Design for *Nursing Home Compare* Five-Star Quality Rating System:

Technical Users' Guide

April 2019



April 2019 Revisions

In April 2019, several changes were made to the Nursing Home Compare website and the Five-Star Quality Rating System. These changes affected all domains of the rating system. This section provides a brief overview of the changes. Full details are described in the relevant sections of this updated document.

Health Inspection Domain: ***The rating methodology for the health inspection rating returned to what it was prior to February 2018. Specifically, results from the three most recent standard health inspections and 36 months of complaint inspections are used to calculate the health inspection score and determine the health inspection rating. Surveys occurring both before and after the implementation of the new survey process (November 28, 2017) are used to determine health inspection scores and rating and are treated in the same way.***

Staffing Domain: ***The staffing rating thresholds were changed, with the staffing level required to receive a 5-star rating determined based on analyses of the relationship between staffing levels and measures of nursing home quality. In recognition of the importance of RN staffing, the method by which the RN staffing rating and the total nurse staffing rating are combined to generate the overall staffing rating is changing to provide more emphasis on RN staffing. Additionally, the overall and RN staffing ratings are set to one star for nursing homes that report four or more days in the quarter with no RN onsite. Finally, staffing ratings are no longer being suppressed for nursing homes that have five or more days with residents and no nurse staffing hours reported.***

Quality Measures Domain: ***The Nursing Home Compare website reports separate ratings for short-stay quality of resident care and long-stay quality of resident care in addition to an overall quality of resident care rating. Measures of long-stay hospitalizations and long-stay emergency department (ED) visits were added to the quality measure rating, and the long-stay physical restraints measure was dropped from the quality measure rating. The scoring rules for the quality measures changed to give more weight to measures with greater opportunity for improvement. Given the changes in measures and weights, there are also new point thresholds for the overall quality measure rating as well as the short-stay and long-stay ratings.***

Special Focus Facilities: ***Nursing Home Compare no longer displays an overall quality rating or ratings in any domain for nursing homes currently participating in the Special Focus Facility program.***

Introduction

In December 2008, The Centers for Medicare & Medicaid Services (CMS) enhanced its *Nursing Home Compare* public reporting site to include a set of quality ratings for each nursing home that participates in Medicare or Medicaid. The ratings take the form of several "star" ratings for each nursing home. The primary goal of 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.

This document provides a comprehensive description of the design for the *Nursing Home Compare* Five-Star Quality Rating System. This design was developed by CMS with assistance from Abt Associates, invaluable advice from leading researchers in the long-term care field who comprise the Technical Expert Panel (TEP) for this project, and numerous ideas contributed by consumer and provider groups. All of these organizations and groups have continued to contribute their input as the rating system has been refined and updated to incorporate newly available data. We believe the Five-Star Quality Rating System offers valuable and comprehensible information to consumers based on the best data available. The rating system features an Overall Quality Rating of one to five stars based on nursing home performance on three domains, each of which has its own rating:

- ***Health Inspections - Measures based on outcomes from state health inspections:*** Ratings for the health inspection domain are based on the number, scope, and severity of deficiencies identified during the three most recent annual inspection surveys, as well as substantiated findings from the most recent 36 months of complaint investigations. All deficiency findings are weighted by scope and severity. This measure also takes into account the number of revisits required to ensure that deficiencies identified during the health inspection survey have been corrected.
- ***Staffing - Measures based on nursing home staffing levels:*** Ratings on the staffing domain are based on two measures: 1) Registered nurse (RN) hours per resident day; and 2) total nurse staffing (the sum of RN, licensed practical nurse (LPN), and nurse aide) hours per resident per day. Other types of nursing home staff, such as clerical or housekeeping staff, are not included in the staffing rating calculation. The staffing measures are derived from data submitted each quarter through the Payroll-Based Journal (PBJ) System, along with daily resident census derived from Minimum Data Set, Version 3.0 (MDS 3.0) assessments, and are case-mix adjusted based on the distribution of MDS 3.0 assessments by Resource Utilization Groups, version IV (RUG-IV group). In addition to the overall staffing rating, a separate rating for RN staffing is also reported.
- ***Quality Measures - Measures based on MDS and claims-based quality measures (QMs):*** Ratings for the quality measures are based on performance on 17 of the QMs that are currently posted on the *Nursing Home Compare* website. These include ten long-stay measures and seven short-stay measures. Note that not all of the quality measures that are reported on *Nursing Home Compare* are included in the rating calculations. In addition to an overall quality of resident care rating, separate ratings for the quality of resident care for short-stay residents and long-stay residents are also reported.

In recognition of the multi-dimensional nature of nursing home quality, *Nursing Home Compare* displays ratings for each of these domains along with an overall rating.

A companion document to this Technical Users' Guide (*Nursing Home Compare* – Five Star Quality Rating System: Technical Users' Guide – State-Level Cut Point Tables) provides the data for the state-level cut points for the health inspection star ratings. The data table in the companion document is updated monthly. The cut points for the staffing ratings are included in Tables 3 and 4 in this Technical Users' Guide. Table 6 provides the cut points for the QM ratings, and the cut points for the individual QMs are in Appendix Table A2.

Methodology for Constructing the Ratings

Health Inspection Domain

Nursing homes that participate in the Medicare and/or Medicaid programs have an onsite recertification (standard) "comprehensive" inspection annually *on average*, with very rarely more than fifteen months elapsing between inspections for any one particular nursing home. Inspections are unannounced and are conducted by a team of health care professionals who spend several days in the nursing home to assess whether the nursing home is in compliance with federal requirements. These inspections provide a comprehensive assessment of the nursing home, reviewing facility practice and policies in such areas as resident rights, quality of life, medication management, skin care, resident assessment, nursing home administration, environment, and kitchen/food services. The methodology for constructing the health inspection rating is based on the three most recent recertification surveys for each nursing home, complaint deficiencies during the most recent three-year period, and any repeat revisits needed to verify that required corrections have brought the facility back into compliance. The Five-Star Quality Rating System uses more than 200,000 records for the health inspection domain alone.

Scoring Rules

CMS calculates a health inspection score based on points assigned to deficiencies identified in each active provider's three most recent recertification health inspections, as well as on deficiency findings from the most recent three years of complaint inspections.

- ***Health Inspection Results***: Points are assigned to individual health deficiencies according to their scope and severity –more serious, widespread deficiencies receive more points, with additional points assigned for substandard quality of care (see Table 1). If the status of the deficiency is "past non-compliance" and the severity is "immediate jeopardy" (i.e., J-, K- or L-level), then points associated with a G- level deficiency are assigned. Deficiencies from Life Safety surveys are not included in the Five-Star rating calculations. Deficiencies from Federal Comparative Surveys are not reported on *Nursing Home Compare* or included in *Five Star* calculations, though the results of State Survey Agency determinations made during a Federal Oversight Survey are included.
- ***Repeat Revisits - Number of repeat revisits required to confirm that correction of deficiencies have restored compliance***: No points are assigned for the first revisit; points are assigned only for the second, third, and fourth revisits and are proportional to the health inspection score for the survey cycle (Table 2). If a provider fails to correct deficiencies by the time of the first revisit, then these additional revisit points are assigned up to 85 percent of the health inspection score for the fourth revisit. CMS' experience is that providers who fail to demonstrate restored compliance

with safety and quality of care requirements during the first revisit have lower quality of care than other nursing homes. More revisits are associated with more serious quality problems.

