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

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Centers for Medicare & Medicaid Services (CMS)
AGG/Research Contracts & Grants Division
C2-21-15 Central Building
7500 Security Boulevard
Baltimore, MD 21244-1850

Prepared by
Abt Associates Inc.
Colorado Foundation for Medical Care

Contents

List of Tables

List of Figures

1. Background

In December 2008, the Centers for Medicare & Medicaid Services (CMS) enhanced their *Nursing Home Compare* website[1] 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. Since implementation of the Five-Star Quality Rating System, there have been improvements in nursing facility performance in all three domains of quality that the system utilizes: health inspection surveys, quality measures (QMs) and staffing levels.

Ratings are based on nursing homes' performance on health inspection surveys, staffing levels, and a set of QMs derived from the Minimum Data Set (MDS). These are 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.

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 comprised the project's Technical Expert Panel (TEP), and countless 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 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 near the end of 2010, the QM component of the Five-Star Quality Rating System was held constant from March 2011 to July 2012 while ample data were accumulated to again report on quality measures. As a result, fewer analyses of the QM component are included in this report than in previous annual reports.

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 three years, from December 2008 through December 2011 (Section 3).

[1] http://www.medicare.gov/NHCompare/

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 2011.

The rating system features an overall five-star rating based on facility 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 inspection surveys:*** Facility 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:*** Facility 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 Nurse (LPN), and Certified Nurse Aides (CNA)) per resident day. Other clinical personnel such as therapists and social workers are not included in these staffing measures, nor are other non-clinical staff, such as clerical, administrative, or housekeeping staff.
- ***Quality Measures - Measures based on MDS quality measures (QMs):*** Facility ratings for the QMs are based on performance on 10 of the 19 QMs that were posted on the *Nursing Home Compare* web site. These include seven long-stay measures and three short-stay measures. As noted above, since the new QMs are not yet available for MDS 3.0, the current QM ratings were held constant for all providers 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 facility ratings for each of these domains along with the overall (or composite) performance rating. Further, in addition to the overall staffing rating noted above, a rating for RN staffing is also displayed separately on *Nursing Home Compare* for users who seek more detailed information on staffing.

2.2. Health Inspection Domain

Nursing homes that participate in the Medicare and/or Medicaid programs have an onsite standard ("comprehensive") survey every 12 months on average, with a range of nine to 15 months between surveys for any one particular nursing home. Surveys are unannounced and are conducted by a team of state surveyors. State survey teams spend several days in the nursing home assessing whether the nursing home is in compliance with federal requirements. Standard surveys provide a comprehensive assessment of areas such as medication management, skin care, resident needs, nursing home administration,

environment, kitchen/food services, and resident rights and quality of life. The Five-Star Quality Rating System incorporates the results of the three most recent standard surveys for each nursing home in addition to results from any complaint investigations during the most recent three-year period, and any repeat revisits needed to verify that required corrections have brought the facility back into compliance. As such, the Five-Star Quality Rating System uses the results of just under 70,000 onsite inspections for the health inspection domain.

Rating Methodology

Health inspections are based on federal regulations, interpretive guidance, and a federally-specified survey process. Federal staff train state surveyors and oversee state performance. This federal oversight includes quality checks in a five percent sample of 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 how the states implement the survey process. Such variation derives from many factors, including:

- ***Survey Management:*** Variation in the skill sets of surveyors, supervision of surveyors, and the implementation of the survey processes.
- ***State Licensure***: Variation in state licensing laws that result in 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 evaluation/enforcement of that quality.

For the above reasons, ratings in the health inspection domain are based on the relative performance of facilities 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 total 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 facility, it is compared to other facilities in the state, and facility 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 facilities 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 facilities in each state receive a one-star rating.

This distribution is based on CMS experience and input from the TEP. 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 considerable 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.[2]

The rating for staffing is based on two measures: Total nursing hours per resident day (RN+LPN+CNA hours) and RN hours per resident day. Measures have been case-mix adjusted to account for differences in resident health across nursing homes. The Five-Star Quality Rating System Technical User's Guide contains a detailed explanation of the case-mix adjustment methodology.

The source data for the staffing measures is the CMS form CMS-671 (Long Term Care Facility Application for Medicare and Medicaid) from the Online Survey Certification and Reporting (OSCAR)[3]. Note that the OSCAR staffing data include both facility employees (full time and part time) and individuals under an organization (agency) contract or an individual contract. The OSCAR staffing data do not include "private duty" nursing staff who are reimbursed by a resident's family. Also not included are hospice staff and feeding assistants.

Rating Methodology

For both RN staffing and total staffing, a 1 to 5 rating is assigned based on a combination of how well staffed a facility is in comparison to other freestanding facilities across the nation and staffing thresholds identified in the CMS staffing study. These thresholds were set at the time that the Five-Star Quality Rating System was first implemented, and have been maintained at the same levels. A facility's rating for overall staffing is based on the combination of RN and total nurse staffing (RNs, LPNs, CNAs) ratings as shown in Table 2.1. To receive a five-star rating, facilities must have met both RN and total nursing thresholds from the CMS Staffing Study.

Table 2.1
Staffing Points and Rating

RN rating and hours		Total staffing rating and hours (RN, LPN and CNA)				
		1	**2**	**3**	**4**	**5**
		<25th percentile	≥25th percentile, <median	≥ median, <75th percentile	≥75th percentile, <4.08 hours	≥4.08 hours
1	<25th percentile	1-star	1-star	2-stars	2-stars	3-stars
2	≥25th percentile, < median	1-star	2-stars	3-stars	3-stars	4-stars
3	≥ median, <75th percentile	2-stars	3-stars	4-stars	4-stars	4-stars
4	≥75th percentile, <0.55 hours	2-stars	3-stars	4-stars	4-stars	4-stars
5	≥ 0.55 hours	3-stars	4-stars	4-stars	4-stars	5-stars

[2] 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.

[3] As of July 2012, OSCAR has been replaced by the Certification and Survey Provider Enhanced Reports System (CASPER).

2.4. Quality Measure Domain

A set of QMs has been developed from MDS-based 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. The facility rating for the QM domain is based on performance on a subset of ten (out of 19) of the QMs posted 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 facility's control, statistical performance, and importance.

Quality Measures for long-stay residents:

- Percent of residents whose need for help with daily activities has increased
- Percent of residents whose ability to move in and around their room got worse
- 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 have moderate to severe pain

Quality Measures for short-stay residents:

- Percent of residents with pressure ulcers (sores)
- Percent of residents who had moderate to severe pain
- Percent of residents with delirium

Rating Methodology

For each QM, points are assigned based on the facility quintile. Based on input from the project's TEP, performance on the two ADL-related measures is weighted 1.6667 times as high as the other measures. This higher weighting reflects the greater importance of these measures to many nursing home residents and ensures that the two ADL measures count for 40 percent of the overall weight on the long-stay measures. To achieve this weighting, each facility receives 0, 5, 10, 15, or 20 points on each of the ADL QMs and 0, 3, 6, 9 or 12 points on each of the other QMs. The points are summed across all QMs to create a total score for each facility, which can range between 0 and 136 points. Once the summary QM score is computed for each facility, the five-star QM rating is assigned based on the nationwide distribution of these scores at the time that the Five-Star Quality Rating System was first implemented, as follows:

- The top 10 percent receive a five-star rating.
- The middle 70 percent of facilities receive a rating of two, three, or four stars, with an equal number (23.33 percent) in each rating category.
- The bottom 20 percent receive a one-star rating.

2.5. Overall Nursing Home Rating

Based on the five-star rating for the health inspection domain, the staffing domain and the QM domain, the overall five-star rating is assigned in five steps as follows:

Step 1: Start with the health inspection rating.

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

Step 3: Add one star to the Step 2 result if the QM rating is five stars; subtract one star if the QM rating is one star. The overall 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 increased by more than one star based on the staffing and QM ratings.

Step 5: If the nursing home is a Special Focus Facility (SFF)[4] that has not graduated from the program, the maximum overall quality rating can only be three stars.

