



**Nursing Home Compare
Five-Star Quality Rating
System:
Year Five Report
[Public Version]**

Final Report

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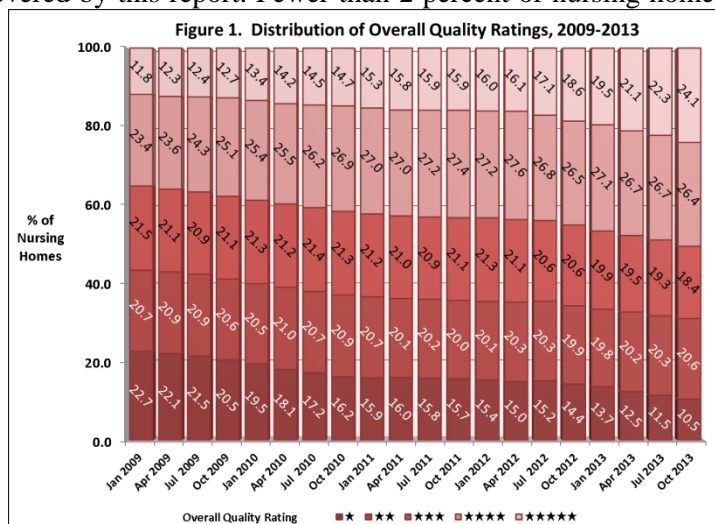
Abt Associates Inc.

Nursing Home Compare Five-Star Quality Rating System: Year Five Report

CMS implemented The Five-Star Quality Rating System on Nursing Home Compare in December 2008; the rating system summarizes the quality of nearly 16,000 nursing homes. CMS calculates star ratings for three domains of nursing home quality: 1) health inspections results; 2) staffing; and 3) quality measures (QMs). A one-star rating designates poorest performance and a five-star rating designates highest performance. CMS also generates an overall quality rating that is a composite of the three individual domains. The health inspection rating is the most heavily weighted component of the overall rating.

For this report, data from the first five years of the Five-Star Quality Rating System were analyzed, including data from January 2009 through December 2013. In December 2013, 10.5 percent of nursing homes received an Overall Quality rating of one star, 20.8 percent received two stars, 18.2 percent received three stars, 26.5 percent received 4 stars, and 24.1 percent received five stars. For QMs, 3.2 percent of nursing homes received one star, while 36.2 percent and 34.8 percent received four and five stars, respectively. For staffing, 11.9 percent of nursing homes received one star, while 42.7 percent and 10.5 percent received four and five stars, respectively. By design, the distribution of health inspection star ratings is fixed so that, within each state, 10 percent of nursing homes receive 5 stars and 20 percent receive 1 star. The remaining 70 percent of nursing homes within each state are evenly distributed by their health inspection ratings across the two-, three- and four-star categories.

Individual nursing homes varied widely in the ratings received in both the individual domains and the overall rating during the five-year period covered by this report. Fewer than 2 percent of nursing homes remained in either the one- or five-star categories for the full five-year period; nearly half (47.2 percent) of nursing homes received five stars overall and a similar percentage (47.9) received one star overall at some point during the five years. However, more nursing homes improved their ratings than declined. Almost half (48.7 percent) of nursing homes had improvement in their overall rating, while 23.4 percent of nursing homes declined. The increase in nursing homes receiving an overall rating of four or five stars is due to improvements in both the QM and staffing domains. In particular, QM ratings have increased dramatically since the transition to measures derived from the MDS 3.0 in July of 2012. Figure 1 illustrates the quarterly changes in the overall rating for nursing homes in the first five years of the rating system.



The data also show associations between nursing home characteristics and star ratings. There is an inverse relationship between bed size and the overall quality rating, as well as with the inspections rating, and, to a lesser degree, the staffing rating. Non-profit nursing homes receive higher ratings than for-profit facilities, overall and in all domains, with the largest differences observed for staffing. Hospital-based nursing homes perform better than freestanding nursing homes in all domains except quality measures. There is a modest but positive relationship between performance in the health inspections domain and both QM performance and nursing home staffing.¹ The relationship is most pronounced for registered nurses and certified nurse aides in the staffing domain and for several long-stay measures in the QM domain, namely decline in activities of daily living, pressure ulcers and use of physical restraints.

¹ These results are consistent with previous analyses showing a strong relationship between nursing home staffing and resident outcomes.

Contents

- 1. Background..... 1**
- 2. Description of Rating System 1**
 - 2.1. Overview..... 1
 - 2.2. Health Inspection Domain..... 2
 - 2.3. Staffing Domain..... 4
 - 2.4. Quality Measure Domain 5
 - 2.5. Overall Nursing Home Rating 6
- 3. Analysis of Rating System..... 7**
 - 3.1. Distribution of Ratings..... 7
 - 3.2. Additional Analysis of Health Inspection Domain 12
 - 3.3. Analysis of Rating Changes Over Five Years..... 21
- 4. Conclusions 38**
- 5. Appendix 40**

List of Tables

Table 2.1	Staffing Points and Rating (as of April 2012)	5
Table 3.1	Distribution of Overall Quality Rating and Ratings in Each Domain, All Nursing Homes, December 2013	7
Table 3.2	Distribution of Five-Star Ratings, by Ownership, December 2013	8
Table 3.3	Distribution of Five-Star Ratings, by Type of Certification, December 2013	9
Table 3.4	Distribution of Five-Star Ratings, by Facility Size, December 2013	10
Table 3.5	Distribution of Five-Star Ratings, by Hospital-Based Status, December 2013	111
Table 3.6	Distribution of Rating Range for Each Rating Domain, January 2009 - December 2013	23
Table 3.7	Distribution of Rating Range for Each Rating Domain, by Year (2009-2013)	25
Table 3.8	Difference Between Last Rating and First Rating for Each Rating Domain, by Year (2009-2013)	26
Table 3.9	Rating Range According to First Rating – Overall Quality Rating, January – December 2013	28
Table 3.10	Difference between First and Last Rating, According to First Rating – Overall Quality Rating, January – December 2013	28
Table 3.11	Distribution of Overall Quality Rating and Ratings in Each Domain, January 2009 and December 2013	29

List of Figures

Figure 3.1a	Actual Harm (G-level or worse) Deficiencies by Health Inspection Rating	13
Figure 3.1b	Immediate Jeopardy Deficiencies by Health Inspection Rating	13
Figure 3.1c	Substandard Quality of Care Deficiencies by Health Inspection Rating	14
Figure 3.2a	Average Number of Deficiencies According to Health Inspection Rating	15
Figure 3.2b	Average Health Inspection Score According to Health Inspection Rating	15
Figure 3.2c	Average Severity of Cited Deficiencies According to Health Inspection Rating	16
Figure 3.2d	Average Severity of Cited Deficiencies According to Health Inspection Rating, Providers with at Least One Deficiency	17
Figure 3.3	Adjusted Staffing Levels According to Health Inspection Rating	18
Figure 3.4	Average Total QM score According to Health Inspection Rating	19
Figure 3.5	Performance on Long-Stay QMs According to Health Inspection Rating	20
Figure 3.6	Performance on Short-Stay QMs According to Health Inspection Rating	20
Figure 3.7	Distribution of Overall Quality Ratings, 2009 - 2013	30
Figure 3.8	Distribution of Health Inspection Ratings, 2009 - 2013	31
Figure 3.9	Distribution of Quality Measure Ratings, 2009 - 2013	32
Figure 3.10	Distribution of Staffing Ratings, 2009 - 2013	33
Figure 3.11	Distribution of RN Staffing Ratings , 2009 - 2013	33
Figure 3.12a	Median Total Staffing, 2009 - 2013	34
Figure 3.12b	Median RN Staffing, 2009 - 2013	35
Figure 3.12c	Median Nurse Aide Staffing, 2009 - 2013	36
Figure 3.12d	Median LPN/LVN Staffing, 2009 - 2013	36

1. Background

In December 2008, the Centers for Medicare and Medicaid Services (CMS) enhanced their *Nursing Home Compare* website² by adding a set of quality ratings for each nursing home that participates in Medicare or Medicaid. The ratings take the form of a set of star ratings for each nursing home. CMS's primary goal in launching the Five-Star Quality Rating System was to provide residents and their families with an easy way to understand assessment of nursing home quality, allowing them to make meaningful distinctions between high and low performing nursing homes. The rating system has brought increased attention to the CMS *Nursing Home Compare* website, providing incentives for nursing homes to improve their performance. Ratings are based on nursing homes' performance in three domains of quality: health inspection surveys, staffing levels, and a set of QMs derived from the Minimum Data Set (MDS). These are all data that are publicly reported on *Nursing Home Compare*. In recognition of the multi-dimensional nature of nursing home quality, the system includes ratings for each of these domains along with an overall rating. Since implementation of the Five-Star Quality Rating System, there have been improvements in nursing facility performance in all three domains.

The CMS developed the Five-Star Quality Rating System with assistance from Abt Associates, invaluable advice from leading researchers in the long-term care field who comprise the project's Technical Expert Panel (TEP), and numerous ideas contributed by consumer and provider groups. CMS used input from the project's TEP to select measures to be used in the rating system, the development of scoring rules, and a methodology for determining a nursing home's Overall Quality rating. Abt Associates conducted an environmental scan that focused on the rating systems used in other public reporting systems and literature that is relevant to issues such as measure selection, composite measure specification, and benchmarks that informed the scoring rules. The design of the Five-Star Quality Rating System was also informed by extensive data analyses conducted by Abt Associates, exploring the statistical distribution of potential measures and the results of alternative specifications of the rating system. Analyses to monitor the ratings are ongoing.

Due to the transition from the MDS 2.0 to the MDS 3.0 in October 2010, the QM component of the Five-Star Quality Rating System was held constant from March 2011 to July 2012, while sufficient data were accumulated to again report on quality measures. New QMs based on the MDS 3.0 were first publicly reported on *Nursing Home Compare* in July 2012, and a subset of these new QMs were also incorporated into the QM component of the Five-Star Quality Rating System at that time.

This report provides a description of the methodology used to produce nursing home ratings (Section 2) and analyses of the distribution of ratings during the system's first five years, from December 2008 through December 2013 (Section 3).

2. Description of Rating System

2.1. Overview

This section provides a brief summary of the design for the *Nursing Home Compare* Five-Star Quality Rating System as of December 2013 and reflects changes to the design that were implemented during

² <http://www.medicare.gov/Nursinghomecompare/>

2013. A detailed description of all aspects of the rating methodology is available in the Technical Users' Guide.³

The rating system features a five-star Overall Quality rating based on nursing home performance for three types of performance measures, each of which has its own associated five-star rating:

- **Health Inspections – Measures based on outcomes from State health inspections:** Nursing home ratings for the health inspection domain are based on the number, scope, and severity of deficiencies identified during the three most recent annual health 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:** Nursing home ratings on the staffing domain are based on two measures: 1) Registered nurse (RN) hours per resident day; and 2) total nursing hours (the sum of RN, licensed practical or vocational nurse (LPN/LVN), and certified nurse aide (CNA) hours per resident day). These measures are adjusted for resident case-mix using data from the MDS. Other types of nursing home clinical staff such as physical or respiratory therapists or hospice workers are not included in these staffing measures; non-clinical staff, such as clerical, administrative, or housekeeping staff are also not included.
- **Quality Measures – Measures based on MDS quality measures (QMs):** From the initial release of the rating system in December 2008 through June 2012, nursing home ratings for the QMs were based on performance on 10 of the 19 MDS 2.0 QMs that were displayed on the *Nursing Home Compare* web site. Since July 2012, nursing home ratings for the QMs have been based on 9 of the 18 MDS 3.0 QMs that are now posted on *Nursing Home Compare*. These include seven long-stay measures and two short-stay measures. As noted above, during the period after the national implementation of the MDS 3.0 while the new rating methodology was developed and tested, nursing home QM ratings were held constant for all providers. This was from March 2011 to July 2012. The QMs that are included in the rating were selected from among the publicly reported QMs based on several criteria, including clinical importance, the extent to which the measure is under facility control, and statistical performance, including reliability, validity and variability.

In recognition of the multi-dimensional nature of nursing home quality, *Nursing Home Compare* displays information on nursing home ratings for each of these domains alongside the Overall Quality rating. Further, in addition to the overall staffing five-star rating mentioned above, a five-star rating for RN staffing is also displayed separately on *Nursing Home Compare* when users seek more information on the staffing component.

2.2. Health Inspection Domain

Nursing homes that participate in the Medicare or Medicaid programs have an onsite standard (“comprehensive”) survey annually *on average*, with no more than fifteen months elapsing between surveys for any one particular nursing home. Surveys are unannounced and are conducted by a team of health care professionals. State survey teams spend several days in a nursing home to assess whether the

³ <https://www.cms.gov/medicare/provider-enrollment-and-certification/certificationandcompliance/downloads/usersguide.pdf>

nursing home is in compliance with federal requirements. Certification surveys provide a comprehensive assessment of such areas as medication management, proper skin care, assessment of resident needs, nursing home administration, environment, kitchen/food services, and resident rights and quality of life. More targeted inspections may also take place in response to complaints lodged by residents, family members or others. CMS's Five-Star Quality Rating System uses the results of approximately 150,000 (for 3 years of inspections) inspections for the health inspection domain alone.

Rating Methodology

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

- **Survey Management:** Variation among states in the skill sets of surveyors, supervision of surveyors, and the survey processes.
- **State Licensure:** State licensing laws set forth different expectations for nursing homes and affect the interaction between state enforcement and federal enforcement.
- **Medicaid Policy:** Medicaid pays for the largest proportion of long term care in nursing homes. State nursing home eligibility rules, payment, and other policies in the state-administered Medicaid program create differences in both quality of care and enforcement of that quality.

For the above reasons, ratings in the health inspection domain are based on the relative performance of nursing homes within a state. This approach helps to control for variation among states.

For each nursing home a health inspection score is calculated based on the number and severity of deficiencies cited on the three most recent annual surveys, as well as substantiated findings from the most recent 36 months of complaint investigations. More recent survey findings are weighted more heavily and the score also takes into account the number of revisits required to ensure that deficiencies identified during the health inspection survey have been corrected. Once this score is computed for each nursing home, it is compared to other nursing homes in the state, and ratings are determined using these criteria:

- The top 10 percent (lowest 10 percent in terms of health inspection score) in each state receive a five-star rating.
- The middle 70 percent of nursing homes in each state 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 of nursing homes in each state receive a one-star rating.

The cut points are re-calibrated each month so that the distribution of star ratings within states remains relatively constant over time in an effort to reduce the likelihood that the rating process affects the health inspection process.

2.3. Staffing Domain

There is evidence of a relationship between nursing home staffing levels, staffing stability, and resident outcomes. The CMS Staffing Study found a clear association between nurse staffing ratios and nursing home quality of care, identifying specific ratios of staff to residents below which residents are at substantially higher risk of quality problems.⁴

The rating for staffing is based on two measures: Total nursing hours per resident day (RN + LPN/LVN + nurse aide hours) and RN hours per resident day. The source data for the staffing measures is CMS form CMS-671 (Long Term Care Facility Application for Medicare and Medicaid) from the Certification and Survey Provider Enhanced Reports (CASPER). Note that the CASPER staffing data include both facility employees (full-time and part-time) and individuals under an organization (agency) contract or an individual contract. The CASPER staffing data do not include “private duty” nursing staff that are reimbursed by a resident’s family. Also not included are hospice staff and feeding assistants.

For the rating, the staffing measures are case-mix adjusted to account for differences in resident health, care needs, and functional status across nursing homes. The case-mix measure is the Resource Utilization Group (RUG-III) case-mix system. Because the RUG-III system categorizes residents according to care needs using data from the MDS, the MDS 2.0 to 3.0 transition affected the case-mix values and therefore the adjusted staffing levels. The rating methodology and the rating thresholds described below were adapted to minimize disruption in the national distribution of the ratings resulting from this transition, which was implemented for *Nursing Home Compare* in April 2012. The Technical User’s Guide contains a detailed explanation of the case-mix adjustment methodology.

Rating Methodology

For both RN staffing and total staffing, a 1 to 5 rating reflects the ratio of staff to residents in comparison to other freestanding nursing homes across the nation. A nursing home’s rating for overall staffing is based on the combination of RN and total nurse staffing (RNs, LPNs, LVNs, CNAs) ratings as shown in Table 2.1. These thresholds (boundaries between star rating categories) were updated in April 2012; this was the first update of the cut points since December 2008 and was necessary because of changes in the case-mix adjustment due to MDS 3.0. The new thresholds were set so that the changes in adjusted staffing due to MDS 3.0 would not impact the overall distribution of the five-star ratings; that is, they were selected so that the proportion of nursing homes in each rating category would initially (i.e. for April 2012) be the same as it was in December 2011.

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. 2001.

**Table 2.1
Staffing Points and Rating (as of April 2012)**

RN rating and hours per resident day		Total Staffing rating and hours per resident day (RN, LPN and aide)				
		1	2	3	4	5
		<3.262	3.262 – 3.660	3.661 – 4.172	4.173 – 4.417	≥4.418
1	<0.283	1 star	1 star	2 stars	2 stars	3 stars
2	0.283 – 0.378	1 star	2 stars	3 stars	3 stars	4 stars
3	0.379 – 0.512	2 stars	3 stars	4 stars	4 stars	4 stars
4	0.513 – 0.709	2 stars	3 stars	4 stars	4 stars	4 stars
5	≥0.710	3 stars	4 stars	4 stars	4 stars	5 stars

2.4. Quality Measure Domain

A set of quality measures (QMs) has been developed from Minimum Data Set (MDS)-derived indicators to describe the quality of care provided in nursing homes. These measures address a broad range of functioning and health status in multiple care areas. Until July 2012, the nursing home rating for the QM domain was based on performance on a subset of 10 (out of 19) of the MDS 2.0 QMs that were posted on *Nursing Home Compare*. Starting in July 2012, the QM rating for each nursing home is based on a subset of 9 MDS 3.0 QMs (of 18 displayed on *Nursing Home Compare*). All measures were validated and endorsed by the National Quality Forum. The measures were selected based on their validity and reliability, the extent to which the measure is under the nursing home’s control, statistical performance, and importance.

Quality measures for long-stay residents (as of July 2012)⁵:

- Percent of residents whose need for help with daily activities has increased
- Percent of high risk residents with 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 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

Quality measures for short-stay residents (as of July 2012):

- Percent of residents with pressure ulcers (sores) that are new or worsened
- Percent of residents who self-report moderate to severe pain

⁵ Technical specifications for the complete set of QMs can be downloaded here:

<https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/NursingHomeQualityInits/NHQIQualityMeasures.html>

Rating Methodology

A nursing home receives a numerical score from 1 to 100 points based on their performance on each of these QMs, and this score is summed across all nine QMs, with all QMs being given equal weight, yielding a score with a theoretical maximum of 900 points. Once the summary QM score is computed for each nursing home, the five-star QM rating is assigned based on thresholds selected so that the overall proportion of nursing homes in each rating category in July 2012 (when the QM rating based on MDS 3.0 was first reported) would be similar to what it was when the MDS 2.0 QM rating was frozen in March 2011. These star rating thresholds are shown in Table 2.2.

Table 2.2
Star Thresholds for MDS Quality Measure Summary Score (updated July 2012)

1 star	2 stars lower	2 stars upper	3 stars lower	3 stars upper	4 stars lower	4 stars upper	5 stars
≤355	356	435	436	507	508	615	≥616

2.5. Overall Nursing Home Rating

The Overall Quality five-star rating is based on the five-star rating for the health inspection domain, the staffing domain and the QM domain and is assigned in five steps as follows:

Step 1: Start with the Health Inspection five-star 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 Quality rating cannot be more than five stars or less than one star.

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

Step 4: If the Health Inspection rating is one star, then the Overall Quality rating cannot be upgraded by more than one star based on the Staffing and QM ratings.

Step 5: If the nursing home is a Special Focus Facility (SFF⁶) that has not graduated, the maximum Overall Quality rating is three stars.

The method for determining the Overall Quality 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 Quality rating, but, depending on its performance in the staffing and QM domains, a nursing home's Overall Quality rating may be up to two stars higher or lower than its Health Inspection rating.

⁶ The Special Focus Facility (SFF) Program focuses on nursing homes that have a track record of substandard quality care. States recommend new SFFs from a candidate list that is provided by CMS Central Office (CO) on a monthly basis, with candidacy based upon poor ranking on the health inspection score. Once selected as an SFF, the State conducts twice the number of standard surveys and applies progressive enforcement until the nursing home either (a) graduates from the SFF program or (b) is terminated from the Medicare and/or Medicaid program(s). Ref: S&C-10-32-NH, September 17, 2010.

3. Analysis of Rating System

3.1. Distribution of Ratings

Table 3.1 shows the distribution of each rating for the data that was posted on *Nursing Home Compare* in December 2013. The number of nursing homes receiving a five-star Overall Quality rating is more than double the number receiving a one-star Overall Quality rating. In the QM domain, the ratio of five-star to one-star providers is now more than 10:1, while in the staffing domain, roughly equal numbers receive one and five stars. Nationwide, 24.1 percent of nursing homes received an Overall five-star rating, and an additional 26.5 percent received four stars, while 10.5 percent received a one-star rating, and 39.0 percent received two or three stars. The distribution of ratings for health inspections is essentially fixed—as expected about 1 in 10 nursing homes (10.9 percent) received five stars, just under 1 in 5 (19.8 percent) received one star and approximately 23–24 percent received two, three, or four stars. In the QM domain, more than one-third (34.8 percent) of nursing homes received five stars in December 2013, and an additional one-third (36.2 percent) received four stars. Just 3.2 percent received one star and nearly twice as many received three stars (17.0 percent) as two stars (8.8 percent). Staffing has the lowest proportion of any domain receiving five stars—10.5 percent; however, a large proportion (42.7 percent) received four stars; while 11.9 percent, 14.7 percent and 20.1 percent received one, two, and three stars respectively.

As noted above, the Overall Quality rating for a nursing home is based upon the health inspection rating, but it can be modified by high or low ratings in the staffing and QM domains. In December 2013, more than one-third (35.0 percent) of nursing homes had their Overall Quality rating increased because of a four-star (27.0 percent) or five-star (8.0 percent) staffing rating, while 8.8 percent had their Overall Quality rating decreased because of a one-star staffing rating. More than one quarter of nursing homes (26.8 percent)⁷ had their Overall Quality Rating increased because of a five-star QM rating, while just 2.7 percent had their Overall Quality rating decreased because of a one-star QM rating.

Table 3.1
Distribution of Overall Quality Rating and Ratings in Each Domain, All Nursing Homes, December 2013

Five-star Measure	TOTAL N ¹	★	★★	★★★	★★★★	★★★★★
		N (%)	N (%)	N (%)	N (%)	N (%)
Overall Quality	15,512	1,629 (10.5)	3,226 (20.8)	2,821 (18.2)	4,105 (26.5)	3,731 (24.1)
Health Inspections	15,512	3,064 (19.8)	3,558 (22.9)	3,597 (23.2)	3,603 (23.2)	1,690 (10.9)
Quality Measures	15,465	496 (3.2)	1,365 (8.8)	2,628 (17.0)	5,601 (36.2)	5,375 (34.8)
Staffing	15,185	1,811 (11.9)	2,238 (14.7)	3,045 (20.1)	6,491 (42.7)	1,600 (10.5)
RN Staffing	15,185	1,633 (10.8)	2,520 (16.6)	4,088 (26.9)	3,829 (25.2)	3,115 (20.5)

¹N=Number of nursing homes, excludes those too new to rate or with no data available; Incorporating Data Reported through 12-01-2013

⁷ Excludes an additional 2.2 percent of nursing homes with a one-star Health Inspection rating and five-star QM rating, that, according to Step 4 in the algorithm, cannot have their Overall Quality Rating increased by more than one star.

Tables 3.2 – 3.5 show the distributions of the December 2013 ratings by ownership, type of certification, size (number of beds) and location (hospital-based vs. freestanding), respectively.