Table 1
Health Inspection 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. See the Electronic Code of Federal Regulations (https://www.ecfr.gov/cgi-bin/text-idx?SID=9c4d022241818fef427dc79565aba4b5&mc=true&node=pt42.5.488&rgn=div5#se42.5.488_1301) for a definition of substandard quality of care.
* If the status of the deficiency is "past non-compliance" and the severity is Immediate Jeopardy, then points associated with a 'G-level" deficiency (i.e., 20 points) are assigned.
Source: Centers for Medicare & Medicaid Services

Table 2
Weights for Repeat Revisits

Revisit Number	Noncompliance Points
First	0
Second	50 percent of health inspection score
Third	70 percent of health inspection score
Fourth	85 percent of health inspection score

Note: The health inspection score includes points from deficiencies cited on the standard health inspection and complaint inspections during a given survey cycle.

CMS calculates a total weighted health inspection score for each facility (including any repeat revisits). . Note that a lower survey score corresponds to fewer deficiencies and revisits, and thus better performance on the health inspection domain. In calculating the total weighted score, more recent standard surveys are weighted more heavily than earlier surveys with the most recent period (rating cycle 1) being assigned a weighting factor of 1/2, the previous period (rating cycle 2) having a weighting factor of 1/3, and the second prior period (rating cycle 3) having a weighting factor of 1/6. The individual weighted scores for each cycle are then summed (after including complaint surveys and revisit points) to create the total weighted health inspection score for each facility.

Complaint inspections are assigned to a time period based on the 12-month period in which the complaint survey occurred. Complaint inspections that occurred within the most recent 12 months from when the data are uploaded receive a weighting factor of 1/2; those from 13-24 months ago have a weighting factor

of 1/3, and those from 25-36 months ago have a weighting factor of 1/6. There are some deficiencies that appear on both standard and complaint inspections. To avoid potential double-counting, deficiencies that appear on complaint inspections that are conducted within 15 days of a recertification inspection (either prior to or after the recertification inspection) are counted only once. If the scope or severity differs between the two inspections, the highest scope-severity combination is used. Points from complaint deficiencies from a given period are added to the health inspection score before calculating revisit points, if applicable.

For facilities missing data for one period, the health inspection 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 inspections using two survey cycles. Specifically, when there are only two recertification inspections, the most recent survey cycle receives 60 percent weight and the prior cycle receives 40 percent weight. Facilities with only one standard health inspection are considered not to have sufficient data to determine a health inspection rating and their rating is set to missing for the health inspection domain. For these facilities, no overall quality rating is assigned and no ratings are reported for the staffing or QM domains even if data for these domains are available. Nursing Home Compare will display "Too New to Rate" for these facilities.

Rating Methodology

Health inspections are based on federal regulations, which surveyors implement using national interpretive guidance and a federally-specified survey process. Federal staff train state inspectors and oversee state performance. The federal oversight includes quality checks based on a 5% sample of the health inspections performed by states, in which federal inspectors either accompany state inspectors or replicate the inspection within 60 days of the state and then compare results. These control systems are designed to improve consistency in the survey process. Nonetheless there remains variation among states in both inspection process and outcomes. Such variation derives from many factors, including:

- ***Survey Management:*** Variation among states in the skill sets of inspectors, supervision of inspectors, and the inspection processes;
- ***State Licensure***: State licensing laws set forth different expectations for nursing homes and affect the interaction between state enforcement and federal enforcement (for example, a few states conduct many complaint investigations based on state licensure, and issue citations based on State licensure rather than on the federal regulations);
- ***Medicaid Policy:*** Medicaid pays for the largest proportion of long-term care in nursing homes. Nursing home eligibility rules, payment, and other policies in the state-administered Medicaid program may be associated with differences in survey outcomes.

For the above reasons, CMS bases Five-Star quality ratings in the health inspection domain on the relative performance of facilities within a state. This approach helps control for variation among states. CMS determines facility ratings using these criteria:

- The top 10 percent (with the lowest health inspection weighted scores) in each state receive a health inspection rating of five stars.
- 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.

Rating thresholds are re-calibrated each month so that the distribution of star ratings within states remains relatively constant over time. However, the rating for a given facility is held constant until there is a change in the weighted health inspection score for that facility, regardless of changes in the statewide distribution. Items that could change the health inspection score include the following:

- A new health inspection;
- A complaint investigation that results in one or more deficiency citations;
- A second, third, or fourth revisit;
- Resolution of Informal Dispute Resolutions (IDR) or Independent Informal Dispute Resolutions (IIDR) resulting in changes to the scope and/or severity of deficiencies.
- The "aging" of complaint deficiencies. Specifically, as noted above, complaint surveys are assigned to a time period based on the most recent 12 month period in which the complaint survey occurred; thus, when a complaint deficiency ages into a different cycle, it receives less weight in the scoring process, resulting in a lower health inspection score and potentially a change in health inspection rating.

In the very rare case that a state or territory has fewer than five facilities upon which to generate the cut points, the national distribution of health inspection scores is used. Cut points for the health inspection ratings can be found in the Cut Point Table in the companion document to this Technical Users' Guide: Five Star Quality Rating System State-Level Cut Point Tables available in the 'downloads' section at: https://www.cms.gov/medicare/provider-enrollment-and-certification/certificationandcomplianc/fsqrs.html.

Staffing Domain

There is considerable evidence of a relationship between nursing home staffing levels and resident outcomes. The CMS Staffing Study[1], among other research, found a clear association between nurse staffing ratios and nursing home quality of care.

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

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

The source for reported staffing hours is the Payroll-based Journal (PBJ) system[2]. These data are submitted quarterly and are due 45 days after the end of each reporting period. Only data submitted and accepted by the deadline are used by CMS for staffing calculations and in the Five-Star Rating System. The resident census is based on a daily resident census measure that is calculated by CMS using MDS assessments.

The specific PBJ job codes that are used in the RN, LPN, and nurse aide hours calculations are:

- RN hours: Includes RN director of nursing (job code 5), registered nurses with administrative duties (job code 6), and registered nurses (job code 7).
- LPN hours: Includes licensed practical/licensed vocational nurses with administrative duties (job code 8) and licensed practical/vocational nurses (job code 9)
- Nurse aide hours: Includes certified nurse aides (job code 10), aides in training (job code 11), and medication aides/technicians (job code 12)

Note that the PBJ staffing data include both facility employees (full-time and part-time) and individuals under an organization (agency) contract or an individual contract. The PBJ staffing data do not include "private duty" nursing staff reimbursed by a resident or his/her family. Also not included are hospice staff and feeding assistants.

The daily resident census, used in the denominator of the reported nurse staffing ratios, is derived from MDS resident assessments and is calculated as follows:

1. Identify the reporting period (quarter) for which the census will be calculated (e.g., CY 2018 Q2: April 1 – June 30, 2018).