The method for determining the overall nursing home rating does not assign specific weights to the health inspection, staffing, and QM domains. However, as evidenced by the fact that the computation of the overall rating starts with the health inspection rating, the health inspection rating is the most important dimension of the three dimensions in determining the overall rating. So depending on a facility's performance on the staffing and QM domains, a facility's overall rating may be up to two stars higher or lower than their health inspection rating.

[4] 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 overall rating distribution for the data that were posted on *Nursing Home Compare* in December 2011. During 2011, the number of facilities receiving a five-star overall rating surpassed the number receiving a one-star overall rating. This is also true for the QM and RN staffing domains. CMS and the TEP members agreed that the highest rating should be difficult to achieve so that facilities receiving a five-star rating are distinguishable as true top performers – providing a high quality of care to their residents. Nationwide, 15.9 percent of nursing homes received an overall five-star rating, and an additional 27.3 percent received four stars, while 15.6 percent received a one-star rating, and 41.2 percent received two or three stars. The distribution of ratings for health inspections is essentially fixed – as expected about 1 in 10 facilities (10.6 percent) received five stars, just under 1 in 5 facilities (19.4 percent) received one star and approximately 23 percent of facilities each received two, three, or four stars. In the QM domain, 16.1 percent received five stars, and an additional 30.8 percent received four stars. Approximately 1 in 9 nursing homes (11.0 percent) received one star and slightly more received three stars (24.1 percent) than two stars (18.0 percent). Staffing has the lowest proportion of any domain receiving five stars – just 9.0 percent; however, more than 1 in 3 (39.3 percent) received four stars; with between 13.3 percent and 21.1 percent of the country's facilities receiving one, two, or three stars.

Table 3.1
Distribution of Overall Rating and Ratings in Each Domain, All Nursing Homes, December 2011

Five-Star Measure	TOTAL N [1]	★		★★		★★★		★★★★		★★★★★	
		N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
Overall	15,518	2,415	(15.6)	3,096	(20.0)	3,295	(21.2)	4,244	(27.3)	2,468	(15.9)
Health Inspections	15,518	3,003	(19.4)	3,540	(22.8)	3,654	(23.5)	3,674	(23.7)	1,647	(10.6)
Quality Measures	15,327	1,685	(11.0)	2,761	(18.0)	3,692	(24.1)	4,718	(30.8)	2,471	(16.1)
Staffing	15,097	2,012	(13.3)	2,598	(17.2)	3,193	(21.1)	5,932	(39.3)	1,362	(9.0)
RN Staffing	15,097	2,010	(13.3)	2,985	(19.8)	4,080	(27.0)	3,461	(22.9)	2,561	(17.0)

[1] *N=Number of facilities, excludes those too new to rate or with no data available; Incorporating Data Reported through 12-01-2011*

Tables 3.2 – 3.5 show the distributions of the December 2011 ratings by ownership, type of certification, size (number of beds) and affiliation (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 (24.2 percent vs. 12.6 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: less than 5 percent of for-profit homes receive five stars for staffing and about one-sixth (16.9 percent) receive one star; by contrast 18.5 percent of non-profit and 23.7 percent of government homes receive five stars in staffing, while only 5.2 percent of non-profits and 4.9 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 Quality Ratings, by Ownership, December 2011

Nursing Home Type & Five-Star Measure	*TOTAL N* [1]	★		★★		★★★		★★★★		★★★★★	
		N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
For-profit											
Overall	10,701	2,009	(18.8)	2,347	(21.9)	2,322	(21.7)	2,672	(25.0)	1,351	(12.6)
Health Inspections	10,701	2,305	(21.5)	2,600	(24.3)	2,535	(23.7)	2,379	(22.2)	882	(8.2)
Quality Measures	10,600	1,106	(10.4)	1,982	(18.7)	2,533	(23.9)	3,258	(30.7)	1,721	(16.2)
Staffing	10,496	1,776	(16.9)	2,133	(20.3)	2,438	(23.2)	3,680	(35.1)	469	(4.5)
RN Staffing	10,496	1,701	(16.2)	2,371	(22.6)	2,972	(28.3)	2,261	(21.5)	1,191	(11.3)
Non-profit											
Overall	3,939	319	(8.1)	589	(15.0)	779	(19.8)	1,299	(33.0)	953	(24.2)
Health Inspections	3,939	534	(13.6)	758	(19.2)	896	(22.7)	1,079	(27.4)	672	(17.1)
Quality Measures	3,865	456	(11.8)	632	(16.4)	953	(24.7)	1,209	(31.3)	615	(15.9)
Staffing	3,765	195	(5.2)	396	(10.5)	627	(16.7)	1,852	(49.2)	695	(18.5)
RN Staffing	3,765	249	(6.6)	500	(13.3)	941	(25.0)	984	(26.1)	1,091	(29.0)
Government											
Overall	878	87	(9.9)	160	(18.2)	194	(22.1)	273	(31.1)	164	(18.7)
Health Inspections	878	164	(18.7)	182	(20.7)	223	(25.4)	216	(24.6)	93	(10.6)
Quality Measures	862	123	(14.3)	147	(17.1)	206	(23.9)	251	(29.1)	135	(15.7)
Staffing	836	41	(4.9)	69	(8.3)	128	(15.3)	400	(47.8)	198	(23.7)
RN Staffing	836	60	(7.2)	114	(13.6)	167	(20.0)	216	(25.8)	279	(33.4)

[1] *N=Number of facilities, excludes those too new to rate or with no data available; incorporating data reported through 12-01-2011*

Table 3.3
Distribution of Five-Star Quality Ratings, by Type of Certification, December 2011

Nursing Home Type & Five-Star Measure	*TOTAL N* [1]	★		★★		★★★		★★★★		★★★★★	
		N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
Dually participating											
Overall	14,192	2,352	(16.6)	2,932	(20.7)	3,071	(21.6)	3,804	(26.8)	2,033	(14.3)
Health Inspections	14,192	2,860	(20.2)	3,344	(23.6)	3,383	(23.8)	3,280	(23.1)	1,325	(9.3)
Quality Measures	14,066	1,433	(10.2)	2,601	(18.5)	3,481	(24.7)	4,399	(31.3)	2,152	(15.3)
Staffing	13,931	1,961	(14.1)	2,517	(18.1)	3,077	(22.1)	5,446	(39.1)	930	(6.7)
RN Staffing	13,931	1,925	(13.8)	2,883	(20.7)	3,912	(28.1)	3,226	(23.2)	1,985	(14.2)
Medicare											
Overall	760	27	(3.6)	54	(7.1)	126	(16.6)	298	(39.2)	255	(33.6)
Health Inspections	760	41	(5.4)	88	(11.6)	143	(18.8)	254	(33.4)	234	(30.8)
Quality Measures	720	206	(28.6)	93	(12.9)	137	(19.0)	186	(25.8)	98	(13.6)
Staffing	657	11	(1.7)	30	(4.6)	41	(6.2)	264	(40.2)	311	(47.3)
RN Staffing	657	23	(3.5)	28	(4.3)	82	(12.5)	120	(18.3)	404	(61.5)
Medicaid											
Overall	566	36	(6.4)	110	(19.4)	98	(17.3)	142	(25.1)	180	(31.8)
Health Inspections	566	102	(18.0)	108	(19.1)	128	(22.6)	140	(24.7)	88	(15.5)
Quality Measures	541	46	(8.5)	67	(12.4)	74	(13.7)	133	(24.6)	221	(40.9)
Staffing	509	40	(7.9)	51	(10.0)	75	(14.7)	222	(43.6)	121	(23.8)
RN Staffing	509	62	(12.2)	74	(14.5)	86	(16.9)	115	(22.6)	172	(33.8)

[1] *N=Number of facilities, excludes those too new to rate or with no data available; incorporating data reported through 12-01-2011*

Table 3.4
Distribution of Five-Star Quality Ratings, by Facility Size, December 2011

