15402 | 0.18462 | 0.22485 | 40 | |
| Florida | 0.07547 | 0.10360 | 0.12879 | 0.16532 | 646 | |
| Georgia | 0.08400 | 0.11754 | 0.14203 | 0.19210 | 340 | |
| Guam | 0.08143 | 0.11628 | 0.15152 | 0.20330 | 0 | * |
| Hawaii | 0.07000 | 0.14194 | 0.17931 | 0.21809 | 33 | |
| Iowa | 0.07752 | 0.11111 | 0.13559 | 0.17699 | 418 | |
| Idaho | 0.09259 | 0.14474 | 0.18182 | 0.22581 | 69 | |
| Illinois | 0.07143 | 0.11238 | 0.14676 | 0.18616 | 710 | |
| Indiana | 0.09920 | 0.14012 | 0.19093 | 0.24323 | 475 | |
| Kansas | 0.08197 | 0.12295 | 0.15254 | 0.19780 | 323 | |
| Kentucky | 0.08642 | 0.12302 | 0.16216 | 0.22807 | 252 | |
| Louisiana | 0.06786 | 0.08846 | 0.11765 | 0.14919 | 264 | |
| Massachusetts | 0.10938 | 0.14324 | 0.17773 | 0.21231 | 415 | |
| Maryland | 0.09574 | 0.13260 | 0.17127 | 0.23256 | 213 | |
| Maine | 0.15957 | 0.19565 | 0.22581 | 0.28846 | 107 | |
| Michigan | 0.08854 | 0.11888 | 0.14773 | 0.18987 | 391 | |
| Minnesota | 0.10849 | 0.13830 | 0.17005 | 0.20909 | 381 | |
| Missouri | 0.05970 | 0.09167 | 0.12000 | 0.15741 | 483 | |
| Mississippi | 0.08242 | 0.10812 | 0.13713 | 0.18608 | 190 | |
| Montana | 0.09859 | 0.13462 | 0.16568 | 0.21053 | 84 | |
| North Carolina | 0.09091 | 0.12903 | 0.17544 | 0.24413 | 386 | |
| North Dakota | 0.10448 | 0.14414 | 0.16923 | 0.20946 | 78 | |
| Nebraska | 0.10256 | 0.13478 | 0.17054 | 0.20513 | 212 | |
| New Hampshire | 0.12068 | 0.16273 | 0.19414 | 0.23146 | 75 | |

Table A6. Quintile Cutpoints for ADL QM Worsening Locomotion (11-04-2008)

| State | 20th %-ile | 40th %-ile | 60th %-ile | 80th %-ile | Number of facilities | *=National Cutpoints Used |
|----------------|------------|------------|------------|------------|----------------------|---------------------------|
| New Jersey | 0.08000 | 0.10435 | 0.13402 | 0.16234 | 333 | |
| New Mexico | 0.10268 | 0.16279 | 0.19340 | 0.23780 | 64 | |
| Nevada | 0.12500 | 0.19469 | 0.24398 | 0.29592 | 42 | |
| New York | 0.08741 | 0.11321 | 0.13793 | 0.18325 | 633 | |
| Ohio | 0.08421 | 0.11561 | 0.15132 | 0.19355 | 902 | |
| Oklahoma | 0.04651 | 0.06883 | 0.09474 | 0.12950 | 302 | |
| Oregon | 0.06667 | 0.09091 | 0.11180 | 0.16049 | 129 | |
| Pennsylvania | 0.17701 | 0.22086 | 0.25294 | 0.31111 | 646 | |
| Puerto Rico | 0.08143 | 0.11628 | 0.15152 | 0.20330 | 0 | * |
| Rhode Island | 0.09459 | 0.11594 | 0.14027 | 0.15854 | 82 | |
| South Carolina | 0.09267 | 0.12156 | 0.14713 | 0.20000 | 160 | |
| South Dakota | 0.11056 | 0.13966 | 0.17084 | 0.20479 | 110 | |
| Tennessee | 0.08531 | 0.11123 | 0.13427 | 0.17331 | 295 | |
| Texas | 0.06195 | 0.09091 | 0.12121 | 0.16667 | 1032 | |
| Utah | 0.07407 | 0.10976 | 0.14516 | 0.21429 | 77 | |
| Virginia | 0.11966 | 0.15566 | 0.20679 | 0.25000 | 254 | |
| Virgin Islands | 0.08143 | 0.11628 | 0.15152 | 0.20330 | 1 | * |
| Vermont | 0.14963 | 0.19775 | 0.26078 | 0.28811 | 40 | |
| Washington | 0.09244 | 0.12579 | 0.16000 | 0.20455 | 222 | |
| Wisconsin | 0.09569 | 0.12299 | 0.15470 | 0.19444 | 376 | |
| West Virginia | 0.10112 | 0.14679 | 0.18421 | 0.22549 | 114 | |
| Wyoming | 0.10542 | 0.13159 | 0.16250 | 0.19315 | 35 | |

LS = Long-stay

¹Quintiles for these cutpoints used to assign points towards the summary score as follows: 20 points: $\leq 20^{\text{th}}$ percentile; 15 points: $>20^{\text{th}}$ percentile and $\leq 40^{\text{th}}$ percentile; 10 points: $>40^{\text{th}}$ percentile and $\leq 60^{\text{th}}$ percentile; 5 points: $>60^{\text{th}}$ percentile and $\leq 80^{\text{th}}$ percentile; 0 points: $>80^{\text{th}}$ percentile.

Table A7. Star Cutpoints for MDS Quality Measure Summary Score (11-04-2008)

| 1/2 star | 2/3 star | 3/4 star | 4/5 star |
|-----------------------------------|--------------------------------------|--------------------------------------|-------------------------------------|
| 20th percentile | 43.33rd percentile | 66.67th percentile | (90th percentile) |
| 49 | 64 | 78 | 99 |

[†]Cutpoints for MDS Quality Measure Scores (which have a 0-136 point range) used as follows: 5 stars: $\geq 90^{\text{th}}$ percentile; 4 stars: $<90^{\text{th}}$ percentile and $\geq 66.67^{\text{th}}$ percentile; 3 stars: $<66.67^{\text{th}}$ percentile and $\geq 43.33^{\text{rd}}$ percentile; 2 stars: $<43.33^{\text{rd}}$ percentile and $\geq 20^{\text{th}}$ percentile; 1 star: $<20^{\text{th}}$ percentile