2. Extract MDS assessment data for all residents of a facility beginning one year prior to the reporting period to identify all residents that *may* reside in the facility (i.e., any resident with an MDS assessment may still reside in the facility). For example, for the CY 2018 Q2 reporting period, extract MDS data from April 1, 2017 through June 30, 2018.

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[1] 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.

[2] More detailed information about the PBJ system is available at: https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/NursingHomeQualityInits/Staffing-Data-Submission-PBJ.html

3. Identify discharged/deceased residents using the following criteria:

    a) If a resident has an MDS Discharge assessment or Death in Facility tracking record, use the date reported on that assessment and assume that the resident no longer resides in the facility as of the date of discharge/death on the last assessment. In the case of discharges, if there is a subsequent admission assessment, then assume that the resident re-entered the nursing home on the entry date indicated on the entry assessment.

    b) For any resident with an interval of 150 days or more with no assessments, assume the resident no longer resides in the facility as of the 150th day from the last assessment. (This assumption is based on the requirement for facilities to complete MDS assessments on all residents at least quarterly). If no assessment is present, assume the resident was discharged, but the facility did not transmit a Discharge assessment.

For any particular date, residents whose assessments do not meet the criteria in #3 above prior to that date are assumed to reside in the facility. The count of these residents is the census for that particular day.

MDS assessments for a given resident are linked using the Resident Internal ID. The Resident Internal ID is a unique number, assigned by the Quality Improvement Evaluation System (QIES) Assessment Submission and Processing (ASAP) system, which identifies a resident. The combination of state and Resident Internal ID uniquely identifies a resident in the national repository. The process by which the Resident Internal ID is created is described by the *MDS 3.0 Provider User's Guide - Appendix B* (https://qtso.cms.gov/system/files/qtso/Users_AppB.pdf). The following MDS items are used to define the Resident Internal ID:

- State ID
- Facility Internal ID (QIES ASAP system number)
- Social Security Number (SSN)
- Last Name
- First Name
- Date of Birth
- Gender

Therefore, in order to achieve an accurate census, it is imperative that, in addition to having complete assessment data for each resident including discharge assessment data, residents are assigned correct Resident Internal IDs. To facilitate this, providers must ensure that MDS items, in particular the items indicated above, are entered correctly on each assessment. Providers must also carefully monitor the Final Validation Report, generated upon MDS submission, for any errors. Providers should work with their State RAI Coordinator or State Automation Coordinator to correct any errors that arise during assessment submission. In addition to using their Final Validation Report to validate the file structure and data content of each successful MDS submission, providers can monitor their MDS data using additional Certification and Survey Provider Enhanced Reports (CASPER) Reports. There are CASPER Reports for MDS Census Summary (returns resident count per day), MDS Census Detail (returns list of Resident Internal IDs counted per day), Admissions, Discharges, Duplicate Residents, Errors, and Daily Rosters, among others. Full descriptions of these reports are available in Section 6 of the CASPER Reporting MDS Provider User's Guide available at the following link: https://qtso.cms.gov/system/files/2018-03/cspr_sec6_mds_prvdr.pdf. Information about Final Validation Reports and error messages in the

reports is available in Sections 4 and 5 of the MDS 3.0 Provider User's Guide (https://qtso.cms.gov/reference-and-manuals/mds-30-provider-users-guide).

The nurse staffing hours reported through PBJ and the daily MDS census are both aggregated (summed) across the quarterly reporting period. The quarterly reported nurse staffing hours per resident per day (HRD) are then calculated by dividing the aggregate reported hours by the aggregate resident census. Only days that have at least one resident are included in the calculations.

CMS uses a set of exclusion criteria to identify facilities with highly improbable PBJ staffing data and neither staffing data nor a staffing rating are reported for these facilities ("Data Not Available" is displayed on the *Nursing Home Compare* website). These exclusion criteria are as follows:

- Total nurse staffing (job codes 5-12), aggregated over all days in the quarter with both nurses and residents is excessively low (<1.5 HRD)
- Total nurse staffing (job codes 5-12), aggregated over all days in the quarter with both nurses and residents is excessively high (>12 HRD)
- Nurse aide staffing (job codes 10-12) aggregated over all days in the quarter with both nurses and residents is excessively high (>5.25 HRD)

Case-Mix Adjustment

CMS adjusts the reported staffing ratios for case-mix, using the Resource Utilization Group (RUG-IV) case-mix system. The CMS Staff Time Resource Intensity Verification (STRIVE) Study measured the average number of RN, LPN, and nurse aide minutes associated with each RUG-IV group (using the 66 group version of RUG-IV). We refer to these as "case-mix" hours".[3]

CMS calculates case-mix adjusted hours per resident day for each facility for each staff type using this formula:

$$\textbf{Hours}_{\textbf{Adjusted}} = (\textbf{Hours}_{\textbf{Reported}}/\textbf{Hours}_{\textbf{Case-Mix}}) * \textbf{Hours}_{\textbf{National Average}}$$

The reported hours are those reported by the facility through PBJ as described above. National average hours for a given staff type represent the national mean of case-mix hours across all facilities active on the last day of the quarter that submitted valid nurse staffing data for the quarter. The National Average Hours are updated every quarter and will be available in the state averages table at: https://data.medicare.gov/data/nursing-home-compare.

The case-mix values for each nursing home are based on the daily distribution of residents by RUG-IV group in the quarter covered by the PBJ reported staffing and estimates of daily RN, LPN, and nurse aide hours from the CMS STRIVE Study (see Table A1). Specifically, case-mix nurse staffing hours per resident day for a given nursing home are calculated as follows:

1) The MDS is used to assign a RUG-IV group to each resident for each day in the quarter. The method is similar to that used for calculating the daily MDS census and is described below.
2) This information is aggregated to generate a count of residents in each of the 66 RUG-IV groups in the nursing home for each day in the quarter. RUG-IV groups that are not represented on a

[3] Note that the term "case-mix hours" replaces the term "expected hours" that we used prior to April 2019.

given day are assigned a count of zero. Residents for whom there is insufficient MDS information to assign a RUG-IV category are not included.

3) Based on the number of residents in each RUG-IV group, case-mix total nursing and RN hours are calculated by multiplying by nursing time estimates for each RUG-IV group from the STRIVE study (Table A1).

4) Aggregate case-mix nursing and RN hours for the quarter are calculated by summing across all days and RUG-IV groups. These are the numerators in the calculations of case-mix total nursing and RN hours per resident day. The denominator for these calculations is the count of the total number of resident-days in the quarter for which there is a valid RUG-IV group.

5) Case-mix total nursing and RN hours per resident day for each nursing home are calculated by dividing aggregate case-mix hours (total nursing or RN) by the number of resident-days.

To determine the number of residents in each RUG-IV grouping for each day of the quarter for each nursing home, the same algorithm is used as that used to generate the daily MDS census (with slight adjustment to count RUG-IV groupings specifically, instead of just counting residents):

1) Identify the reporting period (quarter) for which the RUG groupings will be collected (e.g., CY 2018 Q2: April 1 – June 30, 2018).