Nursing Home Type & Five-Star Measure	*TOTAL N* [1]	★		★★		★★★		★★★★		★★★★★	
		N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
Fewer than 50 beds											
Overall	2,038	106	(5.2)	244	(12.0)	385	(18.9)	679	(33.3)	624	(30.6)
Health Inspections	2,038	199	(9.8)	314	(15.4)	441	(21.6)	599	(29.4)	485	(23.8)
Quality Measures	1,944	396	(20.4)	271	(13.9)	398	(20.5)	514	(26.4)	365	(18.8)
Staffing	1,848	57	(3.1)	135	(7.3)	223	(12.1)	796	(43.1)	637	(34.5)
RN Staffing	1,848	74	(4.0)	125	(6.8)	297	(16.1)	425	(23.0)	927	(50.2)
50 to 99 beds											
Overall	5,638	726	(12.9)	1,009	(17.9)	1,198	(21.2)	1,675	(29.7)	1,030	(18.3)
Health Inspections	5,638	953	(16.9)	1,206	(21.4)	1,331	(23.6)	1,517	(26.9)	631	(11.2)
Quality Measures	5,582	567	(10.2)	1,052	(18.8)	1,297	(23.2)	1,700	(30.5)	966	(17.3)
Staffing	5,515	613	(11.1)	920	(16.7)	1,155	(20.9)	2,392	(43.4)	435	(7.9)
RN Staffing	5,515	591	(10.7)	1,009	(18.3)	1,559	(28.3)	1,424	(25.8)	932	(16.9)
100 to 199 beds											
Overall	6,873	1,359	(19.8)	1,603	(23.3)	1,509	(22.0)	1,657	(24.1)	745	(10.8)
Health Inspections	6,873	1,572	(22.9)	1,759	(25.6)	1,659	(24.1)	1,394	(20.3)	489	(7.1)
Quality Measures	6,832	653	(9.6)	1,273	(18.6)	1,748	(25.6)	2,167	(31.7)	991	(14.5)
Staffing	6,782	1,160	(17.1)	1,359	(20.0)	1,595	(23.5)	2,417	(35.6)	251	(3.7)
RN Staffing	6,782	1,194	(17.6)	1,628	(24.0)	1,929	(28.4)	1,426	(21.0)	605	(8.9)
200 beds or more											
Overall	969	224	(23.1)	240	(24.8)	203	(20.9)	233	(24.0)	69	(7.1)
Health Inspections	969	279	(28.8)	261	(26.9)	223	(23.0)	164	(16.9)	42	(4.3)
Quality Measures	969	69	(7.1)	165	(17.0)	249	(25.7)	337	(34.8)	149	(15.4)
Staffing	952	182	(19.1)	184	(19.3)	220	(23.1)	327	(34.3)	39	(4.1)
RN Staffing	952	151	(15.9)	223	(23.4)	295	(31.0)	186	(19.5)	97	(10.2)

[1] *N=Number of facilities, excludes those too new to rate or with no data available; Incorporating Data Reported through 12-01-2011*

Table 3.5
Distribution of Five-Star Quality Ratings, by Hospital-Based Status, December 2011

Nursing Home Type & Five-Star Measure	*TOTAL N* [1]	★		★★		★★★		★★★★		★★★★★	
		N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
Freestanding Homes											
Overall	14,528	2,341	(16.1)	2,977	(20.5)	3,085	(21.2)	3,897	(26.8)	2,228	(15.3)
Health Inspections	14,528	2,889	(19.9)	3,375	(23.2)	3,439	(23.7)	3,414	(23.5)	1,411	(9.7)
Quality Measures	14,380	1,384	(9.6)	2,620	(18.2)	3,497	(24.3)	4,512	(31.4)	2,367	(16.5)
Staffing	14,203	1,987	(14.0)	2,555	(18.0)	3,116	(21.9)	5,571	(39.2)	974	(6.9)
RN Staffing	14,203	1,973	(13.9)	2,923	(20.6)	3,978	(28.0)	3,280	(23.1)	2,049	(14.4)
Hospital-based Homes											
Overall	990	74	(7.5)	119	(12.0)	210	(21.2)	347	(35.1)	240	(24.2)
Health Inspections	990	114	(11.5)	165	(16.7)	215	(21.7)	260	(26.3)	236	(23.8)
Quality Measures	947	301	(31.8)	141	(14.9)	195	(20.6)	206	(21.8)	104	(11.0)
Staffing	894	25	(2.8)	43	(4.8)	77	(8.6)	361	(40.4)	388	(43.4)
RN Staffing	894	37	(4.1)	62	(6.9)	102	(11.4)	181	(20.2)	512	(57.3)

[1] *N=Number of facilities, excludes those too new to rate or with no data available; Incorporating Data Reported through 12-01-2011*

3.2. Additional Analysis of Health Inspection Domain

Because the health inspection rating is the most important component of the overall rating, we conducted some additional analyses of this domain, specifically to examine how different survey outcomes corresponded with health inspection ratings, and to assess the association between health inspection ratings and performance in the staffing domain.[5] The analyses presented in this section are based on the data reported for December 2011.

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, for citations of varying scope and severity, and according to the recency of the survey findings; the calculation also 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, facilities 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 citation) show strong monotonic associations with the health inspection rating. Notably, one-star facilities are more than 100 times more likely to have an actual harm (G or higher) citation on their most recent survey (or in the past 12 months of substantiated complaints) than five-star facilities; specifically, 50.5 percent of one-star facilities have had such a citation, compared to 0.4 percent of five-star facilities (Figure 3.1a). No five-star facilities had an immediate jeopardy citation or a substandard quality of care citation, while more than one-fifth of one-star facilities had each of these health inspection findings (Figures 3.1b and 3.1c). In general, the differences between one-star and two-star facilities, 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 were less common for the more recent surveys compared to prior surveys, *except* for the one-star facilities, where each was increasingly more common for the recent surveys.

[5] In prior years this report has included an analysis of the association between health inspection ratings and performance on the QMs; this was eliminated from this year's report because the quality measures were unchanged for most of 2011, while new measures are being developed based on MDS 3.0. We anticipate including these analyses again in 2013, when the new QMs will be available for analysis.