In general, the non-profit and government-owned nursing homes are more highly rated than the for-profit homes (Table 3.2). Indeed nearly twice as many non-profit as for-profit homes received a five-star overall quality rating (35.6 percent vs. 19.7 percent). This is true for all domains except the QMs, where the rating distribution varies little across ownership type. The strongest trend is in the Staffing ratings: 5.7 percent of for-profit homes receive five stars for staffing and 15.4 percent receive one star; by contrast one-fifth (20.7 percent) of non-profit and one-quarter (25.9 percent) percent of government homes receive five stars in staffing, while only 4.0 percent of non-profits and 3.0 percent of government homes received one star for staffing. A similarly striking difference is seen in the RN Staffing ratings.

Table 3.2
Distribution of Five-Star Ratings, by Ownership, December 2013

Nursing Home Type & 5-star Measure	TOTAL N¹	★ N (%)	★★ N (%)	★★★ N (%)	★★★★ N (%)	★★★★★ N (%)
For-profit						
Overall	10,769	1,399 (13.0)	2,497 (23.2)	2,055 (19.1)	2,698 (25.1)	2,120 (19.7)
Health Inspections	10,769	2,387 (22.2)	2,630 (24.4)	2,504 (23.3)	2,301 (21.4)	947 (8.8)
Quality Measures	10,747	320 (3.0)	932 (8.7)	1,836 (17.1)	3,879 (36.1)	3,780 (35.2)
Staffing	10,615	1,637 (15.4)	1,849 (17.4)	2,394 (22.6)	4,125 (38.9)	610 (5.7)
RN Staffing	10,615	1,434 (13.5)	2,020 (19.0)	3,029 (28.5)	2,584 (24.3)	1,548 (14.6)
Non-profit						
Overall	3,833	175 (4.6)	567 (14.8)	619 (16.1)	1,106 (28.9)	1,366 (35.6)
Health Inspections	3,833	517 (13.5)	753 (19.6)	867 (22.6)	1,059 (27.6)	637 (16.6)
Quality Measures	3,817	124 (3.2)	313 (8.2)	626 (16.4)	1,398 (36.6)	1,356 (35.5)
Staffing	3,706	148 (4.0)	313 (8.4)	545 (14.7)	1,934 (52.2)	766 (20.7)
RN Staffing	3,706	166 (4.5)	399 (10.8)	862 (23.3)	1,025 (27.7)	1,254 (33.8)
Government						
Overall	910	55 (6.0)	162 (17.8)	147 (16.2)	301 (33.1)	245 (26.9)
Health Inspections	910	160 (17.6)	175 (19.2)	226 (24.8)	243 (26.7)	106 (11.6)
Quality Measures	901	52 (5.8)	120 (13.3)	166 (18.4)	324 (36.0)	239 (26.5)
Staffing	864	26 (3.0)	76 (8.8)	106 (12.3)	432 (50.0)	224 (25.9)
RN Staffing	864	33 (3.8)	101 (11.7)	197 (22.8)	220 (25.5)	313 (36.2)

¹N=Number of nursing homes, excludes those too new to rate or with no data available; Incorporating Data Reported through 12-01-2013

Table 3.3
Distribution of Five-Star Ratings, by Type of Certification, December 2013

Nursing Home Type & 5-star Measure	TOTAL N ¹	★		★★		★★★		★★★★		★★★★★	
		N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
Dually participating											
Overall	14,266	1,596	(11.2)	3,090	(21.7)	2,665	(18.7)	3,765	(26.4)	3,150	(22.1)
Health Inspections	14,266	2,941	(20.6)	3,377	(23.7)	3,351	(23.5)	3,219	(22.6)	1,378	(9.7)
Quality Measures	14,239	407	(2.9)	1,245	(8.7)	2,473	(17.4)	5,256	(36.9)	4,858	(34.1)
Staffing	14,079	1,769	(12.6)	2,169	(15.4)	2,962	(21.0)	6,017	(42.7)	1,162	(8.3)
RN Staffing	14,079	1,572	(11.2)	2,441	(17.3)	3,935	(27.9)	3,596	(25.5)	2,535	(18.0)
Medicare											
Overall	758	11	(1.5)	51	(6.7)	63	(8.3)	229	(30.2)	404	(53.3)
Health Inspections	758	40	(5.3)	85	(11.2)	144	(19.0)	257	(33.9)	232	(30.6)
Quality Measures	751	68	(9.1)	78	(10.4)	104	(13.8)	206	(27.4)	295	(39.3)
Staffing	661	7	(1.1)	21	(3.2)	32	(4.8)	273	(41.3)	328	(49.6)
RN Staffing	661	14	(2.1)	23	(3.5)	66	(10.0)	132	(20.0)	426	(64.4)
Medicaid											
Overall	488	22	(4.5)	85	(17.4)	93	(19.1)	111	(22.7)	177	(36.3)
Health Inspections	488	83	(17.0)	96	(19.7)	102	(20.9)	127	(26.0)	80	(16.4)
Quality Measures	475	21	(4.4)	42	(8.8)	51	(10.7)	139	(29.3)	222	(46.7)
Staffing	445	35	(7.9)	48	(10.8)	51	(11.5)	201	(45.2)	110	(24.7)
RN Staffing	445	47	(10.6)	56	(12.6)	87	(19.6)	101	(22.7)	154	(34.6)

¹N=Number of nursing homes, excludes those too new to rate or with no data available; Incorporating Data Reported through 12-01-2013

Table 3.4
Distribution of Five-Star Ratings, by Facility Size, December 2013

Nursing Home Type & 5-star Measure	TOTAL N¹	★ N (%)	★★ N (%)	★★★ N (%)	★★★★ N (%)	★★★★★ N (%)
<50 beds						
Overall	1,978	76 (3.8)	215 (10.9)	272 (13.8)	559 (28.3)	856 (43.3)
Health Inspections	1,978	198 (10.0)	298 (15.1)	432 (21.8)	591 (29.9)	459 (23.2)
Quality Measures	1,945	133 (6.8)	222 (11.4)	323 (16.6)	573 (29.5)	694 (35.7)
Staffing	1,821	61 (3.3)	129 (7.1)	196 (10.8)	784 (43.1)	651 (35.7)
RN Staffing	1,821	61 (3.3)	98 (5.4)	265 (14.6)	445 (24.4)	952 (52.3)
50-99 beds						
Overall	5,712	515 (9.0)	1,080 (18.9)	1,012 (17.7)	1,625 (28.4)	1,480 (25.9)
Health Inspections	5,712	1,008 (17.6)	1,200 (21.0)	1,391 (24.4)	1,459 (25.5)	654 (11.4)
Quality Measures	5,705	210 (3.7)	520 (9.1)	974 (17.1)	2,064 (36.2)	1,937 (34.0)
Staffing	5,623	533 (9.5)	796 (14.2)	1,136 (20.2)	2,589 (46.0)	569 (10.1)
RN Staffing	5,623	490 (8.7)	845 (15.0)	1,531 (27.2)	1,572 (28.0)	1,185 (21.1)
100-199 beds						
Overall	6,876	898 (13.1)	1,685 (24.5)	1,366 (19.9)	1,705 (24.8)	1,222 (17.8)
Health Inspections	6,876	1,592 (23.2)	1,807 (26.3)	1,585 (23.1)	1,370 (19.9)	522 (7.6)
Quality Measures	6,870	150 (2.2)	569 (8.3)	1,190 (17.3)	2,599 (37.8)	2,362 (34.4)
Staffing	6,812	1,063 (15.6)	1,134 (16.6)	1,522 (22.3)	2,764 (40.6)	329 (4.8)
RN Staffing	6,812	964 (14.2)	1,389 (20.4)	1,997 (29.3)	1,595 (23.4)	867 (12.7)
>199 beds						
Overall	946	140 (14.8)	246 (26.0)	171 (18.1)	216 (22.8)	173 (18.3)
Health Inspections	946	266 (28.1)	253 (26.7)	189 (20.0)	183 (19.3)	55 (5.8)
Quality Measures	945	3 (0.3)	54 (5.7)	141 (14.9)	365 (38.6)	382 (40.4)
Staffing	929	154 (16.6)	179 (19.3)	191 (20.6)	354 (38.1)	51 (5.5)
RN Staffing	929	118 (12.7)	188 (20.2)	295 (31.8)	217 (23.4)	111 (11.9)

¹N=Number of nursing homes, excludes those too new to rate or with no data available; Incorporating Data Reported through 12-01-2013.

Table 3.5
Distribution of Five-Star Ratings, by Hospital-Based Status, December 2013

Nursing Home Type & 5-star Measure	<i>TOTAL N</i> ¹	★ N (%)	★★ N (%)	★★★ N (%)	★★★★ N (%)	★★★★★ N (%)
Freestanding Homes						
Overall	14,602	1,589 (10.9)	3,099 (21.2)	2,667 (18.3)	3,829 (26.2)	3,418 (23.4)
Health Inspections	14,602	2,950 (20.2)	3,389 (23.2)	3,408 (23.3)	3,352 (23.0)	1,503 (10.3)
Quality Measures	14,576	388 (2.7)	1,210 (8.3)	2,445 (16.8)	5,364 (36.8)	5,169 (35.5)
Staffing	14,365	1,795 (12.5)	2,197 (15.3)	2,970 (20.7)	6,151 (42.8)	1,252 (8.7)
RN Staffing	14,365	1,612 (11.2)	2,467 (17.2)	3,972 (27.7)	3,667 (25.5)	2,647 (18.4)
Hospital-based Homes						
Overall	910	40 (4.4)	127 (14.0)	154 (16.9)	276 (30.3)	313 (34.4)
Health Inspections	910	114 (12.5)	169 (18.6)	189 (20.8)	251 (27.6)	187 (20.5)
Quality Measures	889	108 (12.1)	155 (17.4)	183 (20.6)	237 (26.7)	206 (23.2)
Staffing	820	16 (2.0)	41 (5.0)	75 (9.1)	340 (41.5)	348 (42.4)
RN Staffing	820	21 (2.6)	53 (6.5)	116 (14.1)	162 (19.8)	468 (57.1)

¹N=Number of nursing homes, excludes those too new to rate or with no data available; Incorporating Data Reported through 12-01-2013

3.2. Additional Analysis of Health Inspection Domain

The Health Inspection rating is weighted most heavily in the Overall Quality rating. Additional analyses presented in this section examine how specific survey outcomes correspond with Health Inspection ratings and assess the association between Health Inspection ratings and performance in the staffing and QM domains. These analyses are based on the data reported for December 2013.

Health Inspection Findings According to Health Inspection Rating

The health inspection score upon which the health inspection star rating is based is a complex summary measure, including differing weights for citations indicative of substandard quality of care, and for citations of varying scope and severity. The calculation also weights more recent survey findings more heavily and incorporates number of revisits. The objective of these analyses is to examine how specific features of the survey results correspond to the Health Inspection rating, in order to make the rating itself more interpretable in terms of more familiar aspects of the survey findings. By definition, nursing homes with poorer ratings have higher health inspection scores, but these more in-depth analyses explore the extent to which these differences are due to differing numbers of deficiencies and to differing severity. Additionally, we examine how providers at different rating levels differ with respect to the results of their most current survey and the two prior surveys.

These analyses demonstrate that the rating algorithm does discriminate among providers with important differences in their survey findings. Figures 3.1a–3.1c examine the prevalence of three indicators of poor survey performance according to the health inspection rating. Each of these indicators (having an actual harm citation, having an immediate jeopardy citation, and having a substandard quality of care deficiency) show strong monotonic associations with the health inspection rating. Notably, one-star nursing homes are more than 400 times as likely to have an actual harm (G+) citation on their most recent survey (or in the past 12 months of substantiated complaints) than five-star nursing homes—specifically 45.2 percent of one-star nursing homes have had such a citation, compared to 0.1 percent of five-star nursing homes (Figure 3.1a). No five-star nursing homes had an immediate jeopardy citation on either the current or first prior survey and none had a substandard quality of care deficiency on the current survey while approximately one-fifth of one-star nursing homes had each of these health inspection findings (Figures 3.1b and 3.1c). In general, the differences between one-star and two-star nursing homes, with respect to each of these types of survey findings, are greater than the differences between the other consecutive rating categories, though all show clear, consistent trends. Another interesting feature of these findings is that all three of these survey indicators are less common for the more recent surveys compared to prior surveys, *except* for the one-star providers, where each tended to be more common for the recent surveys. This is a reflection of the greater weighting of the most recent survey findings in the rating system as well as a general trend towards fewer citations for severe deficiencies over the past several years.

Figure 3.1a Actual Harm (G-level or worse) Deficiencies by Health Inspection Rating

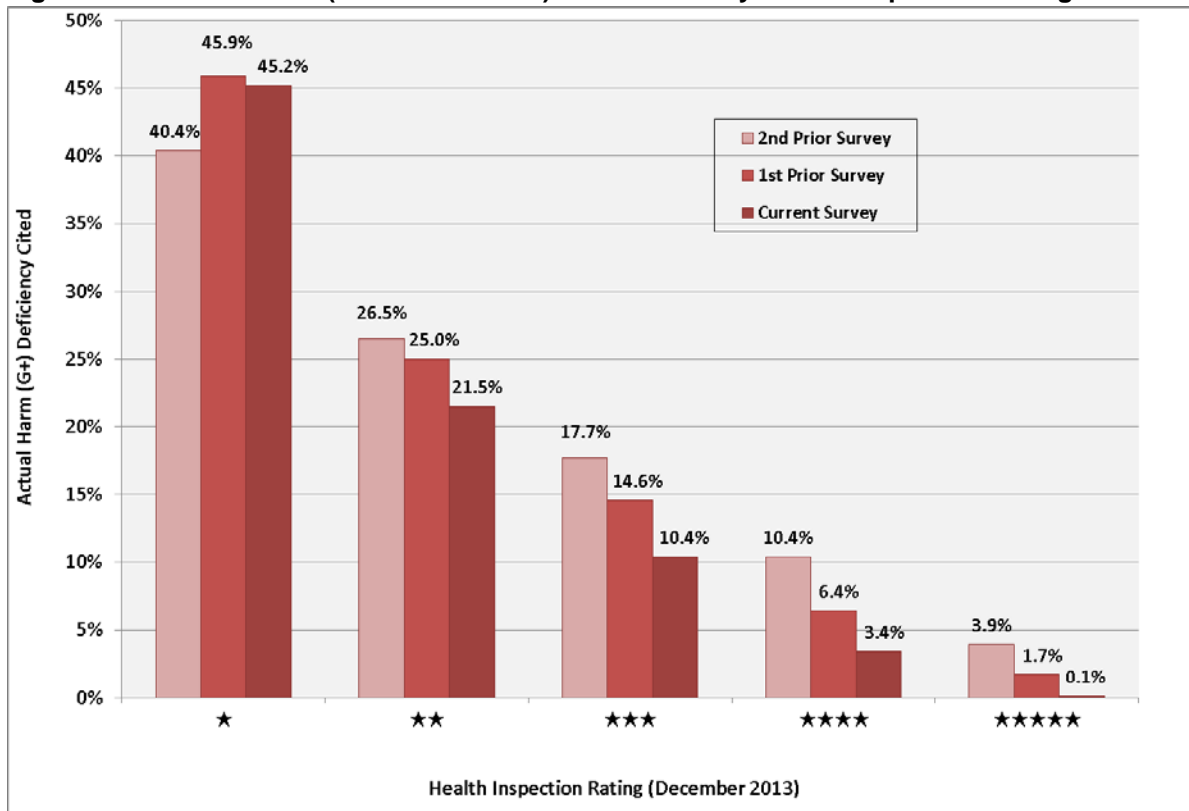


Figure 3.1b Immediate Jeopardy Deficiencies by Health Inspection Rating

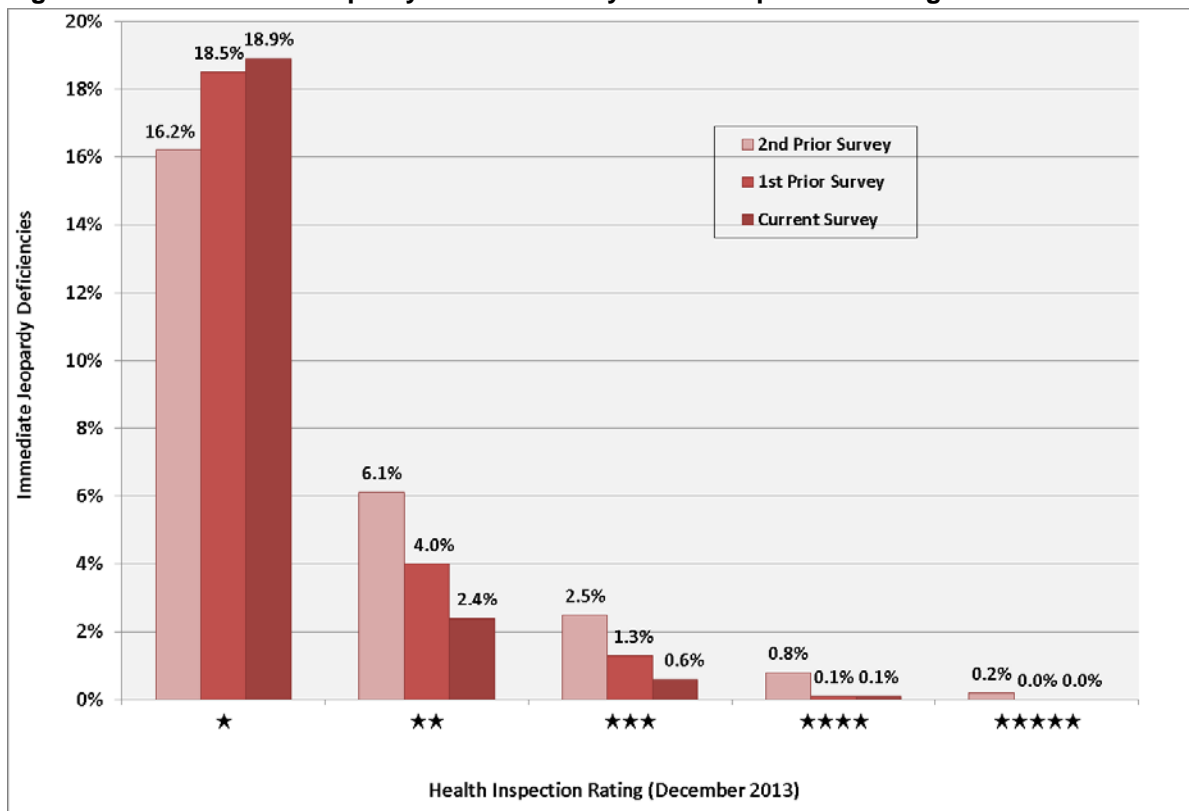


Figure 3.1c Substandard Quality of Care Deficiencies by Health Inspection Rating

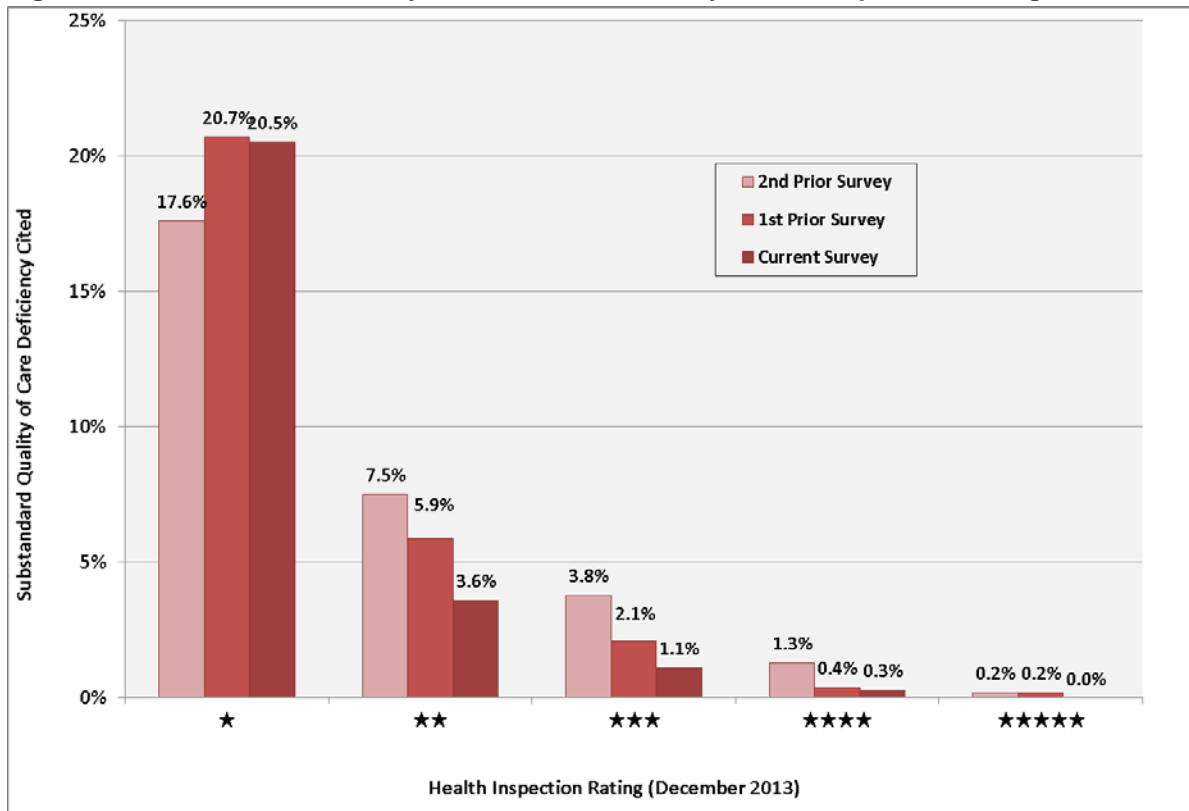


Figure 3.2a shows the relationship between the total number of deficiencies in the current and two prior cycles of surveys and the Health Inspection rating. There is a very strong gradient in the deficiency count, consistent across all three survey cycles. Additionally, as for the specific survey findings described above, the figure shows that all nursing homes except for one-star nursing homes are receiving fewer deficiencies on average on their most recent survey, compared to their prior surveys. Figure 3.2b presents the same analyses for the total health inspection score by survey cycle and star rating, and shows very similar patterns: a gradient in health scores across star ratings for all three survey cycles and a general improvement in health inspection scores for more recent surveys *except* for the one-star nursing homes. These findings imply that health inspection scores have been improving over time, and suggest that this trend is stronger among more highly rated homes.