2) Extract MDS assessment data (including RUG-IV 66 Hierarchical group) for all residents of a facility beginning one year prior to the reporting period to identify all residents that may reside in the nursing home (i.e., any resident with an MDS assessment may still reside in the nursing home). For example, for the CY 2018 Q2 reporting period, we extracted MDS data from April 1, 2017 through June 30, 2018.

3) Identify discharged/deceased residents using the following criteria:

   a) If a resident has an MDS Discharge assessment or Death in Facility tracking record, use the date reported on that assessment and assume that the resident no longer resides in the nursing home as of the date of discharge/death on the last assessment. In the case of discharges, if there is a subsequent admission assessment, then assume that the resident re-entered the nursing home on the entry date indicated on the admission assessment.

   b) For any resident with an interval of 150 days or more with no MDS assessments, assume the resident no longer resides in the nursing home as of the 150th day from the last assessment. (This assumption is based on the requirement for facilities to complete MDS assessments on all residents at least quarterly). If no assessment is present, it is assumed the resident was discharged, but the nursing home did not transmit a Discharge assessment.

For any particular date, residents whose assessments do not meet the criteria in #3 above prior to that date are assumed to reside in the nursing home. The RUG IV 66 Hierarchical group assigned to those residents on their most recent assessments as of that date are used to determine the RUG-IV distribution for that nursing home on that date. The calculations of “case-mix”, “reported”, and “national average” hours are made separately for RNs and for all nursing staff. Adjusted hours are also calculated for both groups using the formula provided earlier in this section.

A downloadable file that contains the “case-mix”, “reported” and “adjusted" hours used in the staffing calculations is included in the staffing data that are available at data.medicare.gov .

Scoring Rules

For both RN staffing and total staffing, a rating of 1 to 5 stars is assigned. Rating cut points are set using a percentile-based method that was developed taking account of clinical evidence on the relationship between staffing and quality (Table 3). For each nursing home, the overall staffing rating is assigned based on the combination of the total and RN staffing ratings (Table 4).

The staffing cut points (boundaries between rating categories) were determined using the data available as of April 2019, which covers 2018Q4.

Table 3

National Star Cut Points for Staffing Measures, Based on Adjusted Hours per Resident Day (updated April 2019)

Staff type	1 star	2 stars	3 stars	4 stars	5 stars
RN	< 0.317	0.317 - 0.507	0.508 – 0.730	0.731 – 1.048	≥1.049
Total	< 3.108	3.108 – 3.579	3.580 - 4.037	4.038 – 4.407	≥4.408

Note: Adjusted staffing values are rounded to three decimal places before the cut points are applied.

Rating Methodology

The overall staffing rating is based on the combination of RN and total nurse staffing ratings as shown in Table 4. In most cases the overall staffing rating is the arithmetic average of the RN and total nurse staffing rating. However, in cases where this average is not a whole number, the overall staffing rating "rounds towards" the RN staffing rating. For example, if a nursing home earns 4 stars on total staffing and 5 stars on RN staffing, the average would be 4.5. This is rounded towards the RN rating value (i.e., 5) and the nursing home would receive a 5-star overall staffing rating. These rules are reflected in Table 4.

Table 4

Staffing and Rating (updated April 2019)

RN rating and hours		Total nurse staffing rating and hours (RN, LPN and nurse aide)				
		1	**2**	**3**	**4**	**5**
		< 3.108	3.108 – 3.579	3.580 - 4.037	4.038 – 4.407	≥4.408
1	**< 0.317**	★	★	★★	★★	★★★
2	**0.317 - 0.507**	★★	★★	★★	★★★	★★★
3	**0.508 – 0.730**	★★	★★★	★★★	★★★	★★★★
4	**0.731 – 1.048**	★★★	★★★	★★★★	★★★★	★★★★
5	**≥1.049**	★★★	★★★★	★★★★	★★★★★	★★★★★

Note: Adjusted staffing values are rounded to three decimal places before the cut points are applied.

Scoring Exceptions

The following exceptions to the scoring rules described above for assigning the staffing rating and RN staffing rating are made:

- Providers that fail to submit any staffing data by the required deadline will receive a one-star rating for overall staffing and RN staffing for the quarter.
- Providers that submit staffing data indicating that there were four or more days in the quarter with no RN staffing hours (job codes 5-7) on days when there were one or more residents in the nursing home will receive a one-star rating for overall staffing and RN staffing for the quarter.
- CMS conducts audits of nursing homes to verify the data submitted and to ensure accuracy. Facilities that fail to respond to these audits and those for which the audit identifies significant discrepancies between the hours reported and the hours verified will receive a one-star rating for overall staffing and RN staffing for three months from the time at which the deadline to respond to audit requests passes or discrepancies are identified.

Quality Measure Domain

A set of quality measures (QMs) has been developed from Minimum Data Set (MDS) and Medicare claims data to describe the quality of care provided in nursing homes. These measures address a broad range of function and health status indicators. Most nursing homes will have three QM ratings – an overall QM rating, a long-stay QM rating, and a short-stay QM rating. For nursing homes that have only long-stay or only short-stay QMs, the overall QM rating is equal to their long-stay or short-stay QM rating. QM ratings are based on performance on a subset of 12 MDS-based QMs and five measures that are created using Medicare claims. These measures were selected for use in the rating system based on their validity and reliability, the extent to which nursing home practice may affect the measures, statistical performance, and the importance of the measures.

Measures for Long-Stay residents (defined as residents who are in the nursing home for greater than 100 days) that are derived from MDS assessments:

- Percent of residents whose need for help with activities of daily living has increased
- Percent of residents whose ability to move independently worsened
- Percent of high-risk residents with pressure ulcers
- Percent of residents who have/had a catheter inserted and left in their bladder
- Percent of residents with a urinary tract infection
- Percent of residents who self-report moderate to severe pain
- Percent of residents experiencing one or more falls with major injury
- Percent of residents who received an antipsychotic medication

Measures for Long-Stay residents that are derived from claims data:

- Number of hospitalizations per 1,000 long-stay resident days
- Number of outpatient emergency department (ED) visits per 1,000 long-stay resident days

Measures for Short-Stay residents that are derived from MDS assessments:

- Percent of residents who made improvement in function
- Percent of SNF residents with pressure ulcers that are new or worsened
- Percent of residents who self-report moderate to severe pain
- Percent of residents who newly received an antipsychotic medication

Measures for Short-Stay residents that are derived from claims data:

- Percent of short-stay residents who were re-hospitalized after a nursing home admission
- Percent of short-stay residents who have had an outpatient emergency department (ED) visit
- Rate of successful return to home and community from a SNF

Table 5 contains more detailed information on these measures. Technical specifications for all of the measures are available at https://www.cms.gov/medicare/quality-initiatives-patient-assessment-instruments/nursinghomequalityinits/nhqiqualitymeasures.html.