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

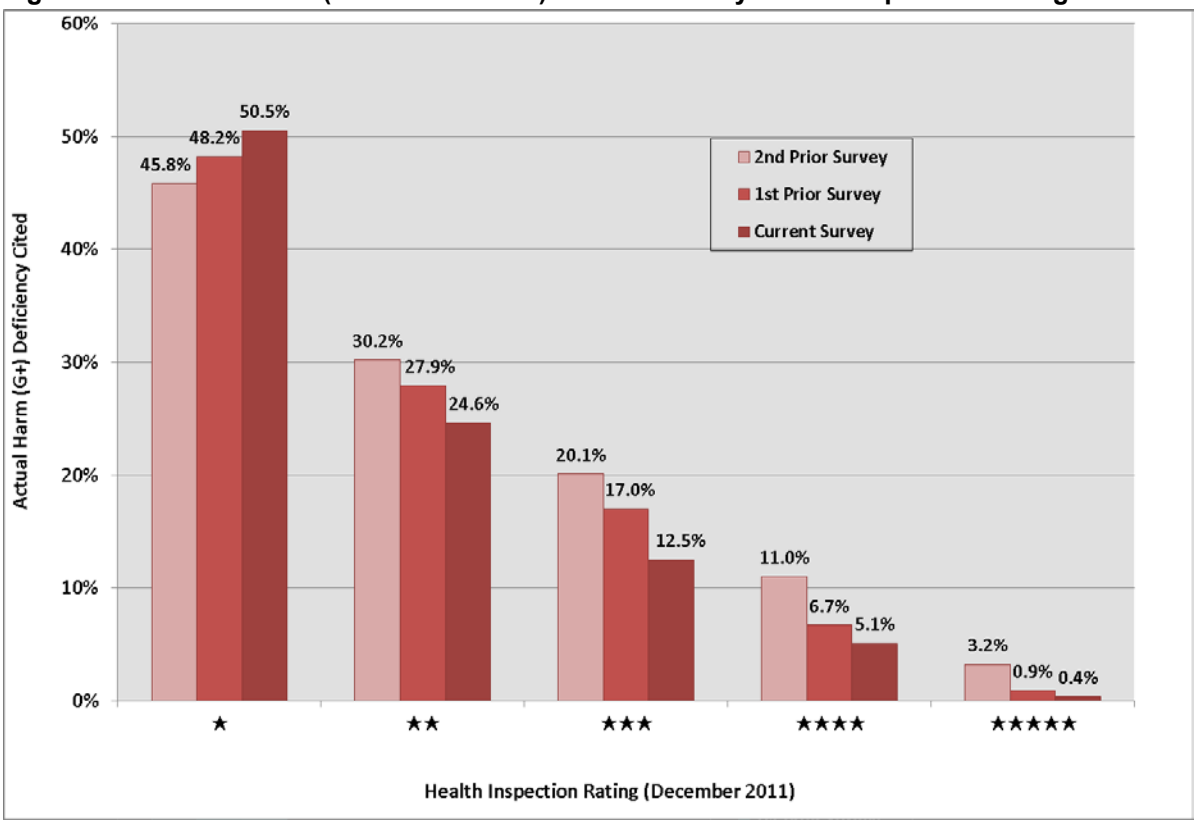


Figure 3.1b Immediate Jeopardy Deficiencies by Health Inspection Rating

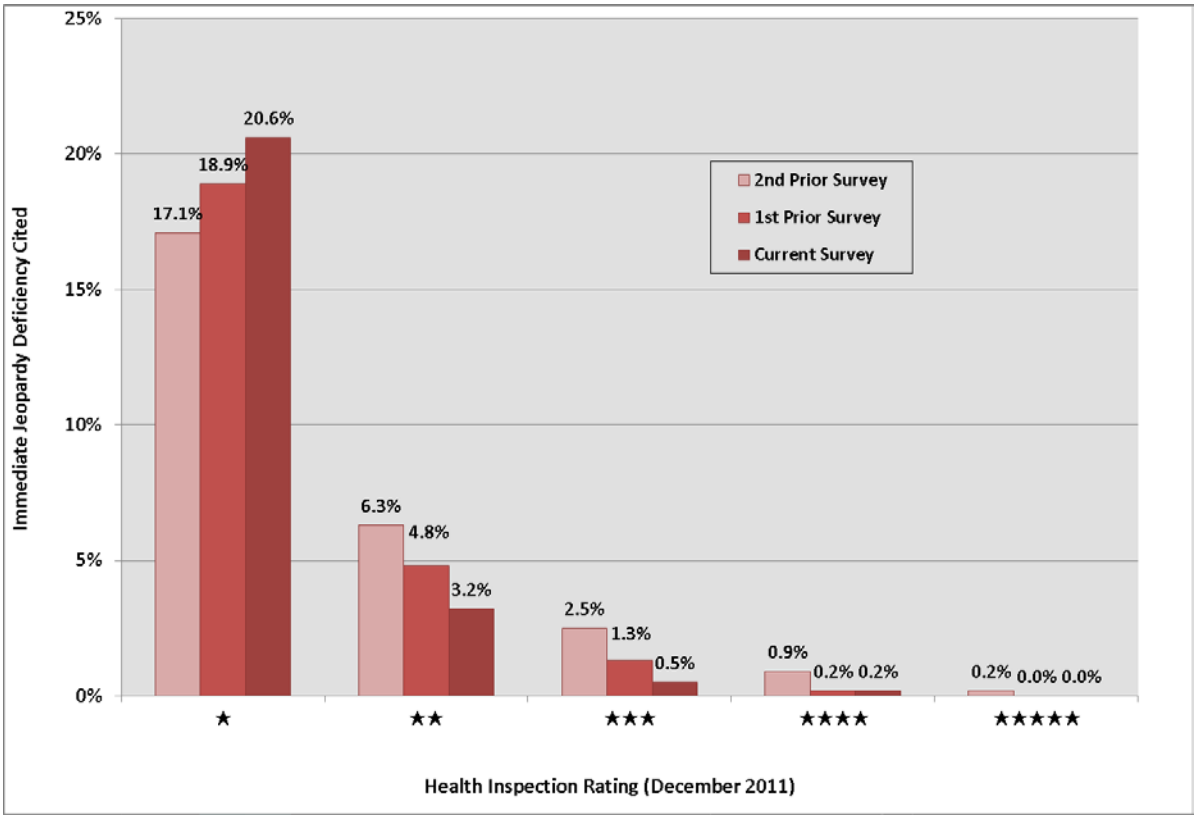


Figure 3.1c Substandard Quality of Care Deficiencies by Health Inspection Rating

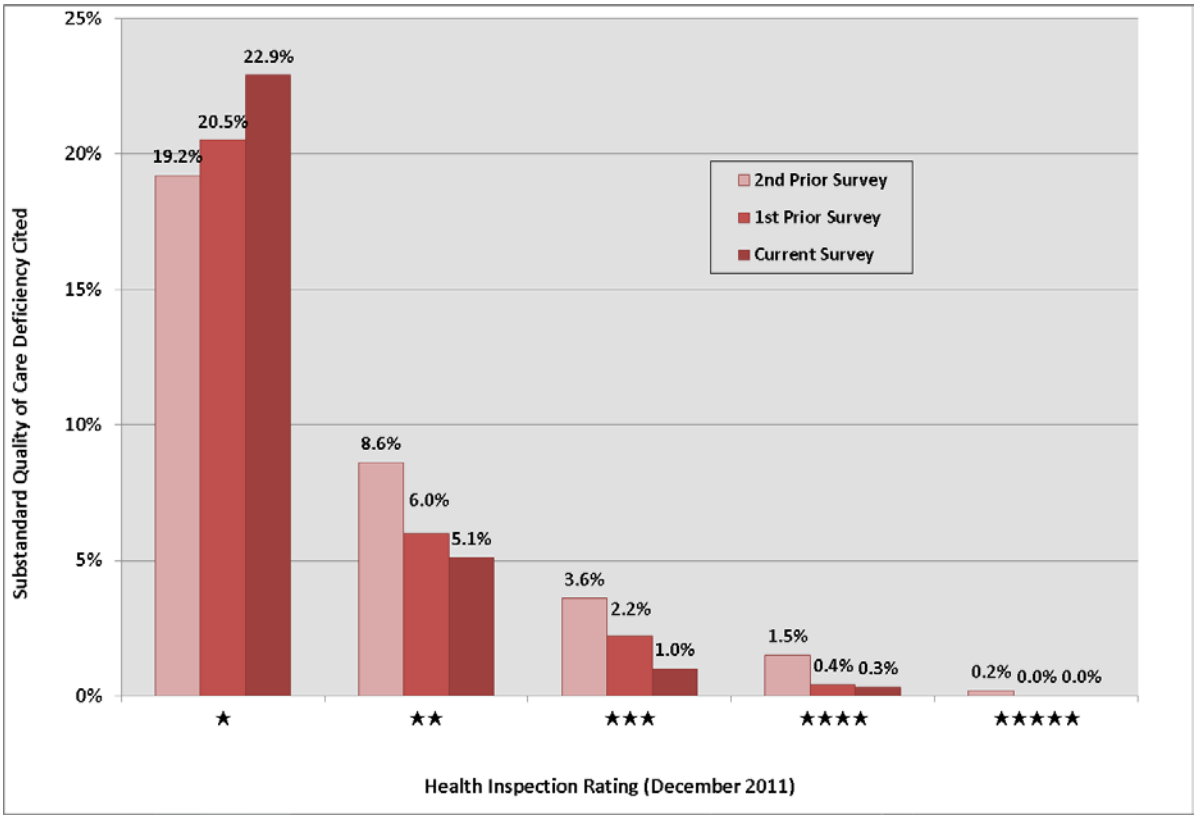


Figure 3.2a shows the relationship between the total number of deficiencies in the current and two prior cycles of surveys and the health inspection rating. There is a very strong gradient in the deficiency count, consistent across all three survey cycles. Additionally, as for the specific survey findings described above, the figure shows that all facilities except for one-star facilities 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 facilities. These findings imply that health inspection scores have been improving over time, and suggest that this trend is stronger among more highly rated facilities.