Figure 3.2a Average Number of Deficiencies According to Health Inspection Rating

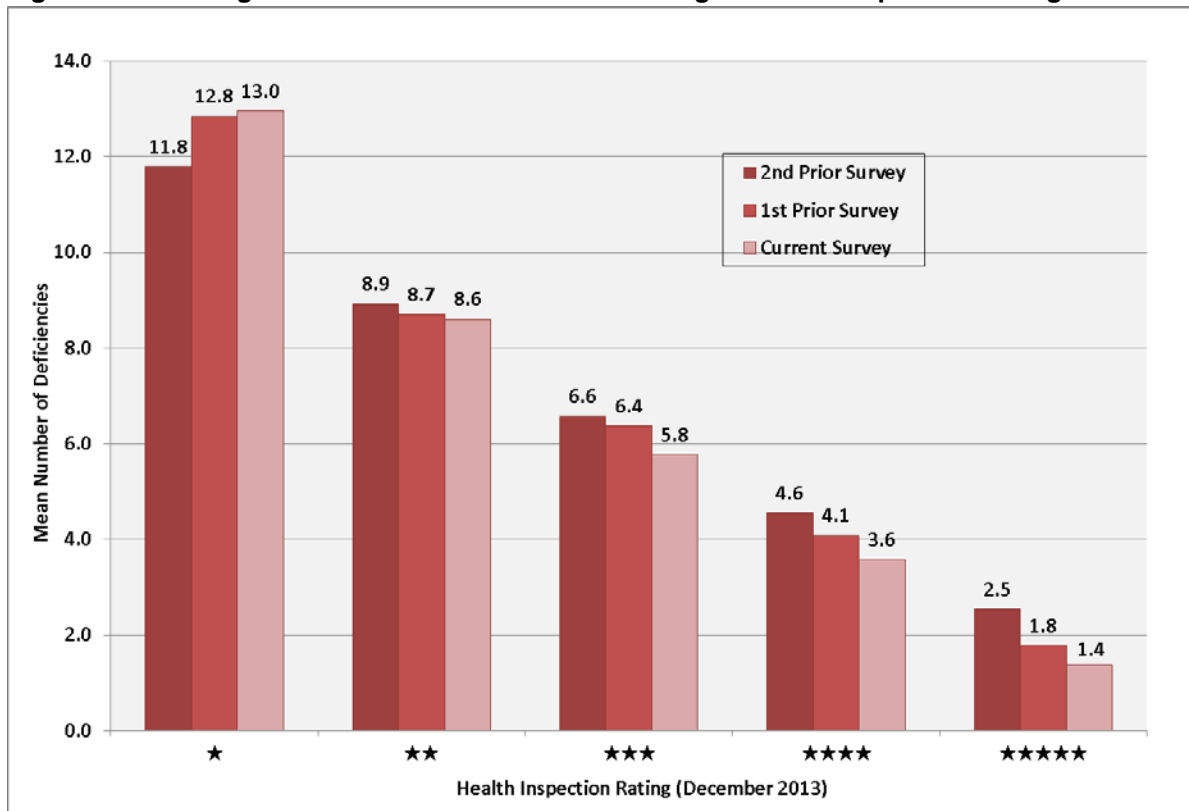
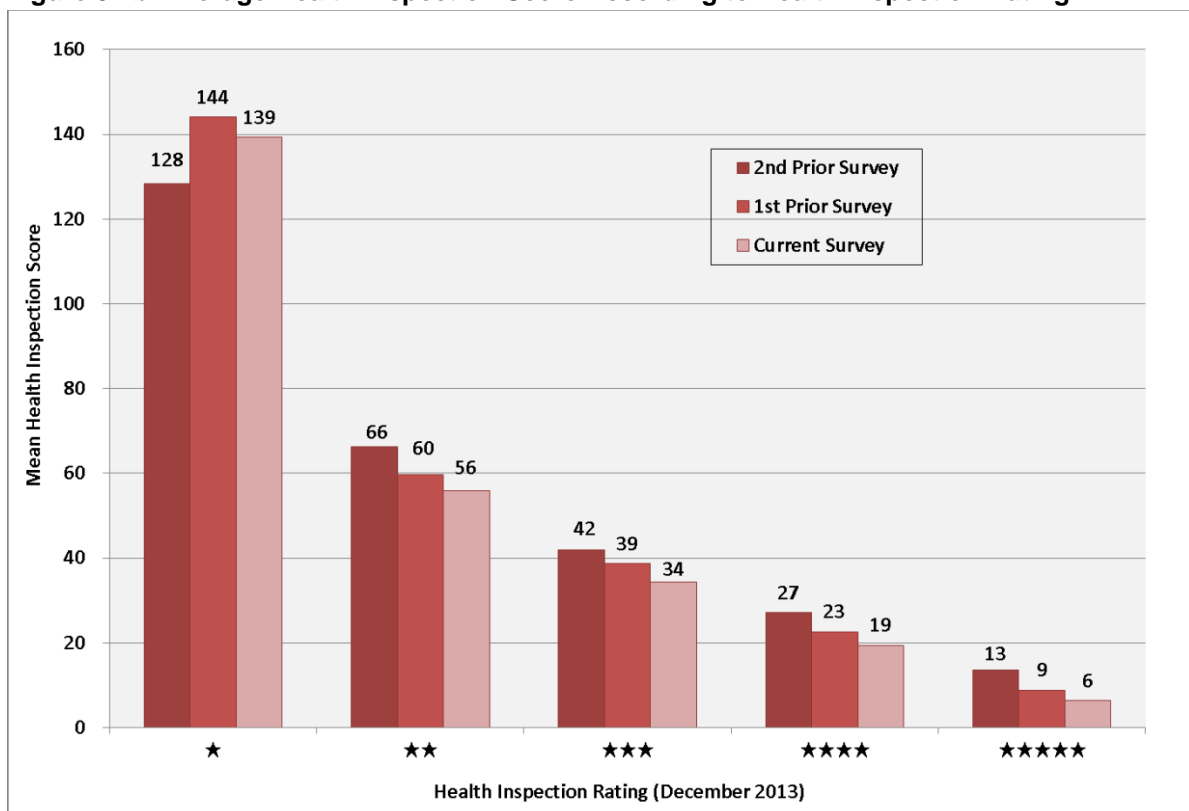


Figure 3.2b Average Health Inspection Score According to Health Inspection Rating



Further evidence that one-star nursing homes are somehow distinct from more highly-rated homes is seen in Figures 3.2c and 3.2d. These show the “average severity” of deficiency citations, by dividing the total health inspection score for each survey cycle by the number of deficiencies for that cycle. The two figures differ only in that in Figure 3.2c, nursing homes with no deficiencies are scored 0 for average severity, while in Figure 3.2d these nursing homes are excluded. Note that for all survey cycles, higher-rated nursing homes—particularly five-star nursing homes—are much more likely to have no deficiencies. For example, for the most current survey, the proportion of providers with zero deficiencies (including the standard survey and most recent 12 months of complaints) is 1.4 percent for one-star, 1.4 percent for two-star, 3.2 percent for three-star, 10.9 percent for four-star and 43.9 percent for five-star nursing homes.

In conjunction with the analyses of deficiency counts and total health inspection scores (Figures 3.2a and 3.2b), Figures 3.2c and 3.2d show that providers at different rating levels for health inspections clearly differ in both the number and the scope and severity of deficiencies identified. In particular, the one-star nursing homes perform distinctly worse both with respect to numbers and severity of deficiencies, and the gradient is present but more modest between the two-star to five-star homes, particularly with respect to severity. Five-star nursing homes differ from the others primarily in having fewer deficiencies and being much more likely to have no deficiencies at all.

Figure 3.2c Average Severity of Cited Deficiencies According to Health Inspection Rating

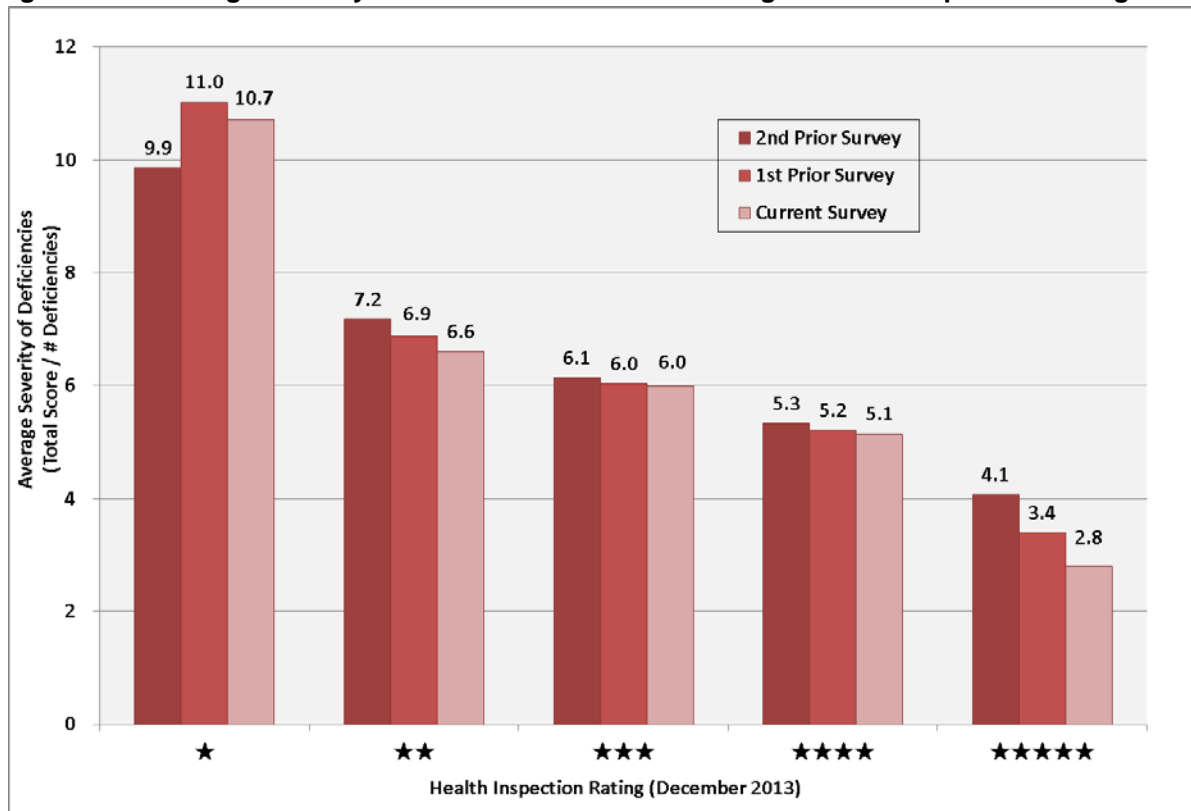
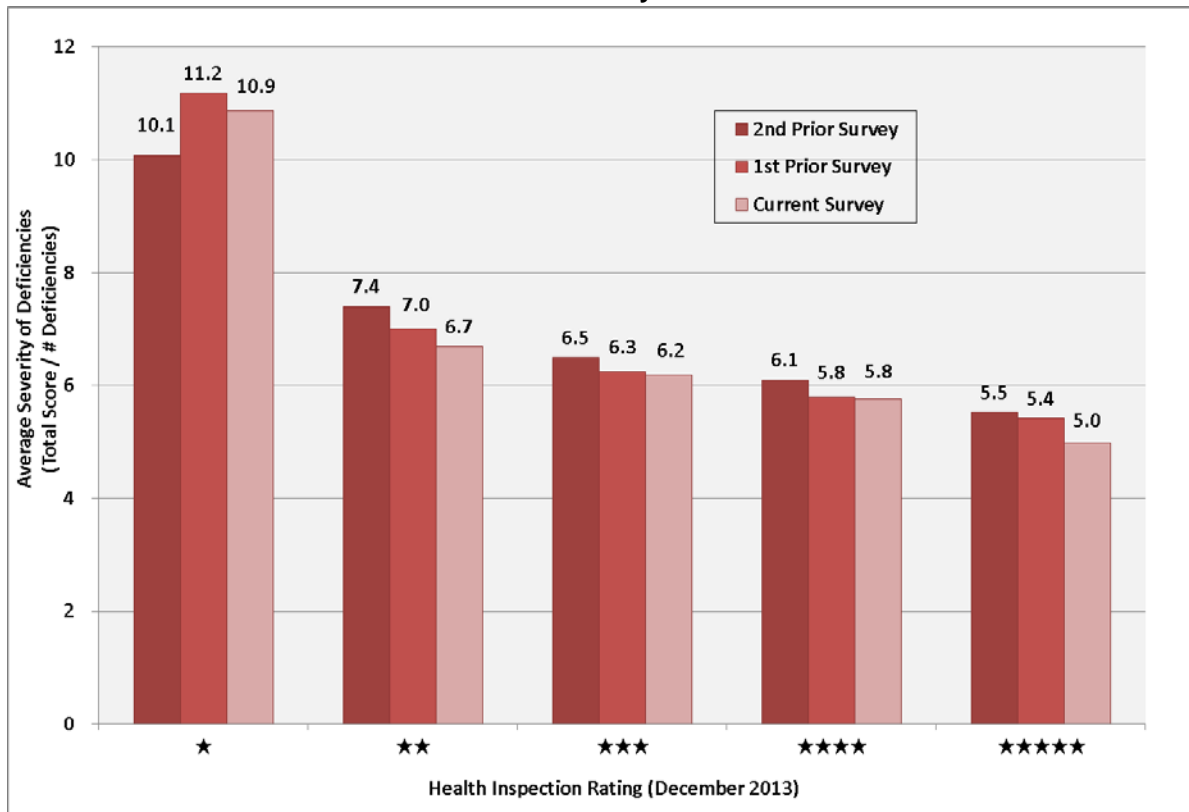


Figure 3.2d Average Severity of Cited Deficiencies According to Health Inspection Rating, Providers with at Least One Deficiency



Association of Health Inspection Rating with Performance in the Staffing Domain

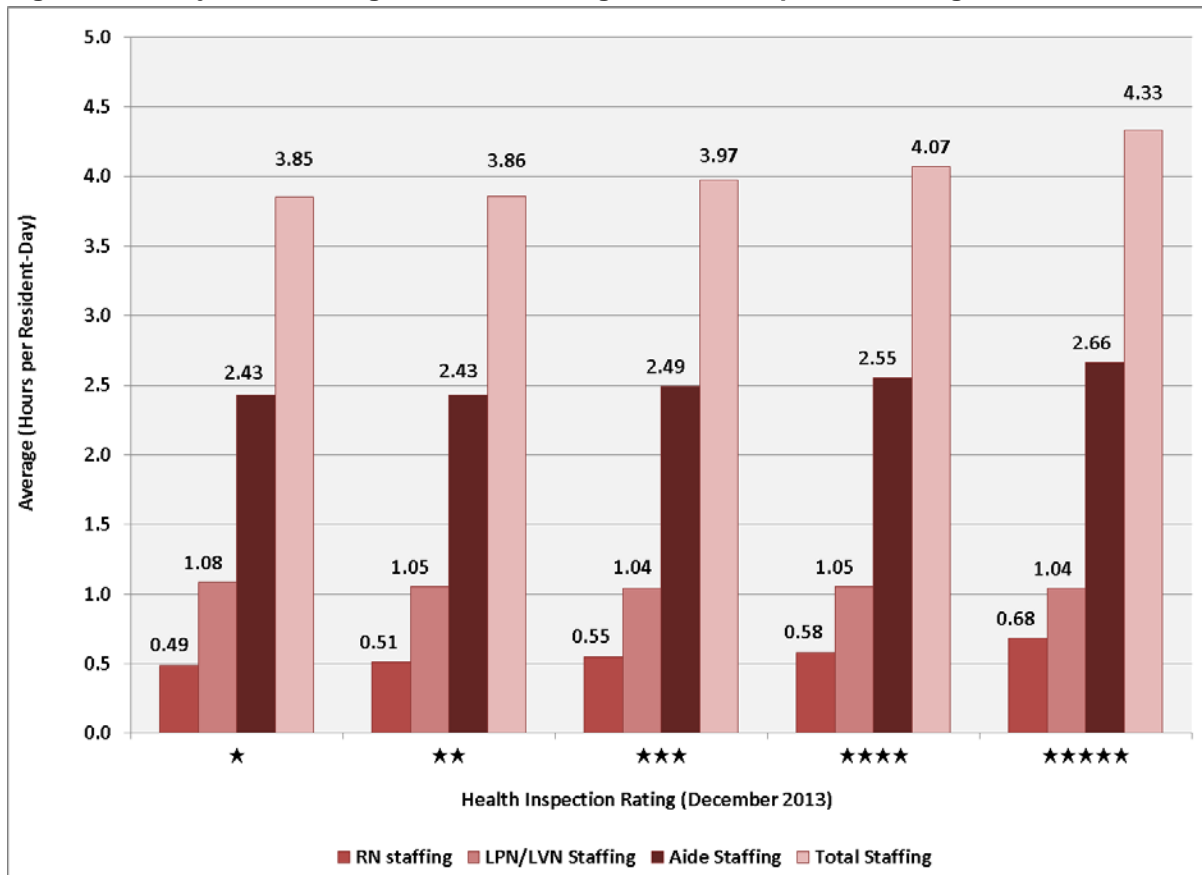
The purpose of these analyses is to examine how provider performance in the staffing domain relates to the Health Inspection rating. In general the results of these analyses indicate a moderate but consistently positive association between performance in the health inspection domain and staffing levels.

Figure 3.3 shows a positive correlation between case-mix adjusted staffing levels and Health Inspection ratings. This provides some empirical evidence of a relationship between higher staffing and better quality. The increase can be seen most clearly with RN staffing and Aide staffing.

- Average RN hours per resident day is 0.49 for one-star nursing homes (in the health inspection domain) but increases to 0.58 hours/resident day for four-star homes and 0.68 hours/resident day for five-star homes.
- Average Aide staffing is 2.43 hours/resident day for one-star nursing homes and increases to 2.55 hours/resident day for four-star homes and 2.66 hours/resident day for five-star homes.

There was little difference in average LPN/LVN staffing levels for nursing homes based on their Health Inspection rating. Average LPN/LVN hours/resident day were 1.08 for one-star nursing homes compared to 1.04 for five-star homes, and were between 1.04 and 1.08 across all rating categories.

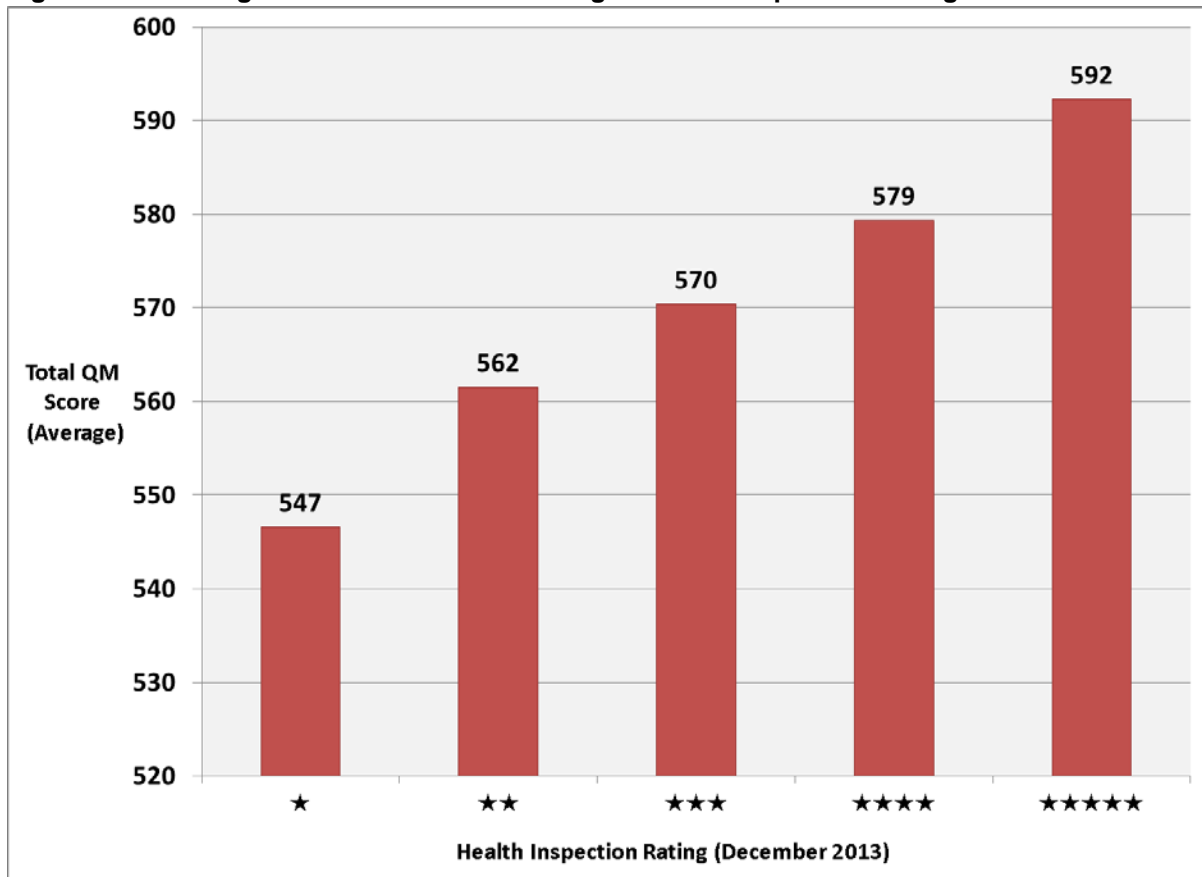
Figure 3.3 Adjusted Staffing Levels According to Health Inspection Rating



Association of Health Inspection Rating with Performance in the Quality Measure Domain

In the QM domain, providers receive from 1 to 100 points for each of nine QMs based upon performance on that measure, with more points assigned for better performance. Figure 3.4 shows the average total QM points received by nursing homes at each level of the Health Inspection rating, revealing a consistent trend towards better QM performance with better Health Inspection ratings. Five-star nursing homes receive on average 592 QM points (out of a possible max of 900), which is 46 points (or 8.4 percent) higher than the 547 point average of one-star nursing homes. Interestingly, and consistent with the idea that the best and poorest performers are more clearly distinguishable than moderate performers, the largest increments in the QM score are between one-star and two-star nursing homes (15 points) and between four-star and five-star nursing homes (13 points), with smaller increments among two-star to four-star providers (9 points each).

Figure 3.4 Average Total QM score According to Health Inspection Rating



Figures 3.5 and 3.6 show the mean number of points received on each QM for nursing homes with different Health Inspection ratings and thus allow assessment of whether some QMs are more strongly associated with health inspection performance than others. Several of the long-stay QMs demonstrate clear trends of increasing performance along with higher Health Inspection ratings. In particular, with each increment in the five-star rating, ADL Decline, Pain, Pressure Ulcers, Catheter and Restraints have a higher mean score. The strongest trends are for Pressure Ulcers and Physical Restraints, with a 14-point and 9-point spread between the one-star and five-star nursing homes for these two measures, respectively. For the remaining two long-stay QMs—Urinary Tract Infections and Injurious Falls—there appears to be no association in performance with the Health Inspection rating, and indeed very little variation (1–2 points out of 100) among any of the star rating categories. Both of the short-stay QMs (Pain and Worsening Pressure Ulcers, Figure 3.6) also evidence a steady improvement in performance with better Health Inspection Ratings, though the overall difference in the average QM scores between one-star and five-star nursing homes is modest (about 5 points in each case).