Values for five of the MDS-based QMs (mobility decline, catheter, long-stay pain, short-stay functional improvement, and short-stay pressure ulcers) are risk adjusted, using resident-level covariates that adjust for resident factors associated with differences in the performance on the QM. For example, the catheter risk-adjustment model takes into account whether or not residents had bowel incontinence or pressure sores on the prior assessment. All of the claims-based measures are risk adjusted. Risk-adjustment for the hospitalization and ED visit measures incorporates items from Medicare enrollment data and Part A claims and information from the first MDS assessment associated with the nursing home stay. Risk adjustment for the SNF Discharge to community measure uses data derived from Medicare enrollment data and Part A claims. The risk-adjustment methodology is described in more detail in the technical specification documents referenced above. CMS calculates ratings for the QM domain using the **four** 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. This increases the stability of estimates and reduces the amount of missing data. The adjusted four-quarter QM values for each of the MDS-based QMs used in the five-star algorithm, except the short-stay pressure ulcer measure are computed as follows:

$$QM_{4Quarter} = [(QM_{Q1} * D_{Q1}) + (QM_{Q2} * D_{Q2}) + (QM_{Q3} * D_{Q3}) + (QM_{Q4} * D_{Q4})]/(D_{Q1} + D_{Q2} + D_{Q3} + D_{Q4})$$

Where QM_{Q1}, QM_{Q2}, QM_{Q3}, and QM_{Q4} correspond to the adjusted QM values for the four most recent quarters and D_{Q1}, D_{Q2}, and D_{Q3} D_{Q4} are the denominators (number of eligible residents for the particular QM) for the same four quarters.

Values for the claims-based measures and the short-stay pressure ulcer measure are calculated in a similar manner, except that the data used to calculate the measures use a full year of data rather than being broken out separately by quarter.

Table 5 Quality Measures Used in the Five-Star Quality Measure Rating Calculation

Measure	Comments
MDS Long-Stay Measures	
Percent of residents whose ability to move independently worsened	This measure is a change measure that reports the percentage of long-stay residents who have demonstrated a decline in independence of locomotion when comparing the target assessment to a prior assessment. 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 residents whose need for help with activities of daily living has increased	This measure reports the percentage of long-stay residents whose need for help with late-loss Activities of Daily Living (ADLs) has increased when compared to the prior assessment. This is a change measure that reflects worsening performance on at least two late loss ADLs by one functional level or on one late loss ADL by more than one functional level compared to the prior assessment. The late loss ADLs are bed mobility, transfer, eating, and toileting. Maintenance of ADLs is 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 ADL dependence.
Percent of high-risk residents with pressure ulcers	This measure captures the percentage of long-stay, high-risk residents with Stage II-IV or unstageable pressure ulcers**.** Residents at high risk for pressure ulcers are those who are impaired in bed mobility or transfer, who are comatose, or who suffer from malnutrition.
Percent of residents who have/had a catheter inserted and left in their bladder	This measure reports the percentage of residents who have had an indwelling catheter in the last seven days. Indwelling catheter use may result in complications, like urinary tract or blood infections, physical injury, skin problems, bladder stones, or blood in the urine.
Percent of residents with a urinary tract infection	This measure reports the percentage of long-stay residents who have had a urinary tract infection within the past 30 days. 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 who self-report moderate to severe pain	This measure captures the percentage of long-stay residents who report either (1) almost constant or frequent moderate to severe pain in the last five days or (2) any very severe/horrible pain in the last 5 days.
Percent of residents experiencing one or more falls with major injury	This measure reports the percentage of long-stay residents who have experienced one or more falls with major injury reported in the target period or look-back period (one full calendar year).
Percent of residents who received an antipsychotic medication	This measure reports the percentage of long-stay residents who are receiving antipsychotic drugs in the target period. Reducing the rate of antipsychotic medication use has been the focus of several CMS initiatives.
Claims-Based Long-Stay Measures	
Number of hospitalizations per 1,000 resident days	This measures the number of unplanned inpatient admissions or outpatient observation stays that occurred among long-stay residents of a nursing home during a one-year period, expressed as the number of unplanned hospitalizations for every 1,000 days that the long-stay residents were admitted to the nursing home.
Number of outpatient emergency department (ED) visits per 1,000 resident days	This measures the number of outpatient ED visits that occurred among long-stay residents of a nursing home during a one-year period, expressed as the number of outpatient ED visits for every 1,000 days that the long-stay residents were admitted to the nursing home.

Table 5 Quality Measures Used in the Five-Star Quality Measure Rating Calculation

Measure	Comments
MDS Short-Stay Measures	
Percent of residents who made improvements in function	This measure assesses the percentage of short-stay residents whose independence in three mobility functions (i.e., transfer, locomotion, and walking) increases over the course of the nursing home care episode.
Percent of SNF residents with pressure ulcers that are new or worsened	This measure captures the percentage of short-stay residents with pressure ulcers that are new or whose existing pressure ulcers worsened during their stay in the SNF.
Percent of residents who self-report moderate to severe pain	This measure captures the percentage of short-stay residents, with at least one episode of moderate/severe pain or horrible/excruciating pain of any frequency, in the last 5 days.
Percent of residents who newly received an antipsychotic medication	This measure reports the percentage of short-stay residents who are receiving an antipsychotic medication during the target period but not on their initial assessment.
Claims-Based Short-Stay Measures	
Percent of short-stay residents who were re-hospitalized after a nursing home admission	This measure reports the percentage of all new admissions or readmissions to a nursing home from a hospital where the resident was re-admitted to a hospital for an inpatient or observation stay within 30 days of entry or reentry.
Percent of short-stay residents who have had an outpatient emergency department (ED) visit	This measure reports the percentage of all new admissions or readmissions to a nursing home from a hospital where the resident had an outpatient ED visit (i.e., an ED visit not resulting in an inpatient hospital admission) within 30 days of entry or reentry.
Rate of successful return to home and community from a SNF	This measure reports the rate at which residents returned to home and community with no unplanned hospitalizations and no deaths in the 31 days following discharge from the SNF.

Missing Data and Imputation

Consistent with the specifications used for *Nursing Home Compare,* MDS-based measures are reported if the measure can be calculated for at least 20 residents' assessments (summed across **four** quarters of data to enhance measurement stability) for both the long- and short-stay QMs. The short-stay claims-based measures are reported if the measure can be calculated for at least 20 nursing home stays over the course of the year. The long-stay claims-based measures are reported if the measure can be calculated for at least 20 nursing home stays over the course of the year.

For facilities with missing data or an inadequate denominator size for one or more QMs meeting the criteria described below, all available data from the nursing home are used. The remaining assessments (or stays) are imputed to get the nursing home to the minimum required sample size of 20. For example, if a nursing home had actual data for 12 resident assessments, the data for those 12 assessments would be used and the remaining eight assessments would be imputed using the state average to get to the minimum sample size required to include the measure in the scoring for the QM rating. Missing values are imputed based on the statewide average for the measure. The imputation strategy for the missing values depends on the pattern of missing data.

- For facilities that have an adequate denominator size for at least six of the ten long-stay QMs, values are imputed for the long-stay measures with fewer than 20 assessments or residents as described above. Points are then assigned for all ten long-stay QMs according to the scoring rules described below.