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

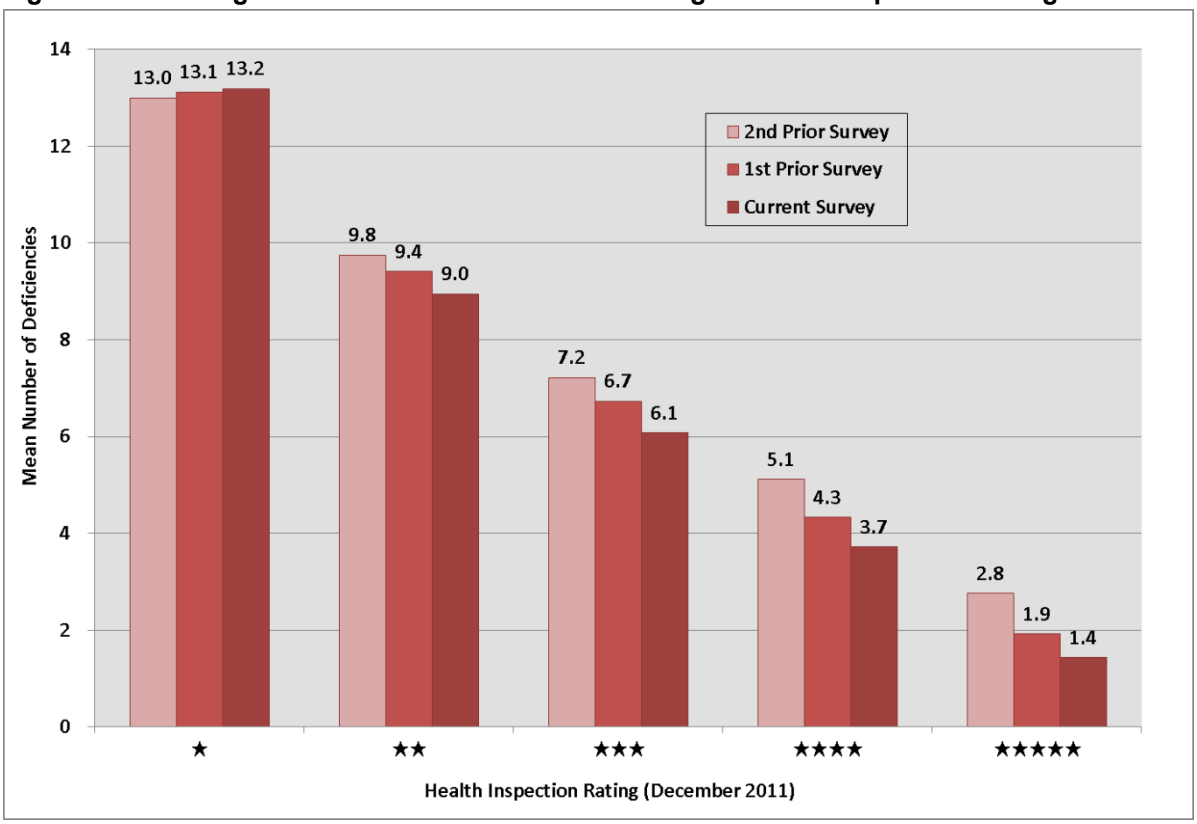
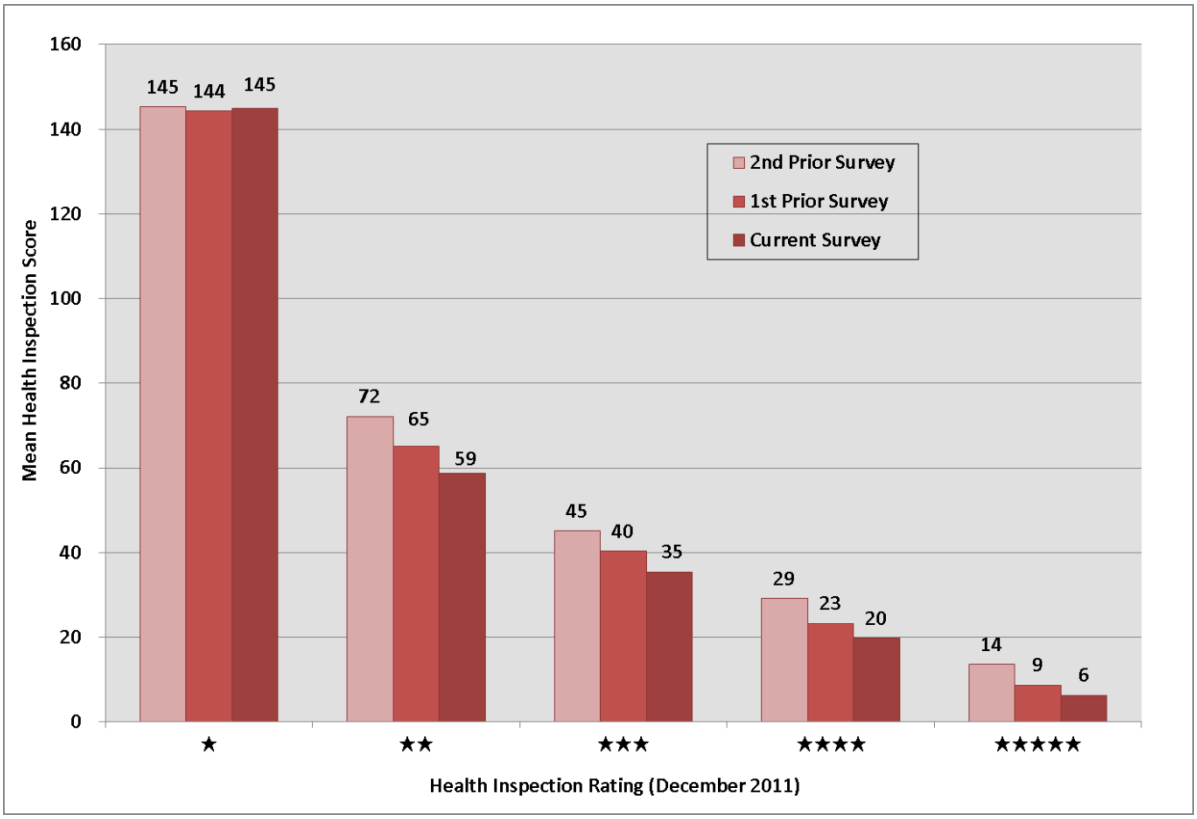


Figure 3.2b Average Health Inspection Score According to Health Inspection Rating



Further evidence that one-star facilities are somehow distinct from the higher rated facilities 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, facilities with no deficiencies are scored 0 for average severity, while in Figure 3.2d, these facilities are excluded. Note that for all survey cycles, higher rated facilities – particularly five-star facilities – 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 1.0 percent for one-star, 1.5 percent for two-star, 3.2 percent for three-star, 9.9 percent for four-star and 42.1 percent for five-star facilities.