Figure 3.5 Performance on Long-Stay QMs According to Health Inspection Rating

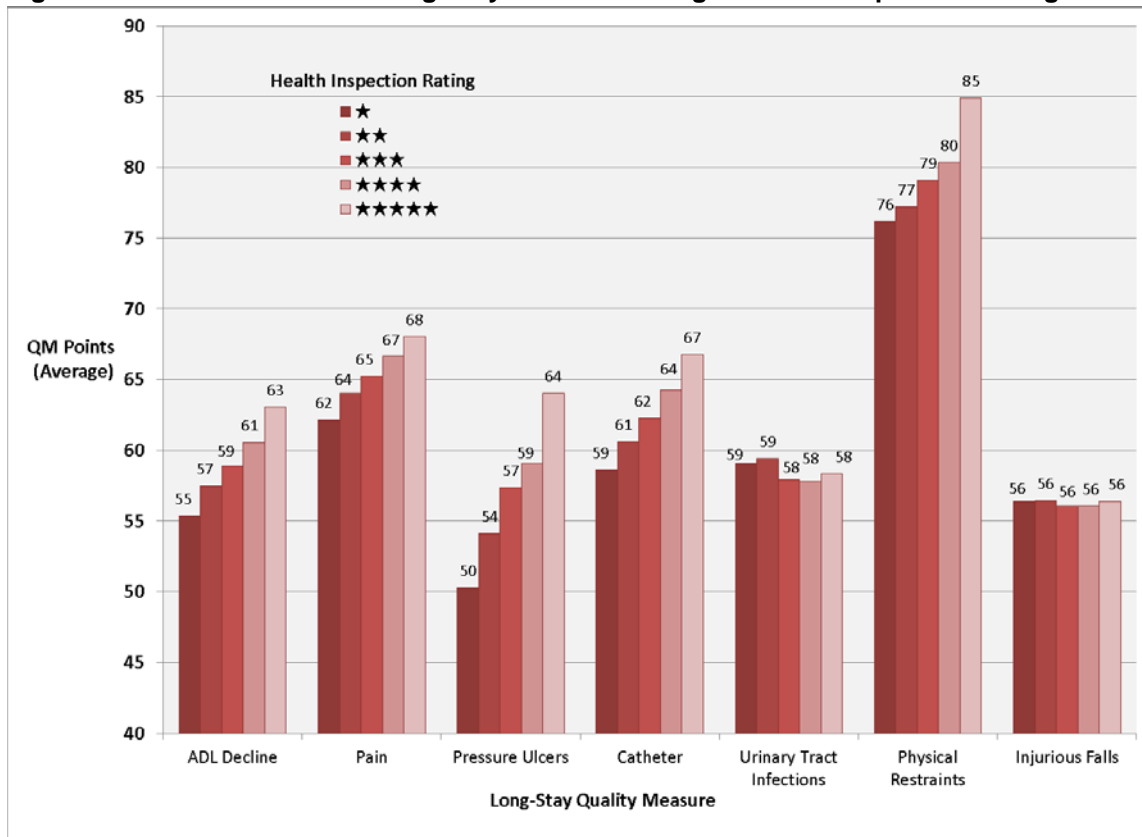
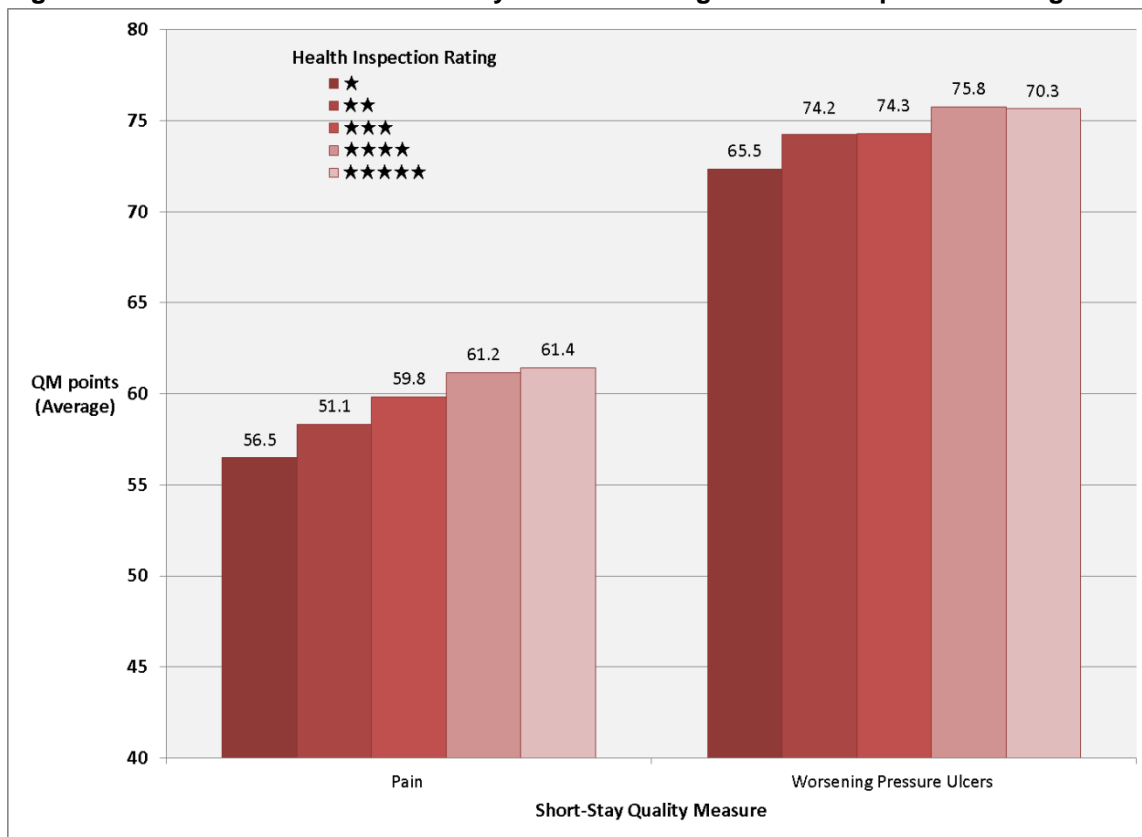


Figure 3.6 Performance on Short-Stay QMs According to Health Inspection Rating



3.3. Analysis of Rating Changes Over Five Years

The analyses presented in this section cover ratings reported on *Nursing Home Compare* for January 2009 through December 2013. This is referred to as the analytic period. We first examine rating changes for individual nursing homes and then provide descriptive information on how the overall distribution of the ratings has changed during the first five years of public reporting.

Analyses of Rating Changes for Individual Nursing Homes

Several longitudinal measures of performance on the five-star ratings were constructed for each nursing home. Analyses were done for each of the five years and across all years.

- **Best (and Poorest) Rating Ever Received** – For each domain, we determined the highest and lowest rating each nursing home has received since the implementation of the Five-Star Quality Rating System. Nursing Homes were included in this analysis if they have had at least 18 months of ratings during the five-year period.
- **Rating Range** – The difference (in number of stars) between the best and worst ratings for the nursing home in a given domain during the analytic period. This ranges from zero (if the rating for the nursing home never changed) to 4 (if the nursing home had a five-star rating in one month and a one-star rating in another month). Nursing Homes were included in this analysis if they have had at least 18 months of ratings during the five-year period or at least six months during a given year for the annual analysis.
- **Difference between First and Last Rating** – The difference (in number of stars) between the last (most recent) rating reported during the period and the first reported rating for the nursing home in a given domain. For nursing homes that have operated continuously during the analytic period, this will be the difference between the December 2013 and January 2009 ratings. It is positive if the last rating is higher than the first rating, negative if the last rating is lower than the first rating, and zero if the first and last ratings are the same. Nursing Homes were included in this analysis if they have had at least 18 months of ratings during the five-year period or at least six months during a given year for the annual analysis.

The overall distributions of these longitudinal measures are shown in Table 3.6. Nearly half (47.2 percent) of nursing homes have received a five-star Overall Quality rating at some time, and more than three-quarters (79.1 percent) have received four or five stars, while less than 1 percent have never received a rating higher than one star. Slightly less than half (47.9 percent) of nursing homes have received a one-star Overall Quality rating at least once, and just 1.8 percent have never received a rating less than five stars. The patterns are similar across domains. Though only 21.6 percent of nursing homes have ever received five stars for Staffing, more than three-quarters (77.9 percent) have received four or five stars. Across all domains, more than a third of providers have received a one-star rating at some time.

Relatively few nursing homes have had no change in ratings across the full five-year period from January 2009 to December 2013 (Table 3.6). Fewer than 1 in 25 nursing homes (3.1 percent) had no changes at all in their Overall Quality rating during this period, while three-quarters (75.7 percent) have had a rating change of more than one star. The Staffing domain has been the most stable, with 11.6 percent having no change in rating 42.2 percent having a change of no more than one star. Even though ratings were held constant between March 2011 and July 2012, the QM domain was the least stable across the five-year period, with only 2.0 percent having no change in rating and the great majority (84.9 percent) having a

change of two or more stars, with 15.3 percent having the maximum range in their rating of 4 stars (i.e. having received one star and five stars for QMs at some point over the five-year period).

Though few nursing homes have had a constant rating across five years, more than one-quarter (27.9 percent) did receive the same Overall Quality rating for both their first and most recent rating, and the proportions are similar across domains, though a bit higher for staffing (36.0 percent) and a bit lower for QMs (22.0 percent). In keeping with the overall trend towards improved ratings, for providers that have had a change, 48.7 percent had their most recent Overall Quality rating higher than their first rating, compared to 23.4 percent with the most recent rating lower than the first rating. This is true across all domains except health inspections, where essentially the same proportion had an increase as a decline. For staffing more than twice as many providers have had a net improvement in ratings than a net decline – 40.8 percent improvement vs. 16.9 percent decline. For QMs the imbalance is even more striking – with nearly five times as many nursing homes having a net increase in their rating as a decline (63.0 percent vs. 13.0 percent).

Table 3.6

Distribution of Rating Range for Each Rating Domain, January 2009 - December 2013

	Overall Quality	Health Inspections	MDS Quality Measures	Staffing	RN Staffing
	N (%)	N (%)	N (%)	N (%)	N (%)
Best Rating Ever Received					
★	116 (0.7)	363 (2.3)	55 (0.3)	324 (2.1)	378 (2.4)
★★	1,073 (6.8)	1,681 (10.6)	243 (1.5)	901 (5.7)	1,462 (9.3)
★★★	2,119 (13.4)	3,262 (20.6)	1,185 (7.5)	2,260 (14.4)	3,587 (22.8)
★★★★	5,057 (31.9)	5,915 (37.3)	5,363 (33.9)	8,840 (56.3)	4,841 (30.8)
★★★★★	7,488 (47.2)	4,632 (29.2)	8,961 (56.7)	3,388 (21.6)	5,445 (34.7)
Poorest Rating Ever Received					
★	7,588 (47.9)	7,306 (46.1)	6,847 (43.3)	6,464 (41.1)	6,168 (39.3)
★★	3,835 (24.2)	4,278 (27.0)	4,787 (30.3)	3,780 (24.1)	3,968 (25.3)
★★★	2,517 (15.9)	2,599 (16.4)	2,686 (17.0)	2,467 (15.7)	3,071 (19.5)
★★★★	1,625 (10.3)	1,428 (9.0)	1,261 (8.0)	2,541 (16.2)	1,517 (9.7)
★★★★★	288 (1.8)	242 (1.5)	226 (1.4)	461 (2.9)	989 (6.3)
Rating Range (Best minus Worst)					
No change	498 (3.1)	864 (5.5)	309 (2.0)	1,823 (11.6)	1,679 (10.7)
1 star	3,348 (21.1)	4,957 (31.3)	2,072 (13.1)	4,808 (30.6)	5,320 (33.9)
2 stars	5,460 (34.4)	6,031 (38.0)	5,075 (32.1)	5,062 (32.2)	5,733 (36.5)
3 stars	4,918 (31.0)	3,273 (20.6)	5,926 (37.5)	3,700 (23.5)	2,388 (15.2)
4 stars	1,629 (10.3)	728 (4.6)	2,425 (15.3)	320 (2.0)	593 (3.8)
Difference Between Last Rating and First Rating					
Down 4 stars	51 (0.3)	107 (0.7)	20 (0.1)	4 (0.0)	15 (0.1)
Down 3 stars	340 (2.1)	570 (3.6)	137 (0.9)	207 (1.3)	81 (0.5)
Down 2 stars	1,052 (6.6)	1,610 (10.2)	485 (3.1)	608 (3.9)	482 (3.1)
Down 1 star	2,266 (14.3)	3,355 (21.2)	1,411 (8.9)	1,829 (11.6)	1,643 (10.5)
No change	4,416 (27.9)	4,721 (29.8)	3,472 (22.0)	5,652 (36.0)	5,114 (32.5)
Up 1 star	3,947 (24.9)	3,273 (20.6)	4,055 (25.7)	3,500 (22.3)	4,143 (26.4)
Up 2 stars	2,283 (14.4)	1,525 (9.6)	3,105 (19.6)	1,971 (12.5)	2,356 (15.0)
Up 3 stars	1,152 (7.3)	598 (3.8)	2,085 (13.2)	885 (5.6)	748 (4.8)
Up 4 stars	346 (2.2)	94 (0.6)	706 (4.5)	59 (0.4)	133 (0.8)
Any improvement	7,728 (48.7)	5,490 (34.6)	9,951 (63.0)	6,415 (40.8)	7,380 (47.0)
Any decline	3,709 (23.4)	5,642 (35.6)	2,053 (13.0)	2,648 (16.9)	2,221 (14.1)

Includes all nursing homes with at least 18 months of ratings, January 2009 - December 2013 (N=15,853)

The next two tables examine the rating ranges (Table 3.7) and changes in rating (Table 3.8) for all nursing homes for each year of the *Five-Star Quality Rating System*. The proportion of nursing homes with changes in ratings (Table 3.7), both for Overall Quality and for each domain is quite similar for Year 1 and Year 2, with a little over a third of homes having the same overall rating throughout each of these periods and many more providers having a rating range of 1 star (45–46 percent) compared to two or more stars (less than 20 percent). There was markedly less change in the Overall Quality rating in Year 3, with just over half (51.8 percent) of providers experiencing no change in the Overall Quality rating between January and December, 2011. The reduction in variability is due almost entirely to the fact that the QM rating was held constant from March–December, 2011; as a result 99.9 percent of nursing homes had no change in QM rating during 2011. Notably, though the case-mix data used for the adjustment of staffing hours was also held constant for most of 2011, resulting in less variation in expected staffing, the variability of the staffing ratings did not differ markedly between Year 2 and Year 3.

Although the new MDS 3.0 QMs were not incorporated into the ratings until July 2012, and the new MDS 3.0-based case-mix adjustment for staffing was introduced in April 2012, *and* both of these necessary revisions to the system were designed to produce very little change in the overall distribution of the ratings in each of these domains, Year 4 (2012) had the most changes in ratings for individual nursing homes than any of the prior three years or Year 5. During 2012, less than one-fifth (17.6 percent) of providers had no change in their QM rating and less than half (46.5 percent) had no change in their Staffing rating. More than one-third (36.8 percent) of nursing homes had a change of two or more stars in their QM rating during 2012. Rating changes in these domains also led to more changes in the Overall Quality rating, with just 30.9 percent of providers having no change in rating during 2012, and 20.8 percent having a change of two or more stars. In Year 5 (2013), the pattern across domains is similar to that in Years 1 and 2.

For Health Inspections, approximately half of nursing homes (47.2 percent–51.3 percent) had no variation in their rating during any year and more than 90 percent had a range of no more than one star within a calendar year. Because there have been only minor changes in the design of the Health Inspection rating since 2009 and because the distribution of the ratings is held constant over time, the proportion of nursing homes experiencing any rating changes during a calendar year has been quite constant between 2009 and 2013.

Examining change over the course of each calendar year (Table 3.8) —for Overall Quality and for each individual domain, between 40 and 60 percent had no change in their rating between their first and last rating within any calendar year, with two exceptions. As noted above, there was virtually no change in the QM rating during Year 3 (2011); and, in 2012 the situation was reversed, with just 31.3 percent of providers having no net change in their QM rating. Most nursing homes did not have a net change of more than one star in either direction during a year—12.9 percent, 12.1 percent, 9.3 percent, 13.4 percent and 12.5 percent of homes had a change of more than one star in their Overall Quality rating during the years 2009 to 2013 respectively. Less than 7.5 percent of nursing homes had a change of more than one star in their Health Inspection Rating in each of the five years. For nursing homes that did have a change in rating, there were more that improved than declined; this is true for the overall rating as well as for all domains and for each year. Given that there were no changes in QM ratings during the first half of 2012, the fact that 38.8 percent of nursing homes had an improvement in their QM rating during 2012, and 28.2 percent had a decline is notable. During Year 5, more than twice as many homes have had an improvement in their QM rating as a decline (39.9 percent vs.14.8 percent). This is the main reason that substantially more facilities have improved their Overall rating than have experienced a decline in Year 5 (31.1 percent vs. 19.9 percent).

Table 3.7
Distribution of Rating Range for Each Rating Domain, by Year (2009-2013)

	Overall Quality	Health Inspections	MDS Quality Measures	Staffing	RN Staffing
	N (%)	N (%)	N (%)	N (%)	N (%)
Year 1 - January – December 2009					
No change	5,483 (35.2)	7,361 (47.2)	4,148 (26.8)	7,635 (50.4)	7,893 (52.1)
1 star	7,103 (45.6)	6,775 (43.5)	7,988 (51.6)	5,140 (33.9)	5,692 (37.6)
2 stars	2,452 (15.7)	1,186 (7.6)	2,782 (18.0)	1,785 (11.8)	1,281 (8.5)
3 stars	495 (3.2)	218 (1.4)	539 (3.5)	574 (3.8)	232 (1.5)
4 stars	46 (0.3)	39 (0.3)	36 (0.2)	20 (0.1)	56 (0.4)
Year 2 - January – December 2010					
No change	5,930 (38.1)	7,981 (51.3)	4,090 (26.4)	8,627 (56.6)	8,665 (56.9)
1 star	7,065 (45.4)	6,394 (41.1)	8,099 (52.3)	4,535 (29.8)	5,082 (33.4)
2 stars	2,141 (13.8)	982 (6.3)	2,711 (17.5)	1,631 (10.7)	1,253 (8.2)
3 stars	406 (2.6)	179 (1.1)	540 (3.5)	423 (2.8)	201 (1.3)
4 stars	28 (0.2)	34 (0.2)	54 (0.3)	16 (0.1)	31 (0.2)
Year 3 - January – December 2011					
No change	8,066 (51.8)	7,816 (50.2)	15,419 (99.9)	8,914 (58.5)	8,888 (58.4)
1 star	5,796 (37.2)	6,425 (41.3)	23 (0.1)	4,411 (29.0)	5,079 (33.3)
2 stars	1,454 (9.3)	1,082 (6.9)	0 (0.0)	1,474 (9.7)	1,045 (6.9)
3 stars	246 (1.6)	216 (1.4)	0 (0.0)	409 (2.7)	189 (1.2)
4 stars	8 (0.1)	31 (0.2)	0 (0.0)	22 (0.1)	29 (0.2)
Year 4 - January – December 2012					
No change	4,810 (30.9)	7,824 (50.3)	2,730 (17.6)	7,060 (46.5)	7,088 (46.7)
1 star	7,516 (48.3)	6,376 (41.0)	7,086 (45.7)	5,627 (37.1)	6,460 (42.5)
2 stars	2,656 (17.1)	1,094 (7.0)	4,093 (26.4)	1,968 (13.0)	1,375 (9.1)
3 stars	517 (3.3)	224 (1.4)	1,390 (9.0)	505 (3.3)	223 (1.5)
4 stars	55 (0.4)	36 (0.2)	217 (1.4)	23 (0.2)	37 (0.2)
Year 5 - January – December 2013					
No change	6,066 (39.1)	7,844 (50.5)	5,553 (35.9)	8,478 (55.8)	8,390 (55.3)
1 star	6,803 (43.8)	6,343 (40.8)	7,591 (49.0)	4,722 (31.1)	5,420 (35.7)
2 stars	2,136 (13.8)	1,088 (7.0)	1,924 (12.4)	1,537 (10.1)	1,147 (7.6)
3 stars	482 (3.1)	224 (1.4)	375 (2.4)	432 (2.8)	192 (1.3)
4 stars	41 (0.3)	29 (0.2)	38 (0.2)	12 (0.1)	32 (0.2)

Includes all nursing homes with at least 6 months of ratings in a given year

Table 3.8

Difference Between Last Rating and First Rating for Each Rating Domain, by Year (2009-2013)

	Overall Quality	Health Inspections	MDS Quality Measures	Staffing	RN Staffing
	N (%)	N (%)	N (%)	N (%)	N (%)
Year 1 – January – December 2009					
Down 4 stars	13 (0.1)	27 (0.2)	14 (0.1)	5 (0.0)	19 (0.1)
Down 3 stars	167 (1.1)	138 (0.9)	171 (1.1)	148 (1.0)	55 (0.4)
Down 2 stars	694 (4.5)	585 (3.8)	817 (5.3)	570 (3.8)	383 (2.5)
Down 1 star	2,597 (16.7)	2,450 (15.7)	2,810 (18.1)	2,143 (14.1)	2,245 (14.8)
No change	7,504 (48.2)	8,647 (55.5)	6,355 (41.0)	7,896 (52.1)	8,081 (53.3)
Up 1 star	3,467 (22.3)	3,337 (21.4)	3,723 (24.0)	2,554 (16.9)	2,896 (19.1)
Up 2 stars	954 (6.1)	353 (2.3)	1,284 (8.3)	897 (5.9)	693 (4.6)
Up 3 stars	170 (1.1)	39 (0.3)	268 (1.7)	307 (2.0)	128 (0.8)
Up 4 stars	13 (0.1)	3 (0.0)	17 (0.1)	10 (0.1)	30 (0.2)
<i>Any improvement</i>	<i>4,604 (29.6)</i>	<i>3,732 (24.0)</i>	<i>5,292 (34.2)</i>	<i>3,768 (25.9)</i>	<i>3,747 (25.8)</i>
<i>Any decline</i>	<i>3,471 (22.3)</i>	<i>3,200 (20.5)</i>	<i>3,812 (24.7)</i>	<i>2,866 (19.7)</i>	<i>2,702 (18.6)</i>
Year 2 – January – December 2010					
Down 4 stars	12 (0.1)	21 (0.1)	14 (0.1)	5 (0.0)	12 (0.1)
Down 3 stars	143 (0.9)	135 (0.9)	152 (1.0)	133 (0.9)	52 (0.3)
Down 2 stars	627 (4.0)	502 (3.2)	730 (4.7)	576 (3.8)	366 (2.4)
Down 1 star	2,551 (16.4)	2,432 (15.6)	2,818 (18.2)	1,910 (12.5)	1,857 (12.2)
No change	7,561 (48.6)	8,839 (56.8)	6,374 (41.1)	8,512 (55.9)	8,533 (56.0)
Up 1 star	3,574 (23.0)	3,306 (21.2)	3,787 (24.4)	2,560 (16.8)	3,137 (20.6)
Up 2 stars	930 (6.0)	299 (1.9)	1,260 (8.1)	987 (6.5)	838 (5.5)
Up 3 stars	164 (1.1)	30 (0.2)	299 (1.9)	259 (1.7)	140 (0.9)
Up 4 stars	8 (0.1)	6 (0.0)	34 (0.2)	10 (0.1)	17 (0.1)
<i>Any improvement</i>	<i>4,676 (30.0)</i>	<i>3,641 (23.4)</i>	<i>5,380 (34.8)</i>	<i>3,816 (25.5)</i>	<i>4,132 (27.6)</i>
<i>Any decline</i>	<i>3,333 (21.4)</i>	<i>3,090 (19.8)</i>	<i>3,714 (24.0)</i>	<i>2,624 (17.5)</i>	<i>2,287 (15.3)</i>
Year 3 – January – December 2011					
Down 4 stars	7 (0.0)	28 (0.2)	0 (0.0)	6 (0.0)	11 (0.1)
Down 3 stars	143 (0.9)	144 (0.9)	0 (0.0)	160 (1.1)	55 (0.4)
Down 2 stars	630 (4.0)	599 (3.8)	0 (0.0)	623 (4.1)	376 (2.5)
Down 1 star	2,304 (14.8)	2,440 (15.7)	9 (0.1)	1,905 (12.5)	2,020 (13.3)
No change	8,822 (56.7)	8,667 (55.7)	15,421 (99.9)	8,779 (57.6)	8,747 (57.4)
Up 1 star	2,995 (19.2)	3,323 (21.3)	12 (0.1)	2,483 (16.3)	3,005 (19.7)
Up 2 stars	611 (3.9)	321 (2.1)	0 (0.0)	787 (5.2)	631 (4.1)
Up 3 stars	58 (0.4)	48 (0.3)	0 (0.0)	224 (1.5)	119 (0.8)
Up 4 stars	0 (0.0)	0 (0.0)	0 (0.0)	12 (0.1)	15 (0.1)
<i>Any improvement</i>	<i>3,664 (23.5)</i>	<i>3,692 (23.7)</i>	<i>12 (0.1)</i>	<i>3,506 (23.4)</i>	<i>3,770 (25.2)</i>
<i>Any decline</i>	<i>3,084 (19.8)</i>	<i>3,211 (20.6)</i>	<i>9 (0.1)</i>	<i>2,694 (18.0)</i>	<i>2,462 (16.4)</i>

Table 3.8
Difference Between Last Rating and First Rating for Each Rating Domain, by Year (2009-2013)