- For facilities that have an adequate denominator size for at least four of the seven short-stay QMs, values are imputed for the short-stay measures with smaller denominators as described above. Points are then assigned for all seven short-stay QMs according to the scoring rules described below.
- For facilities that do not have an adequate denominator size for at least six long-stay QMs but that have an adequate denominator size for four or more short-stay QMs, the QM rating is based on the short-stay measures only. Values for the missing long-stay QMs are not imputed. No long-stay QM rating is reported, and no long-stay measures are used in determining the overall QM rating.
- Similarly, for facilities that do not have an adequate denominator size for at least four short-stay QMs but that have an adequate denominator size for six or more long-stay QMs, the QM rating is based on the long-stay measures only. Values for the missing short-stay QMs are not imputed. No short-stay QM rating is reported, and no short-stay measures are used in determining the overall QM rating.

Note that while values are imputed according to the rules described above for the purposes of assigning points for the QM score, data for QMs that use imputed data are not reported on the *Nursing Home Compare* website nor included in the downloadable databases available at Data.Medicare.gov. QM values are publicly reported only for providers meeting the minimum denominator requirements prior to any imputation.[4]

Scoring Rules for the Individual QMs

Two different sets of weights are used for assigning QM points to individual QMs. Some measures have a maximum score of 150 points while the maximum number of points for other measures is 100. The weight for each measure was determined based on the opportunity for nursing homes to improve on the measure and the clinical significance of the measure based on expert feedback. For measures that have a maximum score of 150 points, the points are determined based on deciles. Quintiles are used for measures that have a maximum score of 100 points. For all measures, points are calculated based on performance relative to the national distribution of the measure. Points are assigned after any needed imputation of individual QM values, with the points determined using this methodology:

- For long-stay ADL worsening, long-stay antipsychotic medication, long-stay mobility decline, the two claims-based long-stay measures, short-stay functional improvement, and three claims-based short-stay measures: nursing homes are grouped into deciles based on the national distribution of the QM. Nursing homes in the lowest performing decile receive 15 points for the measure. Points are increased in 15 point intervals for each decile so that nursing homes in the highest performing decile receive 150 points.
- For long-stay pain, long-stay pressure ulcer, long-stay catheter, long-stay urinary tract infections, long-stay falls, short-stay pain, short-stay pressure ulcer, and short-stay antipsychotic medication: nursing homes are grouped into quintiles based on the national distribution of the QM. The quintiles are assigned 20 points for the lowest performing quintile, 100 points for the highest performing quintile, and 40, 60 or 80 points for the second, third and fourth quintiles respectively.

[4] Note that for the rate of successful return to home and community from a SNF measure, the minimum sample size for publicly reporting the measure is 25.

- For two 100-point measures that have more than 20 percent of nursing homes with a QM value of 0 (short-stay pressure ulcers and short-stay antipsychotic measures), all nursing homes with a QM value of 0 are awarded 100 points, and the remaining nursing homes are divided to maintain as close to even quintiles as possible.

Note that, for all of the measures, the groupings are based on the national distribution of the QMs, prior to any imputation. For most of the MDS-derived QMs, the cut points are based on the QM distributions averaged across the four quarters from Quarter 4 of 2017 to Quarter 3 of 2018. For short-stay pressure ulcer and short-stay community discharge measures, the cut points are based on the national distribution of the measures calculated for the periods of Quarter 2 of 2017 through Quarter 1 of 2018, and Quarter 4 of 2016 through Quarter 3 of 2017, respectively. For the other four claims-based QMs (except short-stay community discharge), the cut points are based on the national distribution of the measures calculated for the period of Quarter 4 of 2017 through Quarter 3 of 2018.

Rating Methodology

After any needed imputation for individual QMs, points are summed across all of the long-stay QMs, all of short-stay QMs, as well as across all QMs based upon the scoring rules described above to create a long-stay QM score, a short-stay QM score, and a total QM score for each nursing home. The long-stay QM score ranges between 175 and 1,250. Due to differences in number of measures and weights, the *unadjusted* short-stay QM score has a maximum of 900 points. So that the long- and short-stay measures can count equally in the calculation of the total QM score, an adjustment factor of 1250/900 is applied to the unadjusted total short-stay score. After applying this adjustment, the adjusted short-stay score ranges from 167 to 1,250[5]. The total overall QM score, which sums the total long-stay score and the total adjusted short-stay score, ranges between 342 and 2500.

Facilities that receive an overall QM rating are in one of the following categories:

- They have points for all of the QMs.
- They have points for only the ten long-stay QMs (long-stay facilities).
- They have points for only the seven short-stay QMs (short-stay facilities)
- They do not have sufficient data for either the long-stay or the short-stay QMs. No QM ratings are generated for these nursing homes.

Once the long-stay, short-stay, and overall QM scores are computed for each nursing home as described above, a long-stay QM rating is assigned to nursing homes that have long-stay QM scores; a short-stay QM rating is assigned to nursing homes that have short-stay QM scores, and an overall QM star rating is assigned using the methodology previously described using the point thresholds shown in Table 6. These thresholds were adjusted based on the improvement in QMs that has occurred since July 2016, which is the last time that the measure thresholds were adjusted. The increase in the cut point thresholds is intended to raise expectations, encouraging nursing homes to continue to improve the quality of care that they provide. CMS will monitor trends in QM performance and may adjust the cut points in the future.

[5] The unadjusted total short-stay score ranges from 120 to 900.

Table 6
Point Ranges for the QM Ratings (as of April 2019)

QM Rating	Long-Stay QM Rating Thresholds	Short-Stay QM Rating Thresholds	Overall QM Rating Thresholds
★	175 – 524	167 – 541	342 - 1066
★★	525 – 624	542 – 638	1067 – 1263
★★★	625 – 709	639 – 721	1264 – 1431
★★★★	710 – 799	722 – 805	1432 – 1605
★★★★★	800 - 1250	806 – 1250	1606 - 2500

Note: the short-stay QM rating thresholds are based on the adjusted scores (after applying the factor of 1250/900 to the unadjusted scores)

Overall Nursing Home Rating (Composite Measure)

Based on the star ratings for the health inspection domain, the staffing domain and the quality measure domain, CMS assigns the overall Five-Star rating in three steps:

Step 1: Start with the health inspection rating.

Step 2: Add one star to the Step 1 result if the staffing rating is four or five stars ***and greater than*** the health inspection rating; subtract one star if the staffing rating is one star. The overall rating cannot be more than five stars or less than one star.

Step 3: Add one star to the Step 2 result if the quality measure rating is five stars; subtract one star if the quality measure rating is one star. The overall rating cannot be more than five stars or less than one star.

Note: If the health inspection rating is one star, then the overall rating cannot be upgraded by more than one star based on the staffing and quality measure ratings.

The rationale for upgrading nursing homes in Step 2 that receive a rating of four of five stars for staffing (rather than limiting the upgrade to those with five stars) is that the criteria for the staffing rating is quite stringent. However, requiring that the staffing rating be greater than the health inspection rating in order for the overall rating to be increased ensures that a nursing home with a four star health inspection rating, a four star staffing rating and a quality measure rating of fewer than five stars does not receive an overall rating of five stars.