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 inspection clearly differ in both the number and the scope and severity of deficiencies identified. In particular, the one-star facilities perform distinctly worse both with respect to numbers and severity of deficiencies, and the gradient is more modest between the two-star to five-star facilities, particularly with respect to severity. Five-star facilities 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

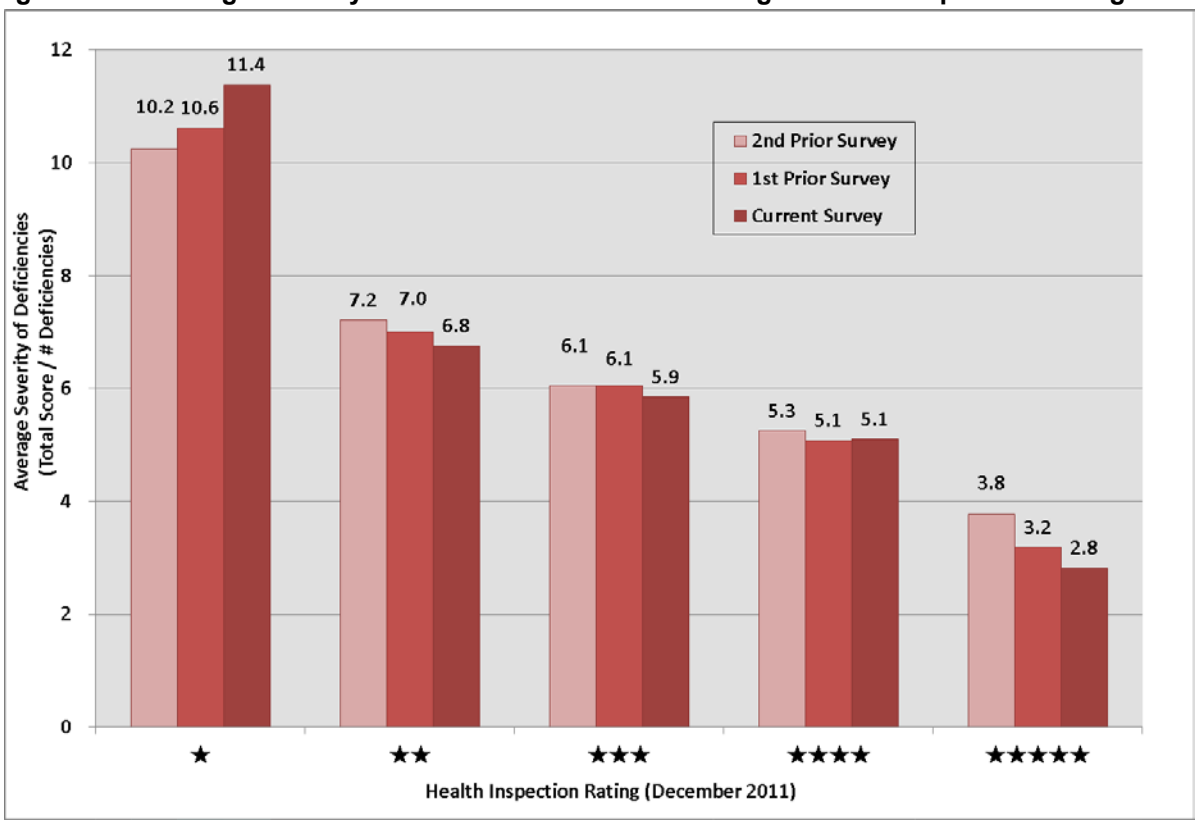
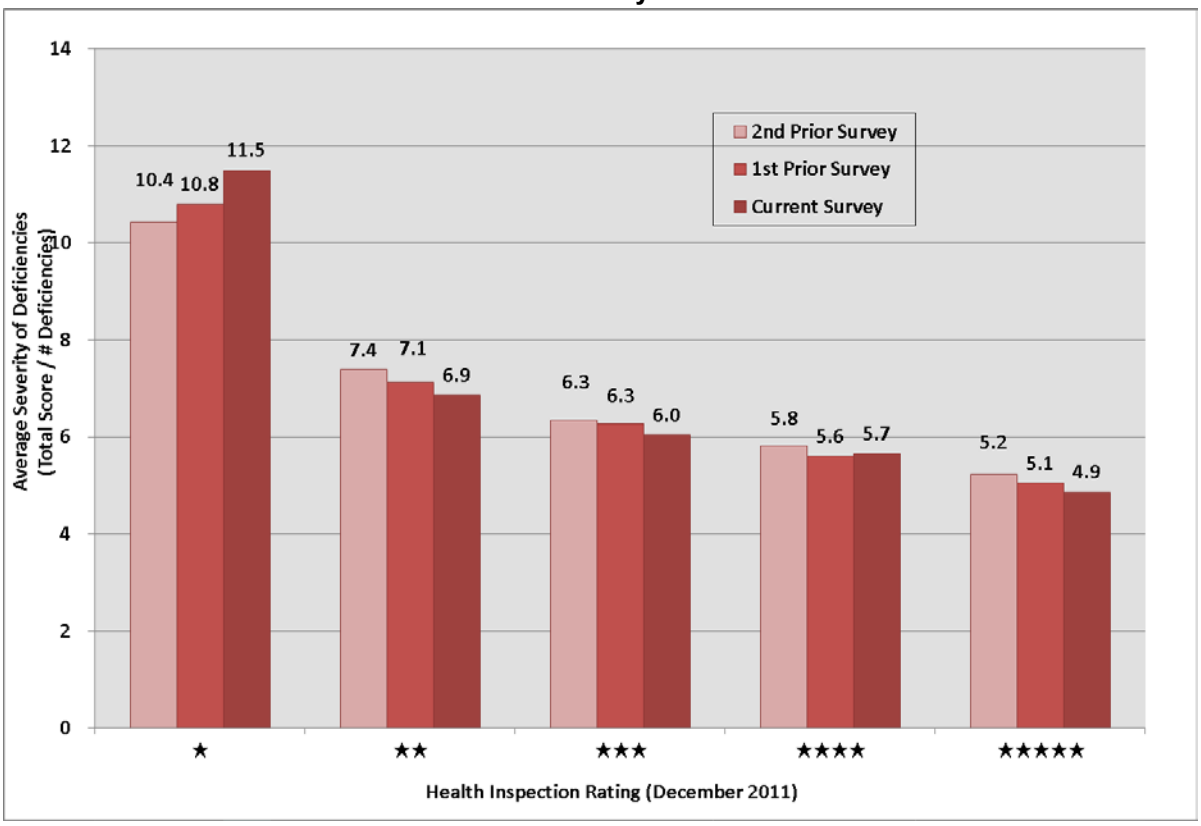


Figure 3.2d Average Severity of Cited Deficiencies According to Health Inspection Rating, Providers with at Least One Deficiency



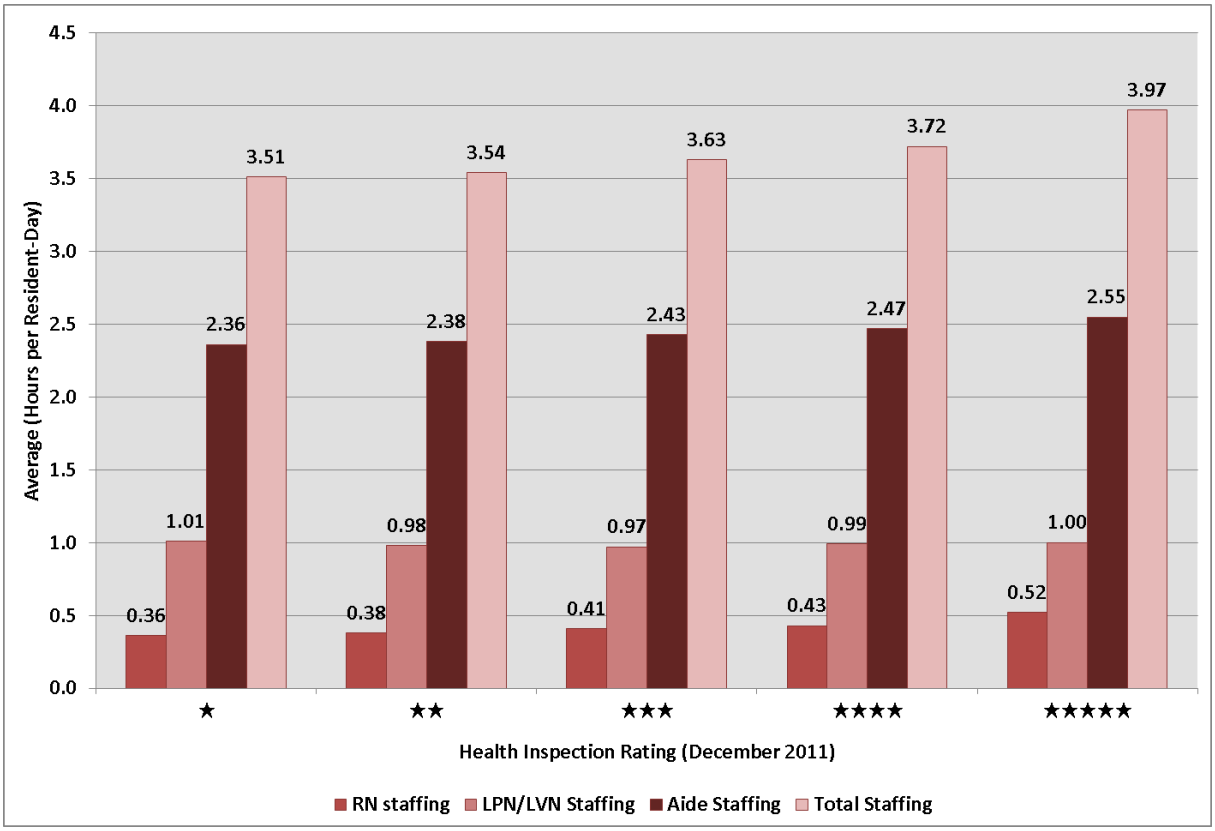
Association of Health Inspection Rating with Staffing Levels