	Overall Quality	Health Inspections	MDS Quality Measures	Staffing	RN Staffing
	N (%)	N (%)	N (%)	N (%)	N (%)
Year 4 – January – December 2012					
Down 4 stars	23 (0.1)	23 (0.1)	47 (0.3)	11 (0.1)	12 (0.1)
Down 3 stars	195 (1.3)	137 (0.9)	341 (2.2)	174 (1.1)	61 (0.4)
Down 2 stars	757 (4.9)	596 (3.8)	1,148 (7.4)	611 (4.0)	379 (2.5)
Down 1 star	2,811 (18.1)	2,507 (16.1)	2,838 (18.3)	2,405 (15.8)	2,452 (16.1)
No change	7,066 (45.4)	8,729 (56.1)	4,850 (31.3)	8,063 (53.1)	8,137 (53.6)
Up 1 star	3,592 (23.1)	3,162 (20.3)	3,594 (23.2)	2,605 (17.2)	3,059 (20.1)
Up 2 stars	957 (6.2)	343 (2.2)	1,737 (11.2)	802 (5.3)	651 (4.3)
Up 3 stars	143 (0.9)	48 (0.3)	588 (3.8)	190 (1.3)	108 (0.7)
Up 4 stars	10 (0.1)	9 (0.1)	101 (0.7)	7 (0.0)	9 (0.1)
<i>Any improvement</i>	<i>4,702 (30.2)</i>	<i>3,562 (22.9)</i>	<i>6,020 (38.8)</i>	<i>3,604 (23.7)</i>	<i>3,827 (25.2)</i>
<i>Any decline</i>	<i>3,786 (24.3)</i>	<i>3,263 (21.0)</i>	<i>4,374 (28.2)</i>	<i>3,201 (21.1)</i>	<i>2,904 (19.1)</i>
Year 5 – January – December 2013					
Down 4 stars	12 (0.1)	17 (0.1)	3 (0.0)	1 (0.0)	8 (0.1)
Down 3 stars	173 (1.1)	153 (1.0)	49 (0.3)	153 (1.0)	58 (0.4)
Down 2 stars	620 (4.0)	569 (3.7)	311 (2.0)	570 (3.8)	413 (2.7)
Down 1 star	2,291 (14.8)	2,456 (15.8)	1,933 (12.5)	2,052 (13.5)	2,220 (14.6)
No change	7,603 (49.0)	8,731 (56.2)	6,976 (45.1)	8,846 (58.3)	8,794 (57.9)
Up 1 star	3,692 (23.8)	3,204 (20.6)	4,478 (28.9)	2,401 (15.8)	2,754 (18.1)
Up 2 stars	941 (6.1)	350 (2.3)	1,364 (8.8)	741 (4.9)	597 (3.9)
Up 3 stars	176 (1.1)	41 (0.3)	296 (1.9)	195 (1.3)	109 (0.7)
Up 4 stars	20 (0.1)	7 (0.0)	33 (0.2)	10 (0.1)	16 (0.1)
<i>Any improvement</i>	<i>4,829 (31.1)</i>	<i>3,602 (23.2)</i>	<i>6,171 (39.9)</i>	<i>3,347 (22.0)</i>	<i>3,476 (22.9)</i>
<i>Any decline</i>	<i>3,096 (19.9)</i>	<i>3,195 (20.6)</i>	<i>2,296 (14.8)</i>	<i>2,776 (18.3)</i>	<i>2,699 (17.8)</i>

Includes all nursing homes with at least 6 months of ratings in a given year

We expect that the initially reported rating will influence the degree to which ratings change. Table 3.9 examines the rating range for the Overall Quality rating, according to the first rating during 2013. The providers most likely to have no variation in their Overall Quality rating during the year are those that started as five-star nursing homes. Specifically, 65.9 percent of five-star homes had no variation in their Overall Quality rating throughout the year. Nursing homes that started the year with one to four stars are all most likely to have an overall range of one star; for example, 55.2 percent of providers starting with three stars had a change of one star during the year. Further, as shown in Table 3.10, nursing homes starting with between one and five stars were all more likely to improve than decline during the year. For example, 46.9 percent of facilities starting with four stars improved during the year, while just 27.3 percent declined. And 43.2 percent of facilities starting with three stars improved during the year, while 23.3 percent declined. And, of course, those starting with five stars cannot improve, but more stayed at five stars than has been the case in most previous years.

Table 3.9
Rating Range According to First Rating – Overall Quality Rating, January – December 2013

First rating during 2013	Rating Range (Best - Worst)				
	No change	1 star	2 stars	3 stars	4 stars
	N (%)	N (%)	N (%)	N (%)	N (%)
★	813 (38.4)	864 (40.8)	301 (14.2)	119 (5.6)	21 (1.0)
★★	1,072 (34.9)	1,351 (44.0)	536 (17.5)	107 (3.5)	2 (0.1)
★★★	687 (22.2)	1,710 (55.2)	676 (21.8)	24 (0.8)	0 (0.0)
★★★★	1,489 (35.4)	2,110 (50.2)	458 (10.9)	143 (3.4)	2 (0.0)
★★★★★	2,005 (65.9)	768 (25.2)	165 (5.4)	89 (2.9)	16 (0.5)
All Providers	6,066 (39.1)	6,803 (43.8)	2,136 (13.8)	482 (3.1)	41 (0.3)

Includes all nursing homes with at least six months of ratings between January and December 2013

Table 3.10
Difference between First and Last Rating, According to First Rating – Overall Quality Rating, January – December 2013

First rating during 2013	Difference Between Last Rating and First Rating		
	Decline	No change	Improvement
	N (%)	N (%)	N (%)
★	0 (0.0)	960 (45.3)	1,158 (54.7)
★★	427 (13.9)	1,454 (47.4)	1,187 (38.7)
★★★	721 (23.3)	1,038 (33.5)	1,338 (43.2)
★★★★	1,087 (25.9)	1,969 (46.9)	1,146 (27.3)
★★★★★	861 (28.3)	2,182 (71.7)	0 (0.0)
All Providers	3,096 (19.9)	7,603 (49.0)	4,829 (31.1)

Examination of Rating Trends During Year 1 – Year 5

Table 3.11 shows the distribution of ratings for all US nursing homes from the beginning of the published ratings (January 2009) and at the end of the analytic period for this report (December 2013). With the exception of the health inspection domain, for which the ratings distribution is fixed (i.e., the ratings thresholds are re-set each month to maintain a constant proportion of nursing homes in each rating category in each state), all of the other domains, and the Overall Quality rating have seen a marked increase in the proportion of four-star and five-star nursing homes and a decline in the proportion of one-star homes. In December 2013, 24.5 percent of nursing homes had a five-star Overall Quality rating vs. 11.8 percent in January 2009. The proportion of one-star nursing homes fell from 22.7 percent to 10.5 percent during this period.

The distribution of the QM and Staffing ratings (except for the break between 4 and 5 stars for Staffing, which was originally based on results of the CMS Staff-Time measurement study, independent of the

distribution) was set at the inception of the Five Star Rating System, but has been allowed to change since then⁸. For Staffing, the proportion of five-star nursing homes has increased somewhat (from 7.2 percent to 10.5 percent), but the proportion of four-star homes has increased considerably more, from 30.6 percent to 42.7 percent. In January 2009, 22.9 percent of the nation’s nursing homes were rated one-star for Staffing; in December 2013, that percentage is just 11.9 percent.

Changes in the ratings distribution have also been quite dramatic for the QMs, in spite of no change between March 2011 and July 2012. The percentage of five-star nursing homes has more than tripled, from 10.1 percent to 34.8 percent, while the percentage of one-star homes has fallen enormously, from 20.0 percent to 3.2 percent. Notably most states have shown the same trends as the nation as a whole; the ratings distributions for each state for January 2009 and December 2013 are shown in the Appendix.

Table 3.11
Distribution of Overall Quality Rating and Ratings in Each Domain, January 2009 and December 2013

Five-Star Measure	TOTAL N ¹	★	★★	★★★	★★★★	★★★★★
		N (%)	N (%)	N (%)	N (%)	N (%)
January 2009						
Overall Quality	15,564	3,529 (22.7)	3,223 (20.7)	3,340 (21.5)	3,635 (23.4)	1,837 (11.8)
Health Inspections	15,564	3,087 (19.8)	3,598 (23.1)	3,607 (23.2)	3,622 (23.3)	1,650 (10.6)
Quality Measures	15,468	3,090 (20.0)	3,522 (22.8)	3,583 (23.2)	3,714 (24.0)	1,559 (10.1)
Staffing	14,717	3,366 (22.9)	2,891 (19.6)	2,906 (19.7)	4,497 (30.6)	1,057 (7.2)
RN Staffing	14,717	3,480 (23.6)	3,557 (24.2)	3,548 (24.1)	2,363 (16.1)	1,769 (12.0)
December 2013						
Overall Quality	15,512	1,629 (10.5)	3,226 (20.8)	2,821 (18.2)	4,105 (26.5)	3,731 (24.1)
Health Inspections	15,512	3,064 (19.8)	3,558 (22.9)	3,597 (23.2)	3,603 (23.2)	1,690 (10.9)
Quality Measures	15,465	496 (3.2)	1,365 (8.8)	2,628 (17.0)	5,601 (36.2)	5,375 (34.8)
Staffing	15,185	1,811 (11.9)	2,238 (14.7)	3,045 (20.1)	6,491 (42.7)	1,600 (10.5)
RN Staffing	15,185	1,633 (10.8)	2,520 (16.6)	4,088 (26.9)	3,829 (25.2)	3,115 (20.5)

A limitation of the analyses reported in Table 3.11 is that they show ratings from only two points in time. There may be differences in the distribution of ratings that occur largely by chance, reflecting month-to-month fluctuation in distributions. Figures 3.7–3.11 show the distribution of star ratings over time for January 2009 through December 2013 and indicate quite clearly that the trends of improvements in the ratings are quite consistent.

For the Overall Quality rating (Figure 3.7), there has been a steady increase in the proportion of five-star nursing homes—from 11.8 percent to 24.1 percent. Notably, the rate of increase accelerated in July 2012, coinciding with the introduction of the MDS 3.0 QMs. The proportion of four-star nursing homes has

⁸ When the implementation of MDS 3.0 required design changes for the QM rating and in the case-mix adjustment for staffing during 2012, the national distribution of the ratings was unchanged by the transition and has again been allowed to change since these revisions.

also increased quite steadily, except with small recent declines, corresponding to the larger five-star increases. The proportion of one-star nursing homes has declined in nearly every quarter, from 22.7 percent in January 2009 to 10.5 percent in October 2013. There have been small declines in two-star and three-star homes. These trends, though modest, are striking considering that the largest component of the overall rating is the Health Inspection rating, which—by design—has an essentially fixed distribution from month-to-month (shown in Figure 3.8). Thus, the change in the Overall Quality rating distribution must be due to there being more five-star providers in the QM domain, more four- and five-star providers in the staffing domain, and/or fewer one-star providers in each of these domains.

Figure 3.7 Distribution of Overall Quality Ratings, 2009 - 2013

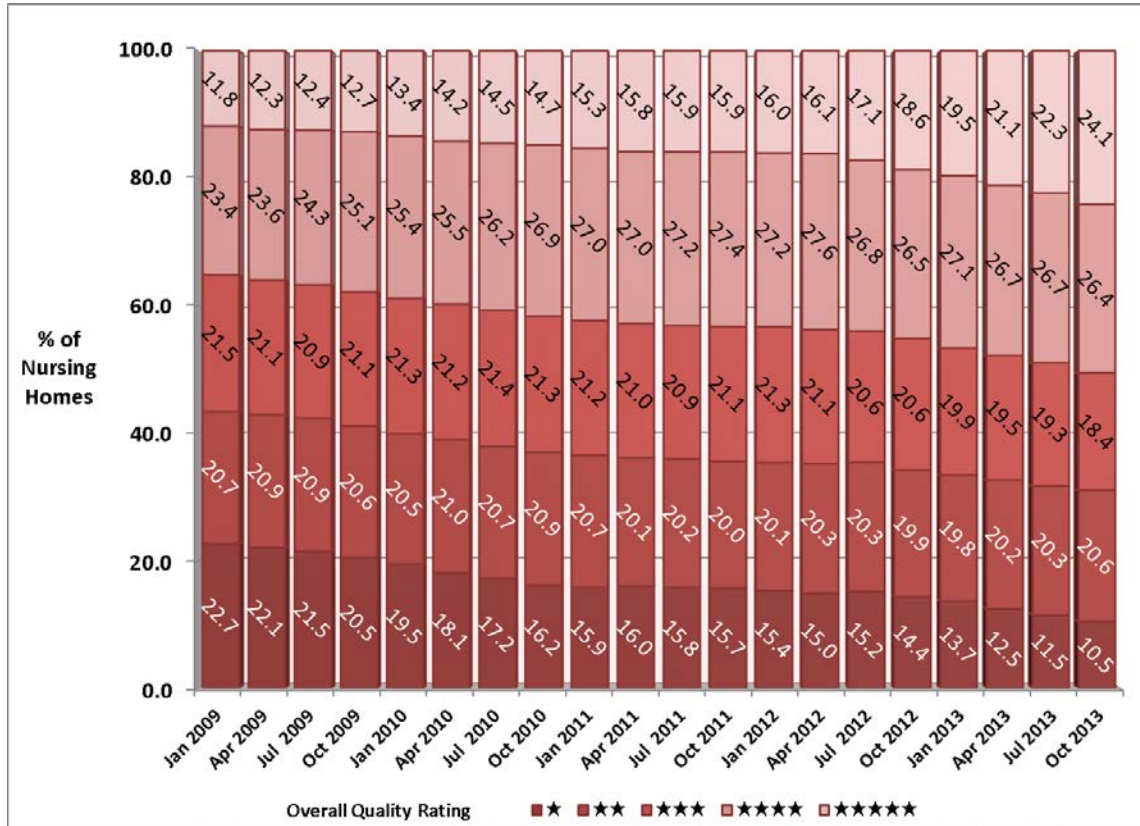


Figure 3.8 Distribution of Health Inspection Ratings, 2009 - 2013

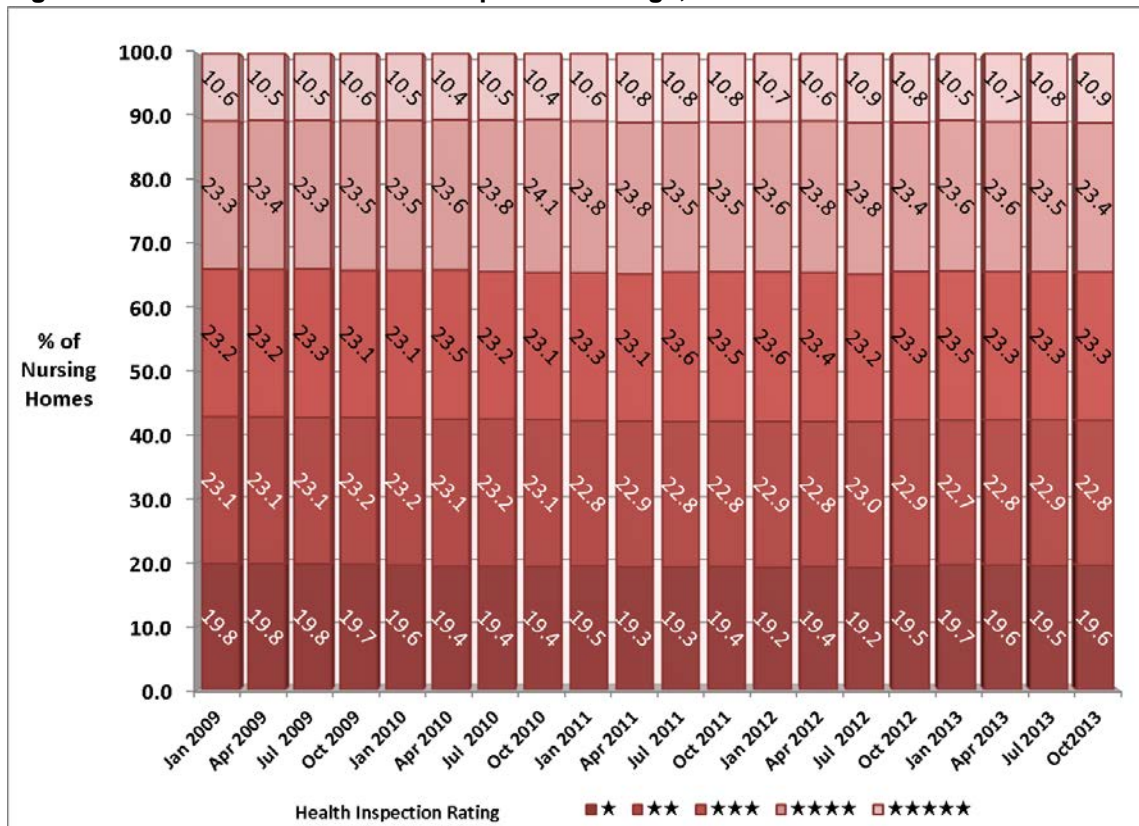
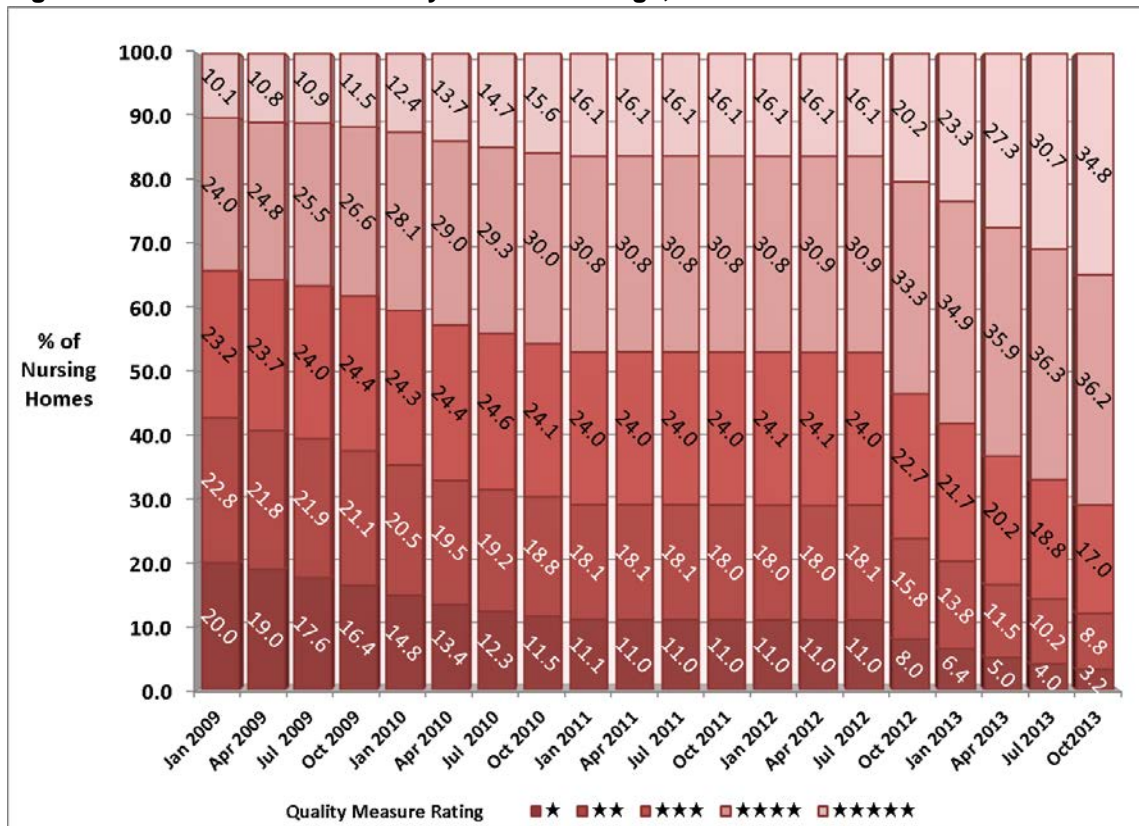


Figure 3.9 shows that there has been a tripling in the proportion of nursing homes receiving five stars for QMs (from 10.1 percent to 34.8 percent). The proportion of nursing homes receiving one star in October 2013 (3.2 percent) is a fraction of what it was in January 2009 (20.0 percent). The proportion receiving four stars has also increased substantially – by about 50 percent from 24.0 percent to 36.2 percent. While these trends were present in 2009, they accelerated somewhat in 2010, and then remained flat through 2011 until July 2012 (because of the black-out period as the new MDS 3.0 QMs were developed and incorporated into the ratings). Then, since the distribution was first able to change again after the introduction of the new QMs, the change in the QM rating has accelerated. CMS is paying close attention to this newly emerging trend, by scrutinizing individual QMs to identify the potential drivers of these changes.

Figure 3.9 Distribution of Quality Measure Ratings, 2009 - 2013*



*Note that the QM rating was held constant for all nursing homes between March 2011 and July 2012. In July 2012, with the new rating design, the rating of individual nursing homes could change, but the overall distribution was maintained at December 2011 levels. For October 2012 (and going forward), both the ratings of individual nursing homes and the overall distribution can change.

With respect to Staffing (Figure 3.10), there have also been trends at the extremes of the distribution, with increases in the proportion of both four- and five-star nursing homes (30.6 percent to 42.5 percent for four stars and 7.2 percent to 10.5 percent for five stars) and a concomitant decrease in the proportion of one-star homes (from 22.9 percent to 12.1 percent). The increases in the four-star category and decreases in the one-star category were slightly more prominent during 2010 and 2011, while the five-star increases may have accelerated in 2012. Three-star nursing homes have increased in prevalence slightly and two-star homes have declined. Parallel trends are seen for RN Staffing (Figure 3.11), with an even sharper increase in the proportion of five-star nursing homes (from 12.0 percent to 20.0 percent) and decline in the proportion of one-star homes (from 23.7 percent to 10.8 percent), suggesting that increases in RN staffing have been slightly offset by declines (or at least smaller increases) in other staff types.