The rationale for limiting star rating upgrades is that the staffing and quality measure domains should not significantly outweigh the rating from actual onsite visits from trained surveyors who have found very serious quality of care problems. Since the health inspection rating is heavily weighted toward the most recent findings, a health inspection rating of one star reflects both a serious and recent finding.

The method for determining the overall nursing home rating does not assign specific weights to the health inspection, staffing, and QM domains. The health inspection rating is the most important dimension in determining the overall rating, but, depending on the performance on the staffing and QM domains, the overall rating for a nursing home may be increased or decreased by up to two stars.

If a nursing home has no health inspection rating, then no overall rating is assigned. If a nursing home has no health inspection rating because it is too new to have two standard surveys, then no ratings for any domain are displayed.

Special Focus Facilities

Nursing homes that are current participants in the Special Focus Facility (SFF) program will not be assigned overall ratings or ratings in any domain. A yellow warning sign is displayed instead of the overall rating and "Not Available" is displayed in place of the ratings for all other domains.

Change in Nursing Home Rating

Facilities may see a change in their overall rating for a number of reasons. Since the overall rating is based on three individual domains, a change in any one of the domains can affect the overall rating. Any new data for a nursing home could potentially change a star rating domain.

Health inspection rating changes: Events that could change the health inspection score include:

- A new health inspection,
- New complaint deficiencies,
- A second, third, or fourth revisit,
- Resolution of Informal Dispute Resolutions (IDR) or Independent Informal Dispute Resolutions (IIDR) resulting in changes to the scope and/or severity of deficiencies,
- The "aging" of complaint deficiencies. Another reason the health inspection data (and therefore the rating) for a nursing home may change is the "aging" of one or more complaint deficiencies. Specifically, complaint investigations are assigned to a time period based on the most recent 12 month period in which the complaint investigation occurred. Thus, when a complaint deficiency ages into a prior period, it receives less weight in the scoring process and thus the weighted health inspection score may change and be compared to the state distribution at that time.

Health inspection data will be included as soon as they become part of the CMS database. The timing for this can vary by state and depends on having the complete survey package for the State Survey Agency to upload to the national database. Additional inspection data may be added to the database at any time because of complaint investigations, outcomes of revisits, Informal Dispute Resolutions (IDR), or Independent Informal Dispute Resolutions (IIDR). These data may not be added in the same cycle as the standard inspection data.

Since the cut-points between star categories for the health inspection rating are based on percentile distributions that are not fixed, those cut-points may vary slightly depending on the current nursing home distribution in the database. However, while the cut-points for the health inspection ratings may change

from month to month, the rating for a given facility is held constant until there is a change in the weighted health inspection score for that nursing home.

Staffing rating changes: PBJ staffing data are reported quarterly, so new staffing measures and ratings are calculated and posted quarterly. Changes in a nursing home's staffing measure or rating may be due to differences in the number of hours submitted for staff, changes in the daily census, or changes in the resident case-mix from the previous quarter.

Quality Measure rating changes: Data for the MDS-based QMs and the claims-based hospitalization and ED visit measures are updated quarterly, and the QM rating is updated at the same time. The updates typically occur in January, April, July, and October at the time of the Nursing Home Compare website refresh. Changes in the quality measures may change the star ratings.

Appendix

Table A1
Case-Mix Nursing Minutes by RUG-IV Group and Nursing Staff Type

Major RUG Group	RUG-IV Code	STRIVE Study Average Times (Minutes)[1]				
		RN	LPN	Total Licensed	Nurse Aide	Total Nurse (RN+LPN+Aide)
Rehab Plus Extensive	RUX	68.37	111.44	179.81	131.11	310.92
	RUL	109.06	63.87	172.93	199.94	372.87
	RVX	29.24	95.88	125.12	145.94	271.06
	RVL	67.74	97.39	165.13	139.99	305.12
	RHX	128.79	51.92	180.71	155.24	335.95
	RHL	67.28	48.41	115.69	135.32	251.01
	RMX	97.54	74.61	172.15	148.44	320.59
	RML	133.82	84.01	217.83	153.24	371.07
	RLX	133.82	84.01	217.83	153.24	371.07
Rehab	RUC	27.80	66.41	94.21	148.95	243.16
	RUB	45.01	71.09	116.10	141.03	257.13
	RUA	35.18	54.55	89.73	101.01	190.74
	RVC	34.22	68.45	102.67	156.53	259.20
	RVB	28.86	56.56	85.42	119.90	205.32
	RVA	31.30	59.35	90.65	113.73	204.38
	RHC	36.62	54.88	91.50	156.14	247.64
	RHB	36.42	47.88	84.30	119.48	203.78
	RHA	27.09	51.76	78.85	99.82	178.67
	RMC	32.58	56.05	88.63	148.87	237.50
	RMB	32.10	55.47	87.57	134.74	222.31
	RMA	25.99	48.79	74.78	98.81	173.59
	RLB	33.86	44.58	78.44	185.83	264.27
	RLA	15.46	43.58	59.04	118.93	177.97
Extensive Services	ES3	130.49	58.49	188.98	152.12	341.10
	ES2	65.19	75.23	140.42	146.65	287.07
	ES1	72.81	49.49	122.30	127.62	249.92
Special Care High	HE2	21.25	67.93	89.18	190.47	279.65
	HD2	41.89	70.63	112.52	153.76	266.28
	HC2	35.13	53.63	88.76	154.72	243.48
	HB2	60.64	67.91	128.55	133.86	262.41
	HE1	19.20	67.73	86.93	149.47	236.40
	HD1	16.89	54.54	71.43	141.80	213.23
	HC1	22.43	54.17	76.60	135.33	211.93
	HB1	21.65	50.50	72.15	106.77	178.92

Major RUG Group	RUG-IV Code	STRIVE Study Average Times (Minutes)[1]				
		RN	LPN	Total Licensed	Nurse Aide	Total Nurse (RN+LPN+Aide)
Special Care Low	LE2	22.16	58.83	80.99	176.15	257.14
	LD2	19.59	58.10	77.69	153.29	230.98
	LC2	27.44	47.80	75.24	116.12	191.36
	LB2	29.52	50.73	80.25	128.44	208.69
	LE1	22.11	52.25	74.36	143.41	217.77
	LD1	11.78	43.94	55.72	130.80	186.52
	LC1	15.72	46.56	62.28	124.77	187.05
	LB1	18.99	48.66	67.65	106.16	173.81
Clinically Complex	CE2	21.05	44.13	65.18	162.70	227.88
	CD2	20.01	45.17	65.18	175.51	240.69
	CC2	19.77	36.95	56.72	132.92	189.64
	CB2	23.50	36.46	59.96	114.97	174.93
	CA2	20.69	44.63	65.32	80.92	146.24
	CE1	21.26	33.75	55.01	159.10	214.11
	CD1	15.31	41.90	57.21	151.40	208.61
	CC1	16.00	35.10	51.10	126.91	178.01
	CB1	16.17	34.99	51.16	118.45	169.61
	CA1	22.39	40.22	62.61	72.76	135.37
Behavioral Symptoms and Cognitive Performance	BB2	11.30	33.26	44.56	117.96	162.52
	BA2	18.34	41.18	59.52	101.56	161.08
	BB1	14.93	32.83	47.76	114.30	162.06
	BA1	13.60	31.57	45.17	86.06	131.23
Reduced Physical Functioning	PE2	15.11	39.76	54.87	163.58	218.45
	PD2	12.09	38.01	50.10	163.38	213.48
	PC2	8.14	33.51	41.65	124.90	166.55
	PB2	15.49	38.95	54.44	118.83	173.27
	PA2	5.50	35.91	41.41	73.16	114.57
	PE1	19.91	36.07	55.98	161.23	217.21
	PD1	16.18	33.58	49.76	147.31	197.07
	PC1	14.07	36.94	51.01	123.74	174.75
	PB1	12.49	31.80	44.29	95.60	139.89
	PA1	14.32	32.42	46.74	70.77	117.51