The purpose of this analysis is to examine how provider performance in the staffing domain relates to the health inspection rating. In general, the results of this analysis indicates 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 CNA staffing.

- Average RN hours per resident day is 0.36 for one-star facilities but increases to 0.43 hours/resident day for four-star facilities and 0.52 hours/resident day for five-star facilities.
- Average CNA staffing is 2.36 hours/resident day for one-star facilities and increases to 2.47 hours/resident day for four-star facilities and 2.55 hours/resident day for five-star facilities.
- There was little difference in average LPN staffing levels for facilities based on their health inspection rating. Average LPN hours/resident day were 1.01 for one-star facilities vs. 1.03 for five-star facilities, and were between 0.97 and 1.01 across all rating categories.

Figure 3.3 Adjusted Staffing Levels According to Health Inspection Rating



3.3. Analysis of Rating Changes Over Three Years

The analyses presented in this section cover ratings reported on *Nursing Home Compare* for January 2009 through December 2011. 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 three years of the Five-Star Quality Rating System.

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 three years in the analytic period 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. We examined two different metrics:

- ***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 had at least 18 months of ratings during the three-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 most nursing homes, this will be the difference between the December 2011 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 rating are the same. Nursing Homes were included in this analysis if they had at least 18 months of ratings during the three-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 Tables 3.6. Nearly one-third (32.8 percent) of nursing homes have received a five-star overall rating at some time, and more than two-thirds (66.9 percent) have received four or five stars, while only 3.3 percent have never received a rating higher than one star. More than forty percent (41.6 percent) of nursing homes have received a one-star overall rating at least once, and just 2.8 percent have never received a rating less than five stars. The patterns are similar across domains. Though only 15.0 percent of facilities have ever received five stars for staffing, two-thirds (66.5 percent) have received four or five stars for staffing. Across all domains, more than a third of facilities have received a one star rating for staffing at some time.

Relatively few facilities have had no change in ratings across the full three-year period from January 2009 to December 2011 (Table 3.6). Fewer than 1 in 10 facilities (9.1 percent) had no changes at all in their overall rating during this period, while a slight majority (55.6 percent) had a rating change of more than one star. The staffing domain was the most stable, with 21.4 percent having no change in rating and 58.7 percent having a change of no more than one star. Even though ratings were held constant for the last nine months of 2011, the QM domain was the least stable across the three-year period, with only 6.8 percent having no change in rating and more than half (59.7 percent) having a change of two or more stars in the QM domain. Across all of the domains, few facilities (<4 percent) experienced a change of 4 stars.

Though few facilities had a constant rating across three years, nearly a third (32.2) did receive the same overall rating for both their first and most recent rating, and the proportions are similar across domains. In keeping with the overall trend towards improved ratings, for providers that have had a change, 41.1 percent had their most recent overall rating higher than their first rating, compared to 26.7 percent with the most recent rating lower than the first rating. This is true across all domains, though for health inspections the difference is very slight.

Table 3.6.
Distribution of Rating Range for Each Rating Domain, January 2009–December 2011

	Overall Quality		Health Inspections		MDS Quality Measures		Staffing		RN Staffing	
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
Best Rating Ever Received										
★	509	(3.3)	748	(4.8)	396	(2.6)	680	(4.4)	793	(5.2)
★★	1,800	(11.6)	2,300	(14.8)	1,149	(7.4)	1,523	(9.9)	2,340	(15.2)
★★★	2,844	(18.3)	3,549	(22.8)	2,903	(18.7)	2,939	(19.2)	4,117	(26.8)
★★★★	5,306	(34.1)	5,423	(34.8)	6,073	(39.2)	7,901	(51.5)	4,284	(27.9)
★★★★★	5,108	(32.8)	3,547	(22.8)	4,968	(32.1)	2,304	(15.0)	3,813	(24.8)
Poorest Rating Ever Received										
★	6,481	(41.6)	5,885	(37.8)	5,793	(37.4)	5,660	(36.9)	5,525	(36.0)
★★	3,736	(24.0)	4,262	(27.4)	4,500	(29.1)	3,644	(23.7)	3,959	(25.8)
★★★	2,842	(18.3)	3,051	(19.6)	2,989	(19.3)	2,662	(17.3)	3,130	(20.4)
★★★★	2,075	(13.3)	1,940	(12.5)	1,805	(11.7)	2,854	(18.6)	1,673	(10.9)
★★★★★	433	(2.8)	429	(2.8)	402	(2.6)	527	(3.4)	1,060	(6.9)
Rating Range (Best minus Worst)										
No change	1,420	(9.1)	2,119	(13.6)	1,054	(6.8)	3,277	(21.4)	3,095	(20.2)
1 star	5,490	(35.3)	6,994	(44.9)	5,188	(33.5)	5,731	(37.3)	6,868	(44.8)
2 stars	5,464	(35.1)	4,681	(30.1)	5,903	(38.1)	4,175	(27.2)	4,034	(26.3)
3 stars	2,729	(17.5)	1,493	(9.6)	2,825	(18.2)	2,055	(13.4)	1,136	(7.4)
4 stars	464	(3.0)	280	(1.8)	519	(3.4)	109	(0.7)	214	(1.4)
Difference Between Last Rating and First Rating										
Down 4 stars	28	(0.2)	72	(0.5)	23	(0.1)	6	(0.0)	16	(0.1)
Down 3 stars	391	(2.5)	450	(2.9)	216	(1.4)	167	(1.1)	84	(0.5)
Down 2 stars	1,118	(7.2)	1,376	(8.8)	848	(5.5)	616	(4.0)	436	(2.8)
Down 1 star	2,612	(16.8)	3,236	(20.8)	2,312	(14.9)	1,969	(12.8)	1,882	(12.3)
No change	5,014	(32.2)	5,188	(33.3)	5,093	(32.9)	6,073	(39.6)	5,693	(37.1)
Up 1 star	3,609	(23.2)	3,329	(21.4)	3,969	(25.6)	3,348	(21.8)	4,133	(26.9)
Up 2 stars	1,944	(12.5)	1,424	(9.1)	2,018	(13.0)	1,598	(10.4)	1,714	(11.2)
Up 3 stars	718	(4.6)	427	(2.7)	805	(5.2)	654	(4.3)	430	(2.8)
Up 4 stars	133	(0.9)	65	(0.4)	149	(1.0)	30	(0.2)	73	(0.5)
Any improvement	6,404	(41.1)	5,245	(33.7)	6,941	(44.8)	5,630	(36.7)	6,350	(41.4)
Any decline	4149	(26.7)	5134	(33.0)	3399	(21.9)	2758	(18.0)	2418	(15.8)

Includes all nursing homes with at least 18 months of ratings, January 2009 - December 2011 (N=15,567)

The next two tables examine the rating ranges (Table 3.7) and changes in ratings (Table 3.8) for all nursing homes for each year of the Five-Star Quality Rating System. The proportion of facilities with changes in ratings (Table 3.7), overall and for each domain is quite similar for Year 1 and Year 2, with a little over a third of facilities having the same overall rating throughout each of these periods and many more facilities having a rating range of 1 star (45-46 percent) compared to two or more stars (<20 percent). There was markedly less change in the overall rating in Year 3, with just over half (51.8 percent) of facilities experiencing no change in the overall 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. For health inspections, approximately half of facilities (47.6 percent – 51.3 percent) had no variation in their rating during any year and more than 90 percent of facilities had a range of no more than one star within a calendar year. Quite a small number of facilities had fluctuations in their ratings of 3 or 4 stars within any one year in any domain, ranging from 1 to 2 percent in the health inspection domain to 3 to 4 percent in the staffing and QM domains.