Figure 3.10 Distribution of Staffing Ratings, 2009 - 2013

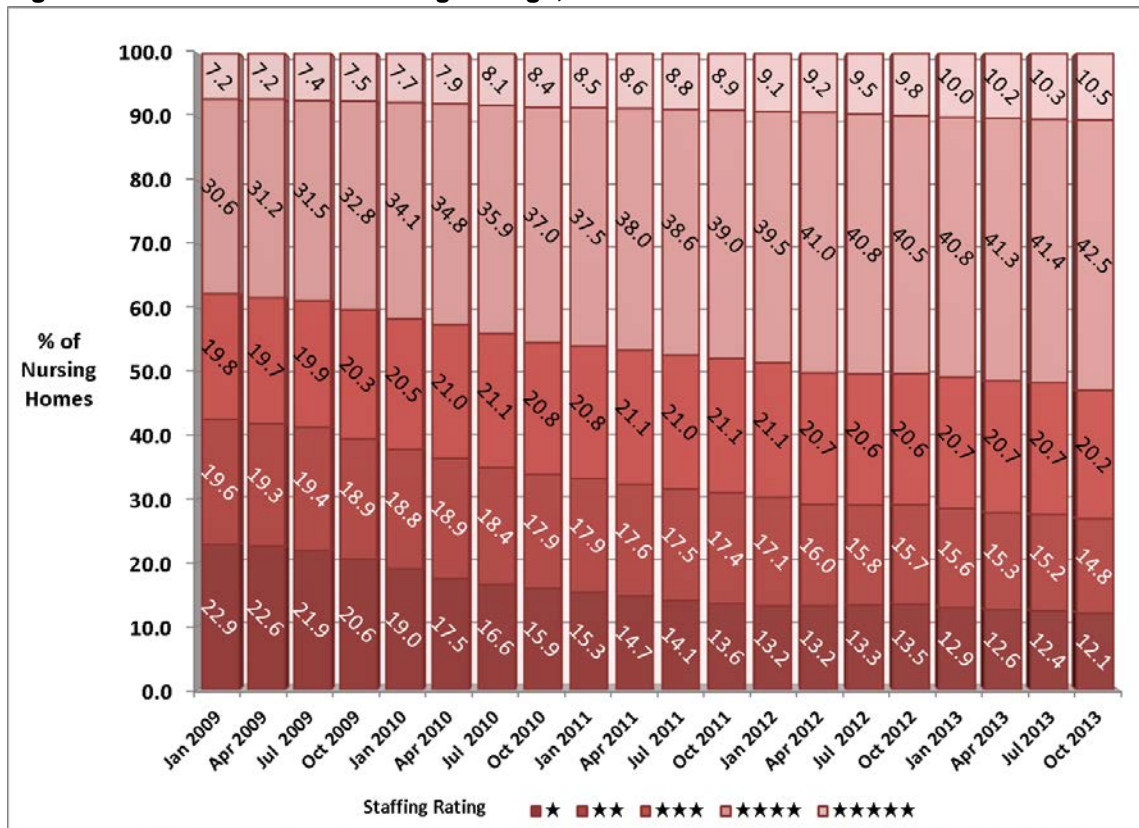
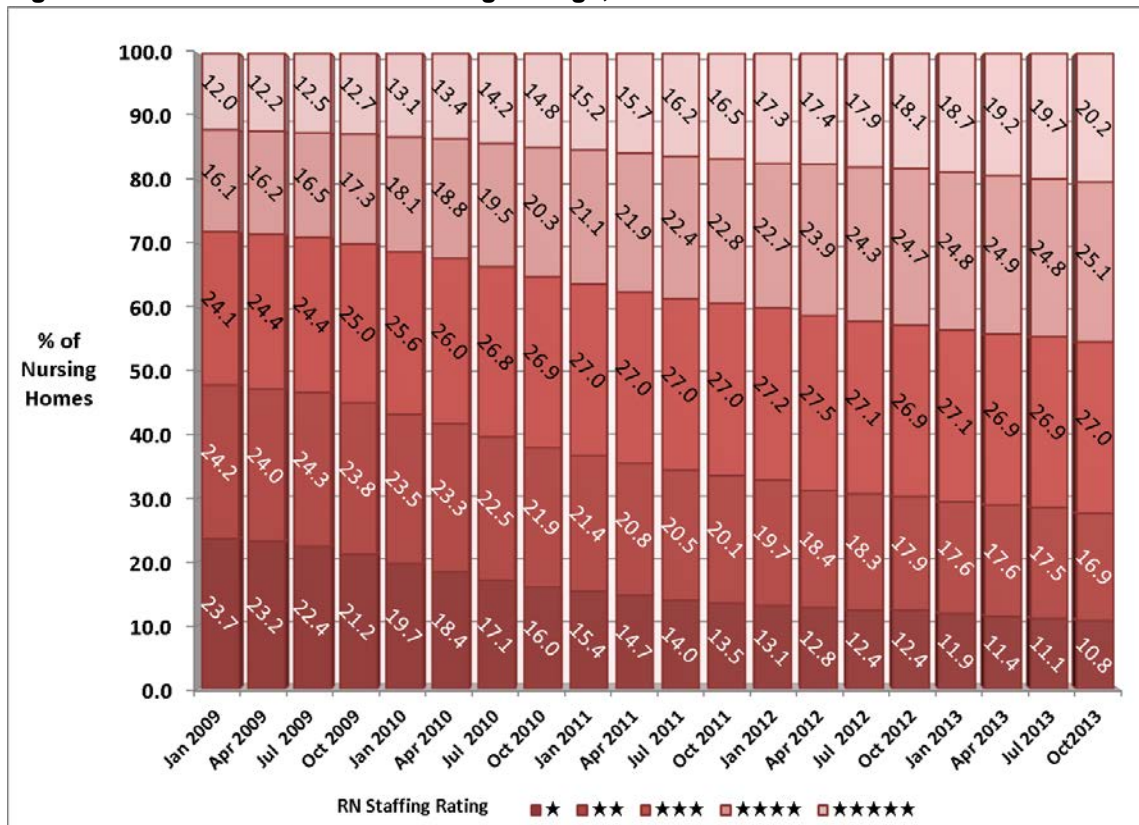


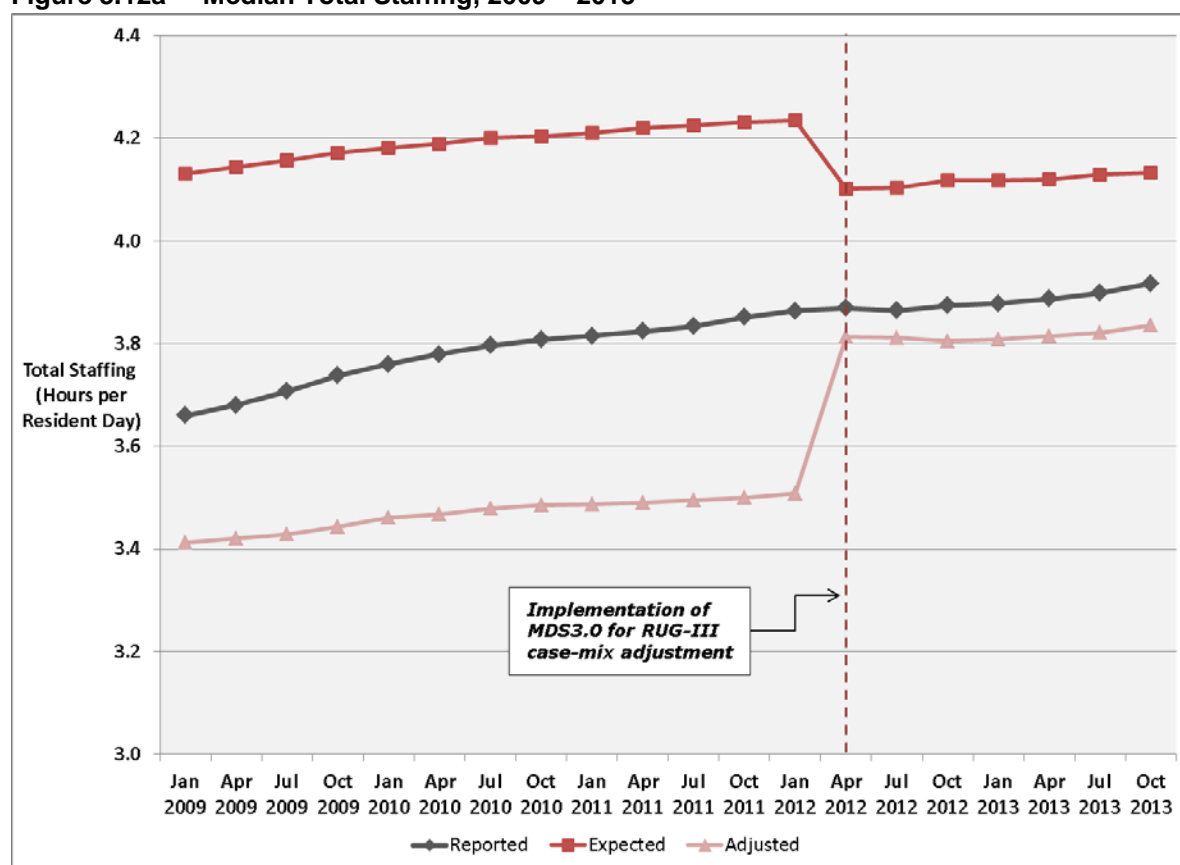
Figure 3.11 Distribution of RN Staffing Ratings, 2009 - 2013



Additional Analysis of Trends in Staffing

To further explore the trends in the Staffing Ratings during the first four years of the Five-Star Quality Rating System, we examined changes in the reported, expected and adjusted staffing values for total staffing as well as its three components (RN staffing, LPN/LVN staffing and nurse aide staffing across 2009–2012. These analyses are shown in Figures 3.12a–3.12d. Recall that nursing homes have the most direct control of reported staffing levels. Expected staffing levels are based on the case-mix in the nursing home, derived from MDS assessments that categorize residents into one of 53 Resource Utilization Groups (RUGs), each of which is associated with an average “expected” amount of daily staff time for each of the three types of nursing staff. Adjusted staffing is then computed based on the relationship between reported and expected staffing. The Staffing ratings are based on total staffing, with RN staffing weighted more heavily than other types of staff.

Figure 3.12a Median Total Staffing, 2009 – 2013



In April 2012, after three years of gradual increase (indicating an increase in the severity of case-mix based on MDS 2.0/RUGSIII groupings), the “expected” total staffing estimates declined markedly because of the transition from MDS 2.0 to MDS 3.0 (Figure 3.12a). In turn this change is reflected in the adjusted staffing values. Because of these changes, as noted above, new rating thresholds were introduced at the same time, to minimize the disruption in the national distribution of Staffing ratings. It is anticipated that after this large discontinuity in the adjusted and expected staffing values, that the prior more gradual trends will resume, and this appears to be the case. Notably, it appears that the gradual trend towards an increase in total reported staffing has persisted across the five years, with perhaps a slight flattening in 2012.

To determine which types of staffing have contributed most to the longitudinal trends observed in total staffing, we also looked at trends in the medians for the three types of staffing that sum to the total measure. RN staffing, which is the biggest contributor to the Staffing Rating, is shown in Figure 3.12b. Nurse Aide staffing is shown in Figure 3.12c, and LPN/LVN staffing is shown in Figure 3.12d.

Figure 3.12b Median RN Staffing, 2009 – 2013

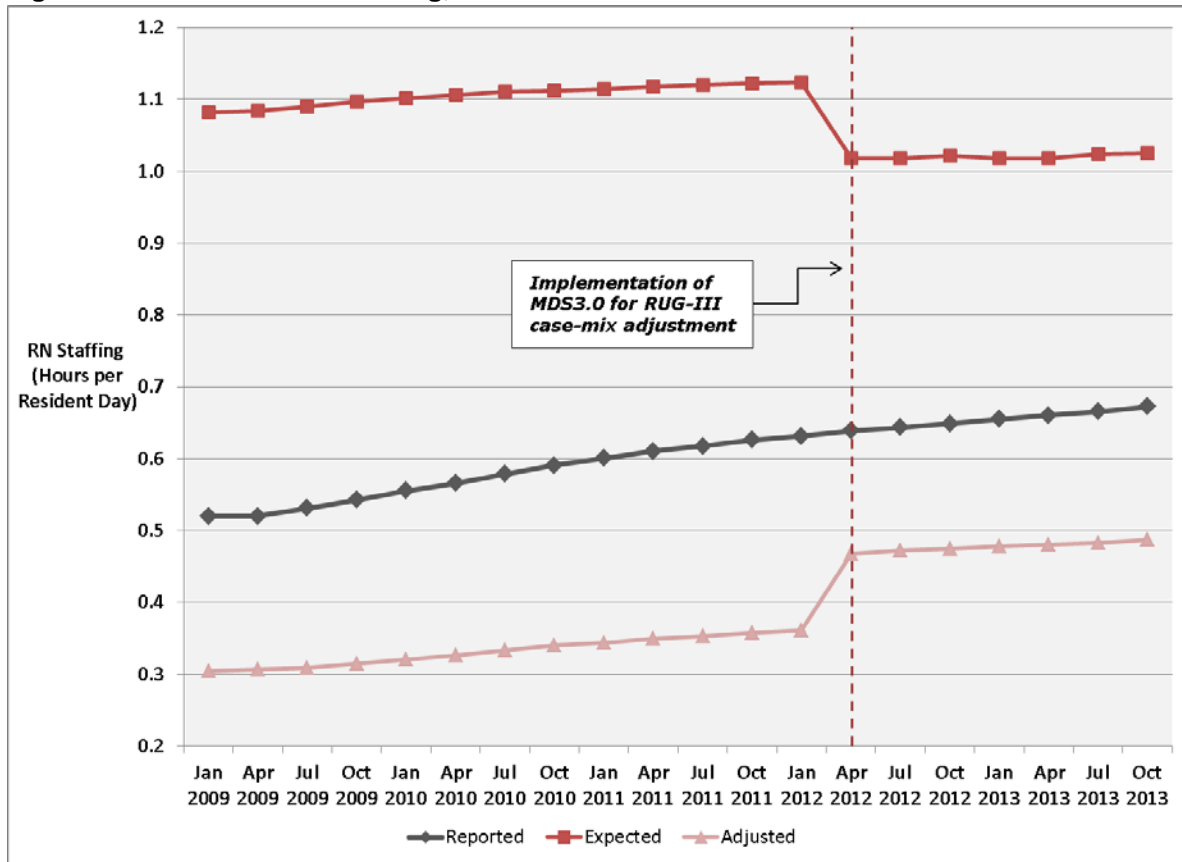


Figure 3.12c Median Nurse Aide Staffing, 2009 – 2013

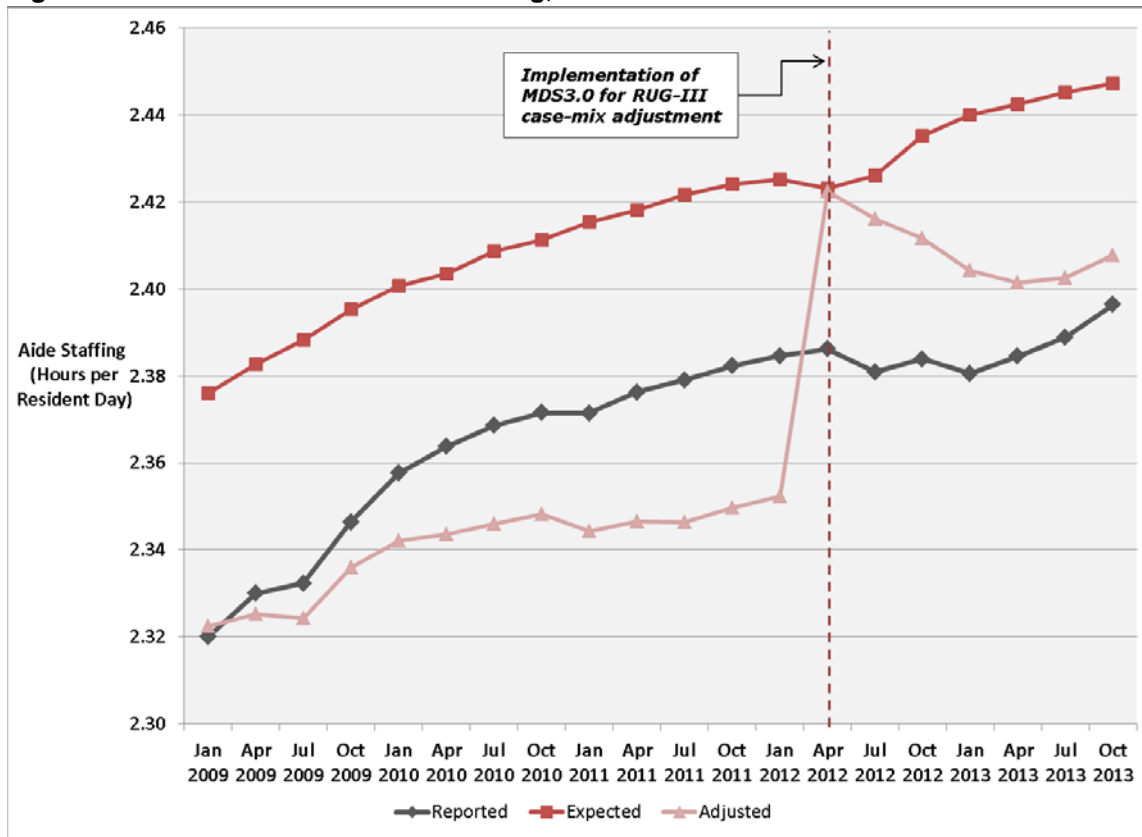
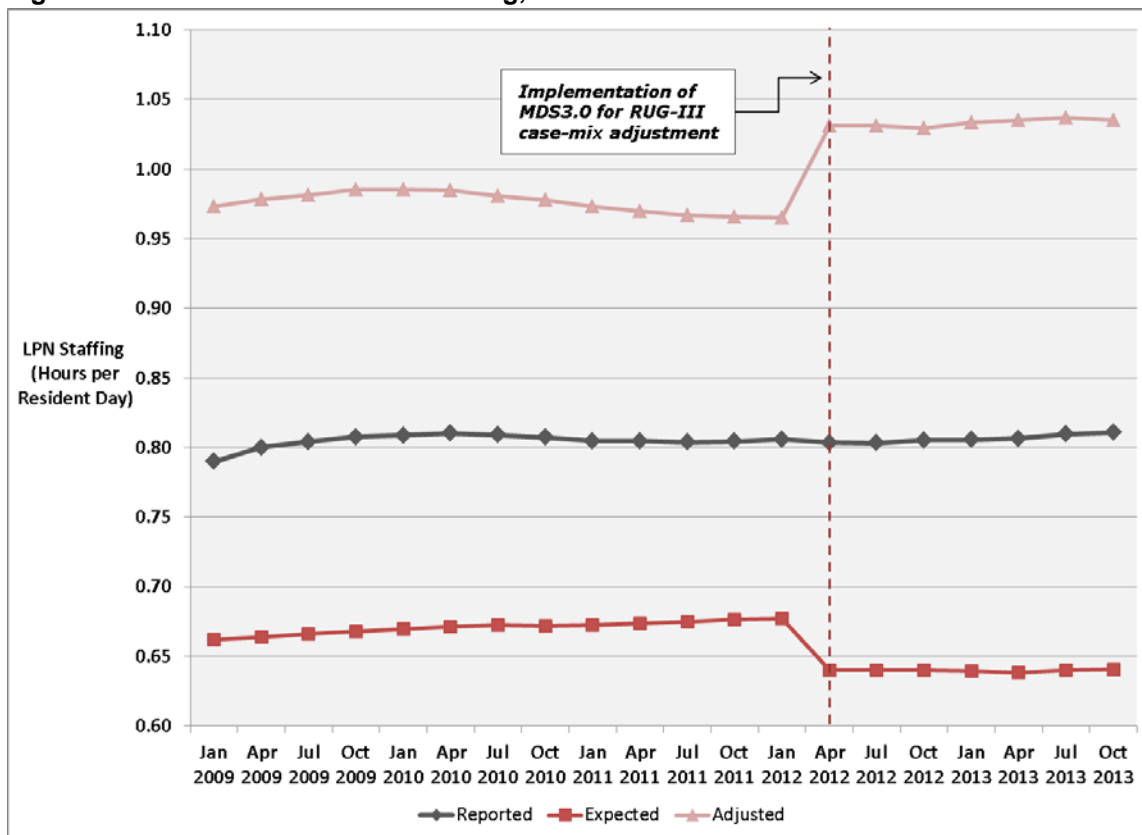


Figure 3.12d Median LPN/LVN Staffing, 2009 – 2013



In the 3.5 year period leading up to the MDS 2.0 to 3.0 transition, reported staffing levels increased for all staffing types, and because these increases were greater than changes in expected staffing, all types of adjusted staffing increased. Proportionately, by far the largest increases are seen for RN staffing (Figure 3.12b), where the median of reported staffing increased by 21.5 percent between January 2009 and January 2012; expected RN staffing increased by just 3.8 percent over the same interval; thus, adjusted RN staffing increased by 18.6 percent. By contrast, adjusted aide staffing increased by just 1.3 percent during this time and LPN/LVN declined negligibly (0.8 percent). These increases in RN staffing have been the biggest contributor to the observed increases in the Staffing ratings, and previous analyses have indicated that the increase in reported RN staffing began soon after the implementation of the Five-Star Quality Rating System. Additionally, the gradual increases in reported RN staffing have continued through the MDS 2.0 to 3.0 transition, so that reported RN staffing has increased by more than one-quarter (29.3 percent) during the entire five years of the Five-Star Rating System. Reported aide staffing fluctuated during 2012, but increased steadily during 2013; over the five years analyzed, the increase has been modest – 3.3 percent.

From January 2009 up until the MDS 2.0 to 3.0 transition, expected aide staffing increased steadily, though modestly—by 2.1 percent (Figure 3.12c). Over the same interval, there were some small dips in reported nurse aide staffing, so adjusted staffing generally followed the trend of reported staffing, though the extent to which reported staffing exceeded adjusted staffing appeared to have increased slightly over time. In April 2012, median adjusted aide staffing jumped by 3.0 percent, caused by the combination of the decline in expected staffing occasioned by the MDS transition and the accumulated increase in the national average reported staffing, which is also part of the adjusted staffing calculation. Since then, a continued increase in the MDS 3.0-based expected aide staffing levels led to some declines in adjusted aide staffing, not observed for other staff types. It appears that, with the increase in reported aide staffing, that this trend toward lower adjusted aide staffing may have reversed in the latter part of 2013. CMS will continue to monitor this pattern.

LPN/LVN staffing (Figure 3.12d) differs from both RN and aide staffing in that reported staffing has consistently exceeded expected staffing levels. As noted above, reported LPN/LVN staffing has remained essentially flat over the past five years. As for other staff types, the MDS 3.0 RUG system produces lower expected staffing estimates than its predecessor; hence, the transition caused increases in adjusted staffing levels.

4. Conclusions

This report presents a brief overview on the construction of the five-star ratings for U.S. Nursing Homes presented on *Nursing Home Compare* as well as corresponding descriptive information on the ratings and their components. A benefit of this rather complex behind-the-scenes computation is that the nursing home ratings that are the final result of this process are readily understandable to consumers. The Five-Star Quality Rating System has brought increased attention to the data that are publicly reported on *Nursing Home Compare*, providing incentives for nursing homes to improve their performance. By making the methodology used in calculating ratings transparent, CMS hopes that providers will understand what changes they need to make to improve their ratings.

The analyses presented in this report provide some evidence of improvement in performance since the implementation of the Five-Star Quality Rating System. Specifically, the analyses show that, since the implementation of the Five-Star Quality Rating System, there have been improvements in the quality measure and staffing domains.

- Due to the design of the Five-Star Quality Rating System, there has been essentially no change in the distribution of Health Inspection ratings. However, analysis of the average number of deficiencies and health inspection scores shows a general improvement in health inspection scores for more recent surveys except for the one-star nursing homes.
- The proportion of nursing homes receiving a one-star QM rating decreased from 20.0 percent to 3.2 percent during the rating system's first five years. The proportion receiving a four or five-star rating increased from 34.1 percent to 71.0 percent. The QM rating was held constant for most of 2011 and the first half of 2012; the design of the QM rating was substantially revised in July 2012 to incorporate the new MDS 3.0 QMs. Since that time there have been large improvements in the reported QMs, which CMS is analyzing in greater detail.
- From January 2009 to December 2013, the proportion of nursing homes with a one-star Staffing rating decreased from 22.9 percent to 12.1 percent. While there was a modest increase in the proportion of nursing homes with a five-star Staffing rating (7.2 percent to 10.5 percent), the proportion with a four-star Staffing rating increased from 30.6 percent to 42.5 percent. Additional analyses show that the greatest changes in staffing are due to substantial increases in reported levels of RN staffing, throughout 2009-2013.
- Reflecting the improvements in QM and Staffing ratings, there were also improvements in Overall Quality ratings during the five years examined. In January 2009, 22.7 percent of nursing homes had a one-star rating while 35.2 percent had a four- or five-star rating. By December 2013, the proportion with a one-star rating had declined to 10.5 percent, while just over half (50.5 percent) had a rating of four or five stars.

Given other factors besides the rating system that can affect performance on the measures used in the system, it is not possible to attribute changes solely to the Five-Star Quality Rating System. Observed changes in quality measures and staffing are based on data that are self-reported by providers⁹. It is possible that these changes reflect changes in reporting practices rather than real changes in quality—i.e., increases in staffing levels or improvements in the quality measures. It is likely that some of the observed

⁹ An exception with the MDS 3.0 QMs is that the pain measure is based on resident-self report; however, it is still up to facility to assess residents' ability to complete the pain interview.

change reflects more accurate reporting because of the additional public scrutiny of the information, since the inception of the rating system, and perhaps since the introduction of MDS 3.0. However, one would probably expect that increased accuracy in reporting alone would lead to as many increases in ratings as decreases, and this has not been observed. For the previous yearly reports, we conducted some additional analyses to help determine whether observed change has been caused by the Five-Star Quality Rating System. We used the current rating algorithm and applied it to data for the 11 months just prior to the first public reporting of the five-star ratings (i.e., January through November 2008) to generate hypothetical five-star ratings in each domain for this period. In general, we found less evidence of improved performance during 2008, suggesting that more recent changes may in fact be at least partly attributable to the introduction of the Five-Star Quality Rating System. However, it is not possible to determine whether these changes reflect changes in reporting or changes in practice.