Table A2
Ranges for Point Values for Quality Measures, Using Four Quarter Average Distributions[1]

Quality Measure	For QM values …		Number of QM points is…
	Between…	and…	
Percent of SNF residents with pressure ulcers that are new or worsened (short-stay)	0.0000	0.0000	100
	0.0001	0.0080	80
	0.0081	0.0160	60
	0.0161	0.0300	40
	0.0301	1.0000	20
Rate of successful return to home and community from a SNF (short-stay)	0.6495	1.0000	150
	0.6044	0.6494	135
	0.5682	0.6043	120
	0.5332	0.5681	105
	0.4973	0.5331	90
	0.4605	0.4972	75
	0.4198	0.4604	60
	0.3713	0.4197	45
	0.3071	0.3712	30
	0.0000	0.3070	15
Percent of residents whose need for help with activities of daily living has increased (long-stay)	0.0000	0.0719	150
	0.0720	0.0956	135
	0.0957	0.1141	120
	0.1142	0.1296	105
	0.1297	0.1441	90
	0.1442	0.1589	75
	0.1590	0.1759	60
	0.1760	0.1978	45
	0.1979	0.2323	30
	0.2324	1.0000	15

Quality Measure	For QM values …		Number of QM points is…
	Between…	and…	
Percent of residents who self-report moderate to severe pain (long-stay)	0.0000	0.0118	100
	0.0119	0.0360	80
	0.0361	0.0684	60
	0.0685	0.1194	40
	0.1195	1.0000	20
Percent of residents who have/had a catheter inserted and left in their bladder (long-stay)	0.0000	0.0050	100
	0.0051	0.0126	80
	0.0127	0.0217	60
	0.0218	0.0356	40
	0.0357	1.0000	20
Percent of residents with a urinary tract infection (long-stay)	0.0000	0.0070	100
	0.0071	0.0160	80
	0.0161	0.0272	60
	0.0273	0.0452	40
	0.0453	1.0000	20
Percent of residents experiencing one or more falls with major injury (long-stay)	0.0000	0.0134	100
	0.0135	0.0246	80
	0.0247	0.0356	60
	0.0357	0.0514	40
	0.0515	1.0000	20
Percent of residents who received an antipsychotic medication (long-stay)	0.0000	0.0478	150
	0.0479	0.0749	135
	0.0750	0.0960	120
	0.0961	0.1137	105
	0.1138	0.1321	90
	0.1322	0.1508	75
	0.1509	0.1746	60
	0.1747	0.2039	45
	0.2040	0.2538	30
	0.2539	1.0000	15

Quality Measure	For QM values …		Number of QM points is…
	Between…	and…	
Percent of residents who self-report moderate to severe pain (short-stay)	0.0000	0.0353	100
	0.0354	0.0821	80
	0.0822	0.1342	60
	0.1343	0.2029	40
	0.2030	1.0000	20
Percent of residents who newly received an antipsychotic medication (short-stay)	0.0000	0.0000	100
	0.0001	0.0096	80
	0.0097	0.0168	60
	0.0169	0.0289	40
	0.0290	1.0000	20
Percent of residents whose ability to move independently worsened (long-stay)	0.0000	0.0821	150
	0.0822	0.1121	135
	0.1122	0.1350	120
	0.1351	0.1568	105
	0.1569	0.1760	90
	0.1761	0.1955	75
	0.1956	0.2153	60
	0.2154	0.2394	45
	0.2395	0.2747	30
	0.2748	1.0000	15
Percent of high-risk residents with pressure ulcers (long-stay)	0.0000	0.0377	100
	0.0378	0.0584	80
	0.0585	0.0783	60
	0.0784	0.1057	40
	0.1058	1.0000	20

Quality Measure	For QM values …		Number of QM points is…
	Between…	and…	
Percent of residents who made improvements in function (short-stay)	0.8276	1.0000	150
	0.7745	0.8275	135
	0.7365	0.7744	120
	0.7039	0.7364	105
	0.6738	0.7038	90
	0.6428	0.6737	75
	0.6091	0.6427	60
	0.5664	0.6090	45
	0.5015	0.5663	30
	0.0000	0.5014	15
Percent of short-stay residents who were re-hospitalized after a nursing home admission (short-stay)	0.0000	0.1500	150
	0.1501	0.1770	135
	0.1771	0.1956	120
	0.1957	0.2115	105
	0.2116	0.2260	90
	0.2261	0.2403	75
	0.2404	0.2557	60
	0.2558	0.2743	45
	0.2744	0.3032	30
	0.3033	1.0000	15
Percent of short-stay residents who have had an outpatient emergency department (ED) visit (short-stay)	0.0000	0.0475	150
	0.0476	0.0640	135
	0.0641	0.0768	120
	0.0769	0.0887	105
	0.0888	0.1000	90
	0.1001	0.1124	75
	0.1125	0.1271	60
	0.1272	0.1465	45
	0.1466	0.1759	30
	0.1760	1.0000	15

Quality Measure	For QM values …		Number of QM points is…
	Between…	and…	
Number of hospitalizations per 1,000 resident days (long-stay)	0.0000	0.8514	150
	0.8515	1.1167	135
	1.1168	1.3112	120
	1.3113	1.4931	105
	1.4932	1.6759	90
	1.6760	1.8622	75
	1.8623	2.0642	60
	2.0643	2.3236	45
	2.3237	2.7286	30
	2.7287	1000.000	15
Number of outpatient emergency department (ED) visits per 1,000 resident days (long-stay)	0.0000	0.3468	150
	0.3469	0.4968	135
	0.4969	0.6214	120
	0.6215	0.7381	105
	0.7382	0.8749	90
	0.8750	1.0265	75
	1.0266	1.2088	60
	1.2089	1.4696	45
	1.4697	1.9080	30
	1.9081	1000.000	15

[1]For the hospitalization and ED visit measures, points are based on data from 2017Q4 – 2018Q3. For MDS-based measures except for the short-stay pressure ulcer measure, points are based on data from 2017Q4 – 2018Q3. For the short-stay pressure ulcer measure, points are based on data from 2017Q2 – 2018Q1. For the successful return to home and community from a SNF measure, points are based on data from 2016Q4 through 2017Q3.

Having a greater number of QM points corresponds to better performance. More points are awarded for having a lower QM rate for all measures except functional improvement and successful community discharge where higher rates correspond to better performance.