5. Appendix

Tables of Rating Distributions for January 2009 and December 2013, by State

Table A1. Prevalence of 1-star and Five-Star Nursing homes by State - January 2009 and December 2013

Percent of Nursing homes	Overall Quality				Health Inspections				Quality Measures				Staffing				RN Staffing			
	★		★★★★★		★		★★★★★		★		★★★★★		★		★★★★★		★		★★★★★	
	Jan 09	Dec 13	Jan 09	Dec 13	Jan 09	Dec 13	Jan 09	Dec 13	Jan 09	Dec 13	Jan 09	Dec 13	Jan 09	Dec 13	Jan 09	Dec 13	Jan 09	Dec 13	Jan 09	Dec 13
All States	22.7	10.5	11.8	24.1	19.8	19.7	10.6	10.9	20.0	3.2	10.1	34.8	22.9	11.9	7.2	10.5	23.7	10.8	12.0	20.5
Alabama	16.0	3.1	18.2	27.6	19.9	19.7	10.4	11.0	10.0	0.9	22.5	46.5	10.8	3.1	4.5	5.8	31.4	7.5	4.9	10.6
Alaska	0.0	0.0	33.3	25.0	20.0	25.0	20.0	12.5	8.3	13.3	8.3	13.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Arizona	21.2	6.3	15.2	32.2	19.7	17.5	11.4	13.3	22.7	4.2	6.8	35.0	14.0	2.8	5.0	19.1	18.2	1.4	9.1	32.6
Arkansas	20.2	6.2	13.2	22.9	19.7	18.5	10.1	10.6	17.3	4.4	12.9	33.9	16.2	4.5	2.7	2.7	54.5	19.2	3.2	2.7
California	21.5	6.1	12.3	32.4	19.8	20.5	10.3	10.6	27.8	2.1	11.1	49.9	16.9	3.8	9.1	14.4	27.5	8.8	12.6	22.0
Colorado	18.1	6.3	10.0	31.7	20.0	19.0	10.5	12.2	22.5	2.9	6.2	31.7	8.5	0.5	10.1	21.7	5.0	0.5	21.1	48.8
Connecticut	10.0	4.8	17.4	31.2	19.5	19.0	10.4	9.1	13.3	0.0	11.6	48.5	4.3	1.3	12.9	16.1	3.0	1.3	26.7	31.3
Delaware	14.0	0.0	27.9	35.6	18.6	22.2	11.6	11.1	14.6	0.0	12.2	46.7	2.6	2.3	28.2	27.3	7.7	0.0	35.9	50.0
District of Columbia	16.7	0.0	16.7	47.4	16.7	21.1	11.1	10.5	11.1	0.0	11.1	68.4	5.6	0.0	22.2	26.3	16.7	0.0	27.8	31.6
Florida	18.2	6.8	11.4	27.6	19.8	18.8	10.1	10.3	23.7	1.8	6.1	39.1	2.8	4.1	3.4	6.1	27.5	10.5	3.6	7.8
Georgia	32.2	14.6	5.3	18.3	19.9	19.2	10.9	11.8	18.8	3.4	7.6	34.6	61.5	31.9	1.2	2.6	67.6	30.7	2.1	3.2
Hawaii	6.5	2.5	28.3	40.0	19.6	15.0	10.9	10.0	2.3	0.0	25.6	75.7	2.4	2.8	33.3	22.2	0.0	2.8	52.4	72.2
Idaho	14.5	7.9	11.8	27.6	19.7	18.4	10.5	10.5	23.7	11.8	6.6	31.6	5.9	0.0	7.4	23.0	4.4	0.0	14.7	36.5
Illinois	27.0	10.9	10.7	22.6	19.9	19.8	11.1	11.3	28.9	4.4	12.8	34.2	29.8	11.2	8.6	13.5	19.4	7.4	17.4	30.8
Indiana	27.6	14.0	8.7	21.7	20.3	19.5	10.5	11.4	16.7	4.1	8.7	31.5	39.9	12.0	3.7	7.8	31.8	6.8	6.1	13.1
Iowa	18.2	8.3	14.6	23.9	19.8	20.0	10.8	12.4	14.3	2.3	13.8	28.3	17.9	3.4	5.3	11.2	7.5	1.6	14.3	32.3
Kansas	18.0	8.7	11.7	28.4	20.1	19.8	10.2	10.5	18.7	5.1	13.0	28.5	14.7	3.7	7.5	20.8	13.1	3.7	15.0	29.2
Kentucky	23.3	11.7	8.7	15.9	19.9	20.1	10.5	10.2	19.9	8.5	7.0	14.6	26.3	8.6	8.9	11.1	22.6	5.0	11.9	15.4
Louisiana	38.4	21.8	2.8	15.0	19.7	19.6	10.6	12.5	29.9	5.0	2.1	20.4	63.3	39.1	3.7	2.6	75.2	40.1	4.4	3.3
Maine	8.3	2.8	19.3	30.8	19.3	18.7	10.1	12.1	11.1	0.9	8.3	29.9	0.0	0.0	25.5	36.5	0.0	0.0	43.4	69.2

Percent of Nursing homes	Overall Quality				Health Inspections				Quality Measures				Staffing				RN Staffing			
	★		★★★★★		★		★★★★★		★		★★★★★		★		★★★★★		★		★★★★★	
	Jan 09	Dec 13	Jan 09	Dec 13	Jan 09	Dec 13	Jan 09	Dec 13	Jan 09	Dec 13	Jan 09	Dec 13	Jan 09	Dec 13	Jan 09	Dec 13	Jan 09	Dec 13	Jan 09	Dec 13
Maryland	20.5	5.8	14.4	28.8	19.7	21.2	10.5	9.3	12.2	0.4	15.7	50.4	16.6	2.7	8.5	10.3	22.0	3.1	13.9	26.3
Massachusetts	13.6	5.0	17.8	33.1	19.9	20.0	11.8	12.6	14.6	0.7	13.7	43.6	5.7	0.2	10.7	14.1	3.6	0.2	21.9	40.6
Michigan	20.5	7.1	11.7	28.6	19.8	19.6	10.5	11.3	20.3	1.9	10.5	36.4	15.4	4.6	7.2	11.8	12.9	4.3	11.7	22.8
Minnesota	14.5	5.0	16.0	29.4	19.9	19.4	10.1	11.4	8.8	1.1	19.2	35.3	12.0	2.7	3.4	12.8	7.0	1.1	7.8	30.7
Mississippi	21.5	10.3	14.5	17.2	20.0	20.7	11.0	8.9	19.6	5.9	10.6	25.7	14.4	9.0	8.0	10.1	17.1	7.0	9.6	13.6
Missouri	24.2	9.8	8.6	21.4	19.8	19.0	10.6	11.0	22.1	4.9	9.7	31.4	33.4	8.7	3.2	5.4	41.5	14.9	3.6	7.7
Montana	14.3	4.8	15.4	24.1	19.8	20.5	12.1	8.4	19.1	6.1	4.5	15.9	8.2	1.2	32.9	35.8	5.9	1.2	48.2	55.6
Nebraska	14.4	10.1	14.4	21.7	19.8	20.7	10.4	10.1	16.2	6.5	12.6	24.4	10.0	3.3	10.9	17.8	9.0	4.2	19.0	30.5
Nevada	25.0	11.8	14.6	29.4	18.8	17.6	10.4	15.7	26.7	2.0	2.2	26.0	19.1	6.4	14.9	25.5	10.6	4.3	21.3	42.6
New Hampshire	6.4	9.2	20.5	34.2	19.2	18.4	10.3	15.8	10.3	0.0	14.1	38.2	2.6	0.0	22.4	26.0	1.3	0.0	32.9	45.2
New Jersey	21.9	10.2	12.7	31.9	19.7	19.5	10.8	9.1	15.0	1.1	11.0	46.7	19.7	8.9	8.0	11.6	10.9	3.9	17.1	26.6
New Mexico	29.4	9.9	11.8	23.9	19.1	15.5	10.3	15.5	19.1	7.0	5.9	21.1	33.9	11.8	11.3	13.2	24.2	7.4	12.9	22.1
New York	20.9	12.1	14.2	23.0	20.0	20.0	10.3	10.6	14.3	2.1	13.5	43.0	22.2	21.5	5.2	4.9	16.1	13.6	11.3	8.1
North Carolina	26.9	13.3	11.4	21.7	19.8	19.3	10.2	11.8	14.1	2.2	5.7	33.2	29.2	15.8	6.5	8.3	21.6	9.8	8.3	12.3
North Dakota	8.4	3.7	14.5	33.3	19.3	21.0	10.8	12.3	14.5	0.0	10.8	35.8	2.4	0.0	17.1	25.9	2.4	0.0	25.6	39.5
Ohio	27.9	15.2	9.4	20.4	20.0	19.2	10.3	11.4	27.7	3.5	5.2	31.1	28.4	21.7	3.9	4.4	19.1	11.7	6.5	8.0
Oklahoma	26.1	18.9	7.3	10.1	19.7	19.5	10.5	9.4	32.0	14.5	3.9	9.6	17.9	17.3	2.7	2.7	45.3	34.7	3.7	3.7
Oregon	17.4	3.7	11.6	20.0	19.6	20.7	10.1	8.9	37.2	3.0	2.2	21.5	3.7	0.8	14.0	19.1	4.4	1.5	19.9	31.3
Pennsylvania	25.8	13.2	11.5	22.9	20.0	19.5	12.5	10.7	17.7	1.9	9.1	36.8	25.8	13.2	8.0	8.7	12.5	5.2	14.2	18.9
Rhode Island	15.3	3.6	14.1	27.4	20.0	21.4	11.8	11.9	20.0	1.2	11.8	25.0	4.9	1.2	14.8	19.5	1.2	1.2	34.6	57.3
South Carolina	27.4	8.0	13.1	26.2	20.0	20.3	10.3	11.8	17.7	2.1	6.9	36.9	25.6	7.9	8.9	13.0	31.5	4.0	9.5	20.9
South Dakota	14.7	6.4	15.6	24.5	19.3	20.9	10.1	9.1	14.7	2.7	9.2	30.0	5.6	1.8	6.5	18.2	1.9	2.7	25.9	48.2

Percent of Nursing homes	Overall Quality				Health Inspections				Quality Measures				Staffing				RN Staffing			
	★		★★★★★		★		★★★★★		★		★★★★★		★		★★★★★		★		★★★★★	
	Jan 09	Dec 13	Jan 09	Dec 13	Jan 09	Dec 13	Jan 09	Dec 13	Jan 09	Dec 13	Jan 09	Dec 13	Jan 09	Dec 13	Jan 09	Dec 13	Jan 09	Dec 13	Jan 09	Dec 13
Tennessee	30.1	14.6	7.9	18.7	19.9	21.2	10.8	11.1	23.8	2.9	8.3	27.4	46.0	15.1	2.3	3.2	43.6	13.8	4.0	7.1
Texas	27.6	20.1	9.8	14.6	19.9	20.9	10.3	9.7	11.7	3.6	14.2	33.7	42.2	40.4	2.3	3.3	48.0	37.8	2.6	4.5
Utah	17.6	9.6	9.9	17.0	17.6	22.3	11.0	10.6	27.8	8.5	8.9	19.1	11.9	1.1	11.9	19.4	6.0	0.0	19.0	62.4
Vermont	17.5	5.3	17.5	23.7	20.0	15.8	10.0	13.2	20.0	0.0	15.0	23.7	13.2	2.7	7.9	10.8	13.2	2.7	18.4	40.5
Virginia	32.0	8.5	10.2	19.9	20.0	19.6	10.9	11.7	16.1	1.8	7.7	35.9	40.9	15.9	7.2	11.6	39.8	9.1	9.1	13.0
Washington	26.6	8.0	11.8	28.1	19.8	19.6	10.1	10.7	38.0	1.8	3.8	29.9	11.4	1.8	13.1	17.2	6.6	0.0	24.0	48.4
West Virginia	27.7	17.7	9.2	13.7	20.0	18.5	10.0	10.5	25.4	10.5	6.2	16.1	33.9	22.0	10.5	6.5	22.6	9.8	12.1	10.6
Wisconsin	18.3	5.5	12.6	30.1	19.8	19.5	10.0	9.6	14.2	0.5	7.2	37.5	8.2	1.1	9.2	15.3	4.0	1.1	17.7	44.2
Wyoming	20.5	7.9	12.8	31.6	17.9	15.8	10.3	13.2	30.8	5.4	0.0	35.1	7.7	0.0	35.9	22.2	7.7	0.0	46.2	66.7

Table A2. Distribution of Overall Quality Ratings, by State, January 2009 and December 2013

	Overall Quality Ratings											
	January 2009						December 2013					
	Total #	Percent of Nursing Homes					Total #	Percent of Nursing Homes				
		★	★★	★★★	★★★★	★★★★★		★	★★	★★★	★★★★	★★★★★
All States	15,555	22.7	20.7	21.5	23.4	11.8	15,504	10.5	20.8	18.2	26.5	24.1
Alabama	231	16.0	20.8	15.2	29.9	18.2	228	3.1	22.4	13.2	33.8	27.6
Alaska	15	0.0	26.7	20.0	20.0	33.3	16	0.0	43.8	12.5	18.8	25.0
Arizona	132	21.2	22.0	19.7	22.0	15.2	143	6.3	23.8	14.7	23.1	32.2
Arkansas	228	20.2	19.7	27.2	19.7	13.2	227	6.2	20.7	17.2	33.0	22.9
California	1,247	21.5	21.3	22.9	22.1	12.3	1,221	6.1	20.3	15.5	25.8	32.4
Colorado	210	18.1	19.0	20.5	32.4	10.0	205	6.3	18.5	14.1	29.3	31.7
Connecticut	241	10.0	22.4	21.6	28.6	17.4	231	4.8	20.3	17.3	26.4	31.2
Delaware	43	14.0	20.9	18.6	18.6	27.9	45	0.0	24.4	15.6	24.4	35.6
District of Columbia	18	16.7	11.1	22.2	33.3	16.7	19	0.0	21.1	15.8	15.8	47.4
Florida	676	18.2	20.4	21.9	28.1	11.4	681	6.8	18.5	17.3	29.8	27.6
Georgia	357	32.2	22.7	23.2	16.5	5.3	355	14.6	25.1	19.2	22.8	18.3
Hawaii	46	6.5	28.3	10.9	26.1	28.3	40	2.5	12.5	17.5	27.5	40.0
Idaho	76	14.5	18.4	21.1	34.2	11.8	76	7.9	18.4	14.5	31.6	27.6
Illinois	784	27.0	21.4	20.7	20.2	10.7	762	10.9	20.5	20.6	25.5	22.6
Indiana	497	27.6	23.1	19.7	20.9	8.7	508	14.0	16.9	21.9	25.6	21.7
Iowa	444	18.2	20.7	20.0	26.4	14.6	444	8.3	18.9	17.1	31.8	23.9
Kansas	334	18.0	23.7	18.3	28.4	11.7	334	8.7	19.5	18.0	25.4	28.4
Kentucky	287	23.3	22.3	23.0	22.6	8.7	283	11.7	23.0	20.8	28.6	15.9

	Overall Quality Ratings											
	January 2009						December 2013					
	Total #	Percent of Nursing Homes					Total #	Percent of Nursing Homes				
		★	★★	★★★	★★★★	★★★★★		★	★★	★★★	★★★★	★★★★★
Louisiana	284	38.4	25.4	19.4	14.1	2.8	280	21.8	22.9	22.9	17.5	15.0
Maine	109	8.3	20.2	17.4	34.9	19.3	107	2.8	17.8	17.8	30.8	30.8
Maryland	229	20.5	17.9	22.7	24.5	14.4	226	5.8	23.0	16.8	25.7	28.8
Massachusetts	433	13.6	21.9	21.2	25.4	17.8	420	5.0	19.0	17.1	25.7	33.1
Michigan	419	20.5	18.9	22.7	26.3	11.7	423	7.1	19.1	18.0	27.2	28.6
Minnesota	387	14.5	21.2	21.7	26.6	16.0	377	5.0	18.3	18.6	28.6	29.4
Mississippi	200	21.5	19.0	20.0	25.0	14.5	203	10.3	22.7	17.2	32.5	17.2
Missouri	509	24.2	23.0	23.4	20.8	8.6	510	9.8	20.4	19.4	29.0	21.4
Montana	91	14.3	20.9	15.4	34.1	15.4	83	4.8	28.9	15.7	26.5	24.1
Nebraska	222	14.4	20.7	23.0	27.5	14.4	217	10.1	17.5	20.3	30.4	21.7
Nevada	48	25.0	12.5	31.3	16.7	14.6	51	11.8	15.7	21.6	21.6	29.4
New Hampshire	78	6.4	24.4	19.2	29.5	20.5	76	9.2	13.2	13.2	30.3	34.2
New Jersey	361	21.9	18.0	24.1	23.3	12.7	364	10.2	18.7	18.4	20.9	31.9
New Mexico	68	29.4	22.1	16.2	20.6	11.8	71	9.9	18.3	28.2	19.7	23.9
New York	650	20.9	21.4	19.5	24.0	14.2	630	12.1	21.6	18.3	25.1	23.0
North Carolina	420	26.9	17.6	21.2	22.9	11.4	414	13.3	20.8	16.2	28.0	21.7
North Dakota	83	8.4	18.1	16.9	42.2	14.5	81	3.7	18.5	11.1	33.3	33.3
Ohio	946	27.9	21.0	20.8	20.8	9.4	945	15.2	21.8	19.3	23.3	20.4
Oklahoma	314	26.1	19.4	21.0	26.1	7.3	307	18.9	21.2	21.5	28.3	10.1

	Overall Quality Ratings											
	January 2009						December 2013					
	Total #	Percent of Nursing Homes					Total #	Percent of Nursing Homes				
		★	★★	★★★	★★★★	★★★★★		★	★★	★★★	★★★★	★★★★★
Oregon	138	17.4	20.3	29.0	21.7	11.6	135	3.7	20.0	20.0	36.3	20.0
Pennsylvania	705	25.8	19.1	20.4	23.1	11.5	702	13.2	19.2	19.7	24.9	22.9
Rhode Island	85	15.3	17.6	21.2	31.8	14.1	84	3.6	21.4	16.7	31.0	27.4
South Carolina	175	27.4	16.0	22.9	20.6	13.1	187	8.0	21.4	17.6	26.7	26.2
South Dakota	109	14.7	26.6	19.3	23.9	15.6	110	6.4	24.5	20.9	23.6	24.5
Tennessee	316	30.1	24.1	21.5	16.5	7.9	316	14.6	21.8	18.4	26.6	18.7
Texas	1,109	27.6	20.9	22.6	19.0	9.8	1,183	20.1	24.8	18.8	21.7	14.6
Utah	91	17.6	20.9	25.3	26.4	9.9	94	9.6	18.1	22.3	33.0	17.0
Vermont	40	17.5	20.0	22.5	22.5	17.5	38	5.3	15.8	21.1	34.2	23.7
Virginia	275	32.0	19.3	18.5	20.0	10.2	281	8.5	29.9	15.3	26.3	19.9
Washington	237	26.6	16.0	21.5	24.1	11.8	224	8.0	16.5	17.9	29.5	28.1
West Virginia	130	27.7	23.1	18.5	21.5	9.2	124	17.7	21.0	20.2	27.4	13.7
Wisconsin	389	18.3	15.4	26.5	27.2	12.6	385	5.5	20.3	15.3	28.8	30.1
Wyoming	39	20.5	12.8	23.1	30.8	12.8	38	7.9	15.8	13.2	31.6	31.6

Table A3. Distribution of Ratings for Health Inspections, by State, January 2009 and December 2013

	Ratings for Health Inspections											
	January 2009						December 2013					
	Total #	Percent of Nursing Homes					Total #	Percent of Nursing Homes				
		★	★★	★★★	★★★★	★★★★★		★	★★	★★★	★★★★	★★★★★
All States	15,555	19.8	23.1	23.2	23.3	10.6	15,504	19.7	22.9	23.2	23.2	10.9
Alabama	231	19.9	23.4	21.6	24.7	10.4	228	19.7	21.9	24.6	22.8	11.0
Alaska	15	20.0	20.0	26.7	13.3	20.0	16	25.0	25.0	25.0	12.5	12.5
Arizona	132	19.7	22.0	25.0	22.0	11.4	143	17.5	23.1	23.8	22.4	13.3
Arkansas	228	19.7	23.2	23.7	23.2	10.1	227	18.5	21.6	26.0	23.3	10.6
California	1,247	19.8	23.5	22.9	23.5	10.3	1,221	20.5	23.3	23.1	22.4	10.6
Colorado	210	20.0	23.3	22.9	23.3	10.5	205	19.0	20.0	22.9	25.9	12.2
Connecticut	241	19.5	23.7	22.4	24.1	10.4	231	19.0	27.3	22.1	22.5	9.1
Delaware	43	18.6	23.3	23.3	23.3	11.6	45	22.2	17.8	22.2	26.7	11.1
District of Columbia	18	16.7	22.2	27.8	22.2	11.1	19	21.1	21.1	10.5	36.8	10.5
Florida	676	19.8	23.1	23.5	23.5	10.1	681	18.8	22.5	23.6	24.8	10.3
Georgia	357	19.9	22.4	22.1	24.6	10.9	355	19.2	21.1	23.4	24.5	11.8
Hawaii	46	19.6	21.7	23.9	23.9	10.9	40	15.0	27.5	22.5	25.0	10.0
Idaho	76	19.7	22.4	23.7	23.7	10.5	76	18.4	23.7	25.0	22.4	10.5
Illinois	784	19.9	23.2	23.2	22.6	11.1	762	19.8	22.8	23.1	23.0	11.3
Indiana	497	20.3	23.1	23.1	22.9	10.5	508	19.5	22.8	23.2	23.0	11.4
Iowa	444	19.8	23.0	23.0	23.4	10.8	444	20.0	23.0	22.1	22.5	12.4
Kansas	334	20.1	23.4	23.4	23.1	10.2	334	19.8	22.8	23.4	23.7	10.5

	Ratings for Health Inspections											
	January 2009						December 2013					
	Total #	Percent of Nursing Homes					Total #	Percent of Nursing Homes				
		★	★★	★★★	★★★★	★★★★★		★	★★	★★★	★★★★	★★★★★
Kentucky	287	19.9	23.0	23.3	23.3	10.5	283	20.1	23.3	19.4	26.9	10.2
Louisiana	284	19.7	23.6	23.2	22.9	10.6	280	19.6	22.9	21.8	23.2	12.5
Maine	109	19.3	23.9	22.9	23.9	10.1	107	18.7	20.6	25.2	23.4	12.1
Maryland	229	19.7	23.6	22.3	24.0	10.5	226	21.2	24.3	21.2	23.9	9.3
Massachusetts	433	19.9	22.2	24.0	22.2	11.8	420	20.0	22.1	21.9	23.3	12.6
Michigan	419	19.8	23.4	23.4	22.9	10.5	423	19.6	23.4	22.5	23.2	11.3
Minnesota	387	19.9	23.3	22.7	24.0	10.1	377	19.4	22.0	24.9	22.3	11.4
Mississippi	200	20.0	23.0	23.0	23.0	11.0	203	20.7	24.1	22.2	24.1	8.9
Missouri	509	19.8	23.2	22.8	23.6	10.6	510	19.0	23.9	23.7	22.4	11.0
Montana	91	19.8	23.1	23.1	22.0	12.1	83	20.5	25.3	27.7	18.1	8.4
Nebraska	222	19.8	22.5	23.9	23.4	10.4	217	20.7	24.0	20.7	24.4	10.1
Nevada	48	18.8	22.9	25.0	22.9	10.4	51	17.6	27.5	23.5	15.7	15.7
New Hampshire	78	19.2	21.8	24.4	24.4	10.3	76	18.4	19.7	18.4	27.6	15.8
New Jersey	361	19.7	22.4	24.4	22.7	10.8	364	19.5	23.9	20.6	26.9	9.1
New Mexico	68	19.1	23.5	23.5	23.5	10.3	71	15.5	25.4	22.5	21.1	15.5
New York	650	20.0	23.2	23.4	23.1	10.3	630	20.0	22.5	24.0	22.9	10.6
North Carolina	420	19.8	23.3	22.6	24.0	10.2	414	19.3	22.2	22.5	24.2	11.8
North Dakota	83	19.3	22.9	24.1	22.9	10.8	81	21.0	18.5	23.5	24.7	12.3
Ohio	946	20.0	23.3	22.3	24.2	10.3	945	19.2	22.5	23.8	23.1	11.4

	Ratings for Health Inspections											
	January 2009						December 2013					
	Total #	Percent of Nursing Homes					Total #	Percent of Nursing Homes				
		★	★★	★★★	★★★★	★★★★★		★	★★	★★★	★★★★	★★★★★
Oklahoma	314	19.7	23.6	22.9	23.2	10.5	307	19.5	23.5	23.8	23.8	9.4
Oregon	138	19.6	23.2	23.9	23.2	10.1	135	20.7	23.0	26.7	20.7	8.9
Pennsylvania	705	20.0	23.3	23.0	21.3	12.5	702	19.5	22.4	23.4	24.1	10.7
Rhode Island	85	20.0	22.4	23.5	22.4	11.8	84	21.4	20.2	21.4	25.0	11.9
South Carolina	175	20.0	22.3	24.0	23.4	10.3	187	20.3	22.5	21.9	23.5	11.8
South Dakota	109	19.3	23.9	22.9	23.9	10.1	110	20.9	27.3	26.4	16.4	9.1
Tennessee	316	19.9	23.1	22.5	23.7	10.8	316	21.2	21.8	24.7	21.2	11.1
Texas	1,109	19.9	23.1	23.5	23.2	10.3	1,183	20.9	23.5	23.8	22.1	9.7
Utah	91	17.6	24.2	24.2	23.1	11.0	94	22.3	22.3	22.3	22.3	10.6
Vermont	40	20.0	22.5	22.5	25.0	10.0	38	15.8	26.3	21.1	23.7	13.2
Virginia	275	20.0	22.2	24.0	22.9	10.9	281	19.6	26.0	20.3	22.4	11.7
Washington	237	19.8	22.8	24.1	23.2	10.1	224	19.6	22.3	23.7	23.7	10.7
West Virginia	130	20.0	23.1	23.1	23.8	10.0	124	18.5	22.6	23.4	25.0	10.5
Wisconsin	389	19.8	23.4	23.1	23.7	10.0	385	19.5	21.8	26.5	22.6	9.6
Wyoming	39	17.9	23.1	25.6	23.1	10.3	38	15.8	26.3	18.4	26.3	13.2

Table A4. Distribution of Ratings for MDS Quality Measures, by State, January 2009 and December 2012

	Ratings for MDS Quality Measures											
	January 2009						December 2013					
	Total #	Percent of Nursing Homes					Total #	Percent of Nursing Homes				
		★	★★	★★★	★★★★	★★★★★		★	★★	★★★	★★★★	★★★★★
All States	15,459	20.0	22.8	23.2	24.0	10.1	15,458	3.2	8.8	17.0	36.2	34.8
Alabama	231	10.0	20.3	16.0	31.2	22.5	228	0.9	3.5	13.2	36.0	46.5
Alaska	12	8.3	25.0	8.3	50.0	8.3	15	13.3	13.3	13.3	46.7	13.3
Arizona	132	22.7	25.8	24.2	20.5	6.8	143	4.2	4.9	21.0	35.0	35.0
Arkansas	225	17.3	21.3	20.4	28.0	12.9	227	4.4	9.3	20.3	32.2	33.9
California	1,233	27.8	21.2	20.0	19.9	11.1	1,211	2.1	5.2	11.8	31.0	49.9
Colorado	209	22.5	21.5	22.5	27.3	6.2	205	2.9	7.3	17.6	40.5	31.7
Connecticut	241	13.3	22.4	25.3	27.4	11.6	231	0.0	0.9	11.3	39.4	48.5
Delaware	41	14.6	12.2	26.8	34.1	12.2	45	0.0	0.0	11.1	42.2	46.7
District of Columbia	18	11.1	5.6	22.2	50.0	11.1	19	0.0	0.0	0.0	31.6	68.4
Florida	674	23.7	27.3	21.5	21.4	6.1	681	1.8	6.9	14.0	38.3	39.1
Georgia	356	18.8	24.2	29.8	19.7	7.6	355	3.4	7.3	16.9	37.7	34.6
Hawaii	43	2.3	16.3	25.6	30.2	25.6	37	0.0	0.0	0.0	24.3	75.7
Idaho	76	23.7	34.2	19.7	15.8	6.6	76	11.8	6.6	22.4	27.6	31.6
Illinois	776	28.9	22.3	20.9	15.2	12.8	755	4.4	11.4	18.4	31.7	34.2
Indiana	497	16.7	21.7	23.7	29.2	8.7	508	4.1	9.6	19.3	35.4	31.5
Iowa	442	14.3	19.2	24.2	28.5	13.8	442	2.3	9.3	22.6	37.6	28.3
Kansas	332	18.7	20.8	23.2	24.4	13.0	333	5.1	12.6	15.9	37.8	28.5

	Ratings for MDS Quality Measures											
	January 2009						December 2013					
	Total #	Percent of Nursing Homes					Total #	Percent of Nursing Homes				
		★	★★	★★★	★★★★	★★★★★		★	★★	★★★	★★★★	★★★★★
Kentucky	286	19.9	24.1	22.7	26.2	7.0	281	8.5	17.8	24.6	34.5	14.6
Louisiana	284	29.9	27.8	22.9	17.3	2.1	279	5.0	17.2	22.9	34.4	20.4
Maine	108	11.1	22.2	24.1	34.3	8.3	107	0.9	4.7	22.4	42.1	29.9
Maryland	229	12.2	20.5	20.5	31.0	15.7	226	0.4	3.5	8.0	37.6	50.4
Massachusetts	432	14.6	23.4	25.0	23.4	13.7	420	0.7	5.2	12.4	38.1	43.6
Michigan	418	20.3	19.9	24.2	25.1	10.5	423	1.9	8.0	17.7	35.9	36.4
Minnesota	386	8.8	20.5	23.3	28.2	19.2	377	1.1	4.5	18.8	40.3	35.3
Mississippi	199	19.6	22.6	21.6	25.6	10.6	202	5.9	10.9	24.3	33.2	25.7
Missouri	507	22.1	22.5	22.7	23.1	9.7	509	4.9	12.8	16.5	34.4	31.4
Montana	89	19.1	25.8	24.7	25.8	4.5	82	6.1	22.0	18.3	37.8	15.9
Nebraska	222	16.2	17.1	23.4	30.6	12.6	217	6.5	11.5	13.4	44.2	24.4
Nevada	45	26.7	28.9	17.8	24.4	2.2	50	2.0	12.0	26.0	34.0	26.0
New Hampshire	78	10.3	24.4	25.6	25.6	14.1	76	0.0	2.6	17.1	42.1	38.2
New Jersey	354	15.0	25.7	22.9	25.4	11.0	364	1.1	4.7	14.0	33.5	46.7
New Mexico	68	19.1	17.6	30.9	26.5	5.9	71	7.0	8.5	22.5	40.8	21.1
New York	645	14.3	20.3	22.3	29.6	13.5	628	2.1	6.4	14.0	34.6	43.0
North Carolina	418	14.1	23.7	26.6	29.9	5.7	413	2.2	9.7	16.7	38.3	33.2
North Dakota	83	14.5	19.3	28.9	26.5	10.8	81	0.0	12.3	18.5	33.3	35.8
Ohio	941	27.7	28.7	21.8	16.6	5.2	943	3.5	11.0	18.2	36.2	31.1

	Ratings for MDS Quality Measures											
	January 2009						December 2013					
	Total #	Percent of Nursing Homes					Total #	Percent of Nursing Homes				
		★	★★	★★★	★★★★	★★★★★		★	★★	★★★	★★★★	★★★★★
Oklahoma	309	32.0	21.7	23.3	19.1	3.9	303	14.5	24.1	20.1	31.7	9.6
Oregon	137	37.2	27.7	20.4	12.4	2.2	135	3.0	8.1	25.9	41.5	21.5
Pennsylvania	701	17.7	24.0	24.3	25.0	9.1	702	1.9	6.3	14.5	40.6	36.8
Rhode Island	85	20.0	20.0	18.8	29.4	11.8	84	1.2	7.1	22.6	44.0	25.0
South Carolina	175	17.7	22.3	26.3	26.9	6.9	187	2.1	8.0	16.6	36.4	36.9
South Dakota	109	14.7	22.0	22.9	31.2	9.2	110	2.7	9.1	16.4	41.8	30.0
Tennessee	315	23.8	23.5	22.5	21.9	8.3	314	2.9	10.5	14.6	44.6	27.4
Texas	1,104	11.7	19.2	26.2	28.7	14.2	1,181	3.6	9.1	19.3	34.3	33.7
Utah	90	27.8	27.8	15.6	20.0	8.9	94	8.5	18.1	24.5	29.8	19.1
Vermont	40	20.0	30.0	27.5	7.5	15.0	38	0.0	13.2	10.5	52.6	23.7
Virginia	274	16.1	23.7	26.3	26.3	7.7	281	1.8	5.3	14.9	42.0	35.9
Washington	234	38.0	20.1	22.2	15.8	3.8	224	1.8	10.7	21.0	36.6	29.9
West Virginia	130	25.4	30.0	20.8	17.7	6.2	124	10.5	19.4	29.0	25.0	16.1
Wisconsin	387	14.2	24.5	28.4	25.6	7.2	384	0.5	5.5	14.8	41.7	37.5
Wyoming	39	30.8	25.6	15.4	28.2	0.0	37	5.4	16.2	24.3	18.9	35.1

Table A5. Distribution of Ratings for Overall Staffing, by State, January 2009 and December 2013

	Ratings for Overall Staffing											
	January 2009						December 2013					
	Total #	Percent of Nursing Homes					Total #	Percent of Nursing Homes				
		★	★★	★★★	★★★★	★★★★★		★	★★	★★★	★★★★	★★★★★
All States	14,713	22.9	19.6	19.8	30.6	7.2	15,179	11.9	14.7	20.1	42.7	10.5
Alabama	223	10.8	23.3	21.1	40.4	4.5	226	3.1	8.8	20.4	61.9	5.8
Alaska	12	0.0	0.0	0.0	0.0	100.0	12	0.0	0.0	0.0	0.0	100.0
Arizona	121	14.0	23.1	20.7	37.2	5.0	141	2.8	9.2	21.3	47.5	19.1
Arkansas	222	16.2	30.6	26.1	24.3	2.7	224	4.5	10.3	26.3	56.3	2.7
California	1,156	16.9	19.4	20.6	34.1	9.1	1,177	3.8	9.3	20.2	52.3	14.4
Colorado	199	8.5	11.6	21.1	48.7	10.1	203	0.5	5.9	15.8	56.2	21.7
Connecticut	232	4.3	6.5	19.0	57.3	12.9	230	1.3	4.3	25.2	53.0	16.1
Delaware	39	2.6	12.8	12.8	43.6	28.2	44	2.3	2.3	11.4	56.8	27.3
District of Columbia	18	5.6	11.1	27.8	33.3	22.2	19	0.0	5.3	15.8	52.6	26.3
Florida	647	2.8	19.5	25.7	48.7	3.4	676	4.1	10.5	19.4	59.9	6.1
Georgia	340	61.5	17.9	10.3	9.1	1.2	348	31.9	22.7	21.8	21.0	2.6
Hawaii	42	2.4	7.1	23.8	33.3	33.3	36	2.8	8.3	8.3	58.3	22.2
Idaho	68	5.9	10.3	17.6	58.8	7.4	74	0.0	6.8	9.5	60.8	23.0
Illinois	689	29.8	27.9	14.4	19.4	8.6	717	11.2	23.4	18.3	33.6	13.5
Indiana	456	39.9	18.6	18.0	19.7	3.7	498	12.0	20.5	22.5	37.1	7.8
Iowa	413	17.9	24.9	17.4	34.4	5.3	436	3.4	14.4	20.0	50.9	11.2
Kansas	306	14.7	17.6	21.6	38.6	7.5	322	3.7	9.6	14.6	51.2	20.8

	Ratings for Overall Staffing											
	January 2009						December 2013					
	Total #	Percent of Nursing Homes					Total #	Percent of Nursing Homes				
		★	★★	★★★	★★★★	★★★★★		★	★★	★★★	★★★★	★★★★★
Kentucky	270	26.3	22.6	17.4	24.8	8.9	279	8.6	17.9	23.7	38.7	11.1
Louisiana	270	63.3	19.6	6.7	6.7	3.7	274	39.1	21.2	15.3	21.9	2.6
Maine	106	0.0	3.8	14.2	56.6	25.5	104	0.0	1.0	7.7	54.8	36.5
Maryland	223	16.6	23.3	21.1	30.5	8.5	224	2.7	8.9	27.7	50.4	10.3
Massachusetts	421	5.7	12.4	23.5	47.7	10.7	419	0.2	6.0	18.4	61.3	14.1
Michigan	403	15.4	18.4	19.1	40.0	7.2	417	4.6	9.1	20.6	54.0	11.8
Minnesota	357	12.0	14.0	29.4	41.2	3.4	375	2.7	7.2	15.7	61.6	12.8
Mississippi	187	14.4	17.1	21.4	39.0	8.0	199	9.0	14.1	21.1	45.7	10.1
Missouri	470	33.4	19.8	20.6	23.0	3.2	504	8.7	15.5	23.0	47.4	5.4
Montana	85	8.2	11.8	12.9	34.1	32.9	81	1.2	7.4	16.0	39.5	35.8
Nebraska	211	10.0	15.6	24.2	39.3	10.9	213	3.3	9.4	16.4	53.1	17.8
Nevada	47	19.1	21.3	14.9	29.8	14.9	47	6.4	14.9	17.0	36.2	25.5
New Hampshire	76	2.6	7.9	15.8	51.3	22.4	73	0.0	6.8	21.9	45.2	26.0
New Jersey	350	19.7	22.0	21.7	28.6	8.0	361	8.9	16.1	26.9	36.6	11.6
New Mexico	62	33.9	19.4	21.0	14.5	11.3	68	11.8	22.1	19.1	33.8	13.2
New York	635	22.2	15.6	22.0	35.0	5.2	618	21.5	18.0	21.0	34.6	4.9
North Carolina	384	29.2	22.1	19.5	22.7	6.5	399	15.8	19.8	21.8	34.3	8.3
North Dakota	82	2.4	3.7	7.3	69.5	17.1	81	0.0	4.9	3.7	65.4	25.9
Ohio	913	28.4	18.9	20.6	28.1	3.9	938	21.7	20.6	23.2	30.1	4.4

	Ratings for Overall Staffing											
	January 2009						December 2013					
	Total #	Percent of Nursing Homes					Total #	Percent of Nursing Homes				
		★	★★	★★★	★★★★	★★★★★		★	★★	★★★	★★★★	★★★★★
Oklahoma	296	17.9	28.4	22.6	28.4	2.7	300	17.3	19.7	22.0	38.3	2.7
Oregon	136	3.7	7.4	23.5	51.5	14.0	131	0.8	2.3	9.2	68.7	19.1
Pennsylvania	690	25.8	24.3	19.7	22.2	8.0	698	13.2	26.6	20.8	30.7	8.7
Rhode Island	81	4.9	7.4	23.5	49.4	14.8	82	1.2	8.5	13.4	57.3	19.5
South Carolina	168	25.6	24.4	19.0	22.0	8.9	177	7.9	10.7	15.3	53.1	13.0
South Dakota	108	5.6	26.9	30.6	30.6	6.5	110	1.8	13.6	20.9	45.5	18.2
Tennessee	298	46.0	22.1	14.4	15.1	2.3	311	15.1	19.0	27.0	35.7	3.2
Texas	1,044	42.2	25.1	16.6	13.8	2.3	1,147	40.4	19.4	17.7	19.2	3.3
Utah	84	11.9	20.2	25.0	31.0	11.9	93	1.1	9.7	22.6	47.3	19.4
Vermont	38	13.2	10.5	23.7	44.7	7.9	37	2.7	2.7	16.2	67.6	10.8
Virginia	264	40.9	20.8	13.3	17.8	7.2	276	15.9	18.5	18.8	35.1	11.6
Washington	229	11.4	16.2	24.0	35.4	13.1	221	1.8	6.8	15.4	58.8	17.2
West Virginia	124	33.9	20.2	13.7	21.8	10.5	123	22.0	26.0	18.7	26.8	6.5
Wisconsin	379	8.2	14.8	25.1	42.7	9.2	380	1.1	5.8	23.2	54.7	15.3
Wyoming	39	7.7	10.3	23.1	23.1	35.9	36	0.0	8.3	19.4	50.0	22.2

Table A6. Distribution of Ratings for RN Staffing, by State, January 2009 and December 2013

	Ratings for RN Staffing											
	January 2009						December 2013					
	Total #	Percent of Nursing Homes					Total #	Percent of Nursing Homes				
		★	★★	★★★	★★★★	★★★★★		★	★★	★★★	★★★★	★★★★★
All States	14,713	23.7	24.2	24.1	16.1	12.0	15,179	10.8	16.6	26.9	25.2	20.5
Alabama	223	31.4	25.1	28.7	9.9	4.9	226	7.5	20.4	32.7	28.8	10.6
Alaska	12	0.0	0.0	0.0	0.0	100.0	12	0.0	0.0	0.0	0.0	100.0
Arizona	121	18.2	28.1	28.9	15.7	9.1	141	1.4	10.6	27.0	28.4	32.6
Arkansas	222	54.5	27.0	11.7	3.6	3.2	224	19.2	31.3	34.8	12.1	2.7
California	1,156	27.5	24.2	22.6	13.1	12.6	1,177	8.8	14.1	29.1	26.0	22.0
Colorado	199	5.0	12.1	21.6	40.2	21.1	203	0.5	0.5	15.8	34.5	48.8
Connecticut	232	3.0	9.1	25.9	35.3	26.7	230	1.3	4.8	29.1	33.5	31.3
Delaware	39	7.7	12.8	17.9	25.6	35.9	44	0.0	6.8	9.1	34.1	50.0
District of Columbia	18	16.7	22.2	5.6	27.8	27.8	19	0.0	10.5	21.1	36.8	31.6
Florida	647	27.5	33.5	24.4	11.0	3.6	676	10.5	22.9	33.4	25.3	7.8
Georgia	340	67.6	20.0	8.5	1.8	2.1	348	30.7	31.3	29.0	5.7	3.2
Hawaii	42	0.0	4.8	11.9	31.0	52.4	36	2.8	2.8	8.3	13.9	72.2
Idaho	68	4.4	11.8	29.4	39.7	14.7	74	0.0	2.7	13.5	47.3	36.5
Illinois	689	19.4	21.8	21.6	19.7	17.4	717	7.4	12.8	24.0	25.0	30.8
Indiana	456	31.8	29.4	21.5	11.2	6.1	498	6.8	13.9	37.3	28.9	13.1
Iowa	413	7.5	20.3	29.3	28.6	14.3	436	1.6	6.0	24.1	36.0	32.3
Kansas	306	13.1	20.9	28.4	22.5	15.0	322	3.7	5.6	23.9	37.6	29.2

	Ratings for RN Staffing											
	January 2009						December 2013					
	Total #	Percent of Nursing Homes					Total #	Percent of Nursing Homes				
		★	★★	★★★	★★★★	★★★★★		★	★★	★★★	★★★★	★★★★★
Kentucky	270	22.6	27.8	26.7	11.1	11.9	279	5.0	17.9	37.3	24.4	15.4
Louisiana	270	75.2	13.3	5.9	1.1	4.4	274	40.1	37.2	15.3	4.0	3.3
Maine	106	0.0	3.8	15.1	37.7	43.4	104	0.0	0.0	5.8	25.0	69.2
Maryland	223	22.0	25.1	28.7	10.3	13.9	224	3.1	8.9	26.8	34.8	26.3
Massachusetts	421	3.6	14.0	29.7	30.9	21.9	419	0.2	2.4	16.2	40.6	40.6
Michigan	403	12.9	26.1	31.8	17.6	11.7	417	4.3	10.8	28.3	33.8	22.8
Minnesota	357	7.0	27.2	35.0	23.0	7.8	375	1.1	6.1	22.9	39.2	30.7
Mississippi	187	17.1	29.9	30.5	12.8	9.6	199	7.0	22.1	30.7	26.6	13.6
Missouri	470	41.5	30.0	19.1	5.7	3.6	504	14.9	26.4	27.6	23.4	7.7
Montana	85	5.9	7.1	15.3	23.5	48.2	81	1.2	2.5	12.3	28.4	55.6
Nebraska	211	9.0	20.4	28.4	23.2	19.0	213	4.2	6.1	22.5	36.6	30.5
Nevada	47	10.6	17.0	31.9	19.1	21.3	47	4.3	8.5	12.8	31.9	42.6
New Hampshire	76	1.3	10.5	15.8	39.5	32.9	73	0.0	0.0	20.5	34.2	45.2
New Jersey	350	10.9	20.6	29.1	22.3	17.1	361	3.9	11.4	24.1	34.1	26.6
New Mexico	62	24.2	17.7	30.6	14.5	12.9	68	7.4	8.8	32.4	29.4	22.1
New York	635	16.1	24.1	29.4	19.1	11.3	618	13.6	23.1	35.6	19.6	8.1
North Carolina	384	21.6	31.8	24.7	13.5	8.3	399	9.8	21.1	36.1	20.8	12.3
North Dakota	82	2.4	8.5	26.8	36.6	25.6	81	0.0	3.7	14.8	42.0	39.5
Ohio	913	19.1	33.6	31.2	9.6	6.5	938	11.7	23.5	39.4	17.4	8.0

	Ratings for RN Staffing											
	January 2009						December 2013					
	Total #	Percent of Nursing Homes					Total #	Percent of Nursing Homes				
		★	★★	★★★	★★★★	★★★★★		★	★★	★★★	★★★★	★★★★★
Oklahoma	296	45.3	26.7	17.9	6.4	3.7	300	34.7	26.7	24.3	10.7	3.7
Oregon	136	4.4	14.7	31.6	29.4	19.9	131	1.5	4.6	22.9	39.7	31.3
Pennsylvania	690	12.5	24.5	29.7	19.1	14.2	698	5.2	16.9	29.5	29.5	18.9
Rhode Island	81	1.2	8.6	25.9	29.6	34.6	82	1.2	0.0	13.4	28.0	57.3
South Carolina	168	31.5	31.0	19.0	8.9	9.5	177	4.0	14.1	34.5	26.6	20.9
South Dakota	108	1.9	6.5	26.9	38.9	25.9	110	2.7	3.6	13.6	31.8	48.2
Tennessee	298	43.6	28.9	17.4	6.0	4.0	311	13.8	25.1	31.2	22.8	7.1
Texas	1,044	48.0	32.9	12.5	4.0	2.6	1,147	37.8	31.6	18.5	7.6	4.5
Utah	84	6.0	19.0	33.3	22.6	19.0	93	0.0	3.2	8.6	25.8	62.4
Vermont	38	13.2	13.2	23.7	31.6	18.4	37	2.7	0.0	13.5	43.2	40.5
Virginia	264	39.8	26.1	18.9	6.1	9.1	276	9.1	27.2	30.1	20.7	13.0
Washington	229	6.6	15.3	29.7	24.5	24.0	221	0.0	3.2	13.1	35.3	48.4
West Virginia	124	22.6	29.0	25.0	11.3	12.1	123	9.8	21.1	39.8	18.7	10.6
Wisconsin	379	4.0	14.2	33.0	31.1	17.7	380	1.1	1.6	17.6	35.5	44.2
Wyoming	39	7.7	5.1	10.3	30.8	46.2	36	0.0	0.0	13.9	19.4	66.7