Examining change over the course of each year overall and for all domains (Table 3.8), between 40 and 60 percent had no change in their rating between their first and last rating within any calendar year (with the exception, as noted above, of virtually no change in the QM rating during Year 3 (2011). Most facilities did not have a net change of more than one star in either direction during a year – 12.9 percent, 12.1 percent, and 9.3 percent of facilities had a change of more than one star in their overall rating during 2009, 2010 and 2011 respectively, and only 7.3, 6.4 and 7.3 percent had a change of more than one star in the health inspection domain in each of the three years. For facilities 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. In all domains, the greatest improvements in ratings were seen in Year 2.

Table 3.7
Distribution of Rating Range for Each Rating Domain, by Year (2009–2011)

	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)

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 (2009–2011)

	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)
Any improvement	*4,604*	*(29.6)*	*3,732*	*(24.0)*	*5,292*	*(34.2)*	*3,768*	*(25.9)*	*3,747*	*(25.8)*
Any decline	*3,471*	*(22.3)*	*3,200*	*(20.5)*	*3,812*	*(24.7)*	*2,866*	*(19.7)*	*2,702*	*(18.6)*
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)
Any improvement	*4,676*	*(30.0)*	*3,641*	*(23.4)*	*5,380*	*(34.8)*	*3,816*	*(25.5)*	*4,132*	*(27.6)*
Any decline	*3,333*	*(21.4)*	*3,090*	*(19.8)*	*3,714*	*(24.0)*	*2,624*	*(17.5)*	*2,287*	*(15.3)*
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)
Any improvement	*3,664*	*(23.5)*	*3,692*	*(23.7)*	*12*	*(0.1)*	*3,506*	*(23.4)*	*3,770*	*(25.2)*
Any decline	*3,084*	*(19.8)*	*3,211*	*(20.6)*	*9*	*(0.1)*	*2,694*	*(18.0)*	*2,462*	*(16.4)*

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 rating, according to the first posted rating during 2011. We see that the facilities most likely to have no variation in their overall rating during the year are those that started as either one-star or five-star facilities. Specifically, 60.4 percent of one-star facilities and 70.2 percent of five-star facilities had no variation in their overall rating throughout the year. Facilities that started the year with three stars – and have balanced opportunity for improvement and decline – are most likely to have an overall range of one star (48.6 percent of 3-star facilities in the overall ratings), and they were more likely to improve than decline over the course of the year (30.2 percent with an improvement in overall rating vs. 25.3 percent with a decline). While as has been noted, there was less overall change in the ratings during 2011, these precise same relationships between first rating and rating changes during the course of the year were also observed in Year 2 of the Five-Star Quality Rating System (data not shown).

Table 3.9
Rating Range According to First Posted Rating – Overall Quality Rating, January–December 2011

First rating – Overall	Rating Range (Best – Worst)									
	No change		1 star		2 stars		3 stars		4 stars	
	N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
★	1,489	(60.4)	711	(28.9)	221	(9.0)	43	(1.7)	0	(0.0)
★★	1,287	(40.0)	1,516	(47.2)	385	(12.0)	26	(0.8)	0	(0.0)
★★★	1,253	(38.1)	1,599	(48.6)	422	(12.8)	15	(0.5)	0	(0.0)
★★★★	2,360	(56.0)	1,449	(34.4)	319	(7.6)	85	(2.0)	1	(0.0)
★★★★★	1,677	(70.2)	521	(21.8)	107	(4.5)	77	(3.2)	7	(0.3)
Overall	8,066	(51.8)	5,796	(37.2)	1,454	(9.3)	246	(1.6)	8	(0.1)

Includes all nursing homes with at least six months of ratings between January 2011 and December 2011

Examination of Rating Trends From Year 1 to Year 3

Table 3.10 shows the overall distribution of ratings from the beginning of the published ratings (January 2009) and at the end of the analytic period for this report (December 2011). 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 facilities in each rating category in each state), all of the other domains, and the overall rating have seen a marked increase in the proportion of four-star and five-star facilities and a decline in the proportion of one-star facilities. In December 2011, 15.9 percent of nursing homes had a five-star rating compared to 11.8 percent in January 2009. The proportion of one-star facilities fell from 22.7 percent to 15.6 percent during this period.

The distribution of the QM and staffing ratings (except for the break between four and five stars for staffing, which was based on results of the CMS Staff-Time measurement study, and is independent of the distribution) was set at the inception of the Five Star Quality Rating System, but has been allowed to change since then. For staffing, the proportion of five-star facilities has increased slightly (from 7.2 percent to 9.0 percent), but the proportion of four-star facilities has increased considerably more, from

30.6 percent to 39.3 percent. In January 2009, 22.9 percent of the nation's nursing homes were rated one-star for Staffing; in December 2011, that percentage is just 13.3 percent.

Changes in the ratings distribution have also been quite dramatic for the QMs, though most of this change occurred in 2009 and 2010. The percentage of five-star facilities increased from 10.1 percent to 16.1 percent, while one-star facilities declined from 20.0 percent to 11.0 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 2011 are shown in the Appendix.

Table 3.10
Distribution of Overall Rating and Ratings in Each Domain, All Nursing Homes, January 2009 and December 2011

Five-Star Measure	*TOTAL N* [1]	★		★★		★★★		★★★★		★★★★★	
		N	(%)	N	(%)	N	(%)	N	(%)	N	(%)
January 2009											
Overall	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 2011											
Overall	15,518	2,415	(15.6)	3,096	(20.0)	3,295	(21.2)	4,244	(27.3)	2,468	(15.9)
Health Inspections	15,518	3,003	(19.4)	3,540	(22.8)	3,654	(23.5)	3,674	(23.7)	1,647	(10.6)
Quality Measures	15,327	1,685	(11.0)	2,761	(18.0)	3,692	(24.1)	4,718	(30.8)	2,471	(16.1)
Staffing	15,097	2,012	(13.3)	2,598	(17.2)	3,193	(21.1)	5,932	(39.3)	1,362	(9.0)
RN Staffing	15,097	2,010	(13.3)	2,985	(19.8)	4,080	(27.0)	3,461	(22.9)	2,561	(17.0)

A limitation of the analyses reported in Table 3.10 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 3.4 – 3.8 show the distribution of star ratings over time for January 2009 through December 2011 and clearly indicate that the trends of improvements in the ratings are quite consistent.

For the overall rating (Figure 3.4), there has been a slight but consistent increase in the proportion of both four- and five-star facilities – from 23.4 percent to 27.4 percent for four-star facilities and 11.8 percent to 15.9 percent for five-star facilities. The proportion of one-star facilities has declined in nearly every quarter, from 22.7 percent to 15.7 percent; there have been very small declines in two-star and three-star facilities. 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 3.5). Thus, the change in the overall rating distribution must be due to there

being more five-star facilities in the QM domain, more four- and five-star facilities in the staffing domain, and/or fewer one-star facilities in each of these domains.

Figure 3.4 Distribution of Overall Quality Ratings (2009–2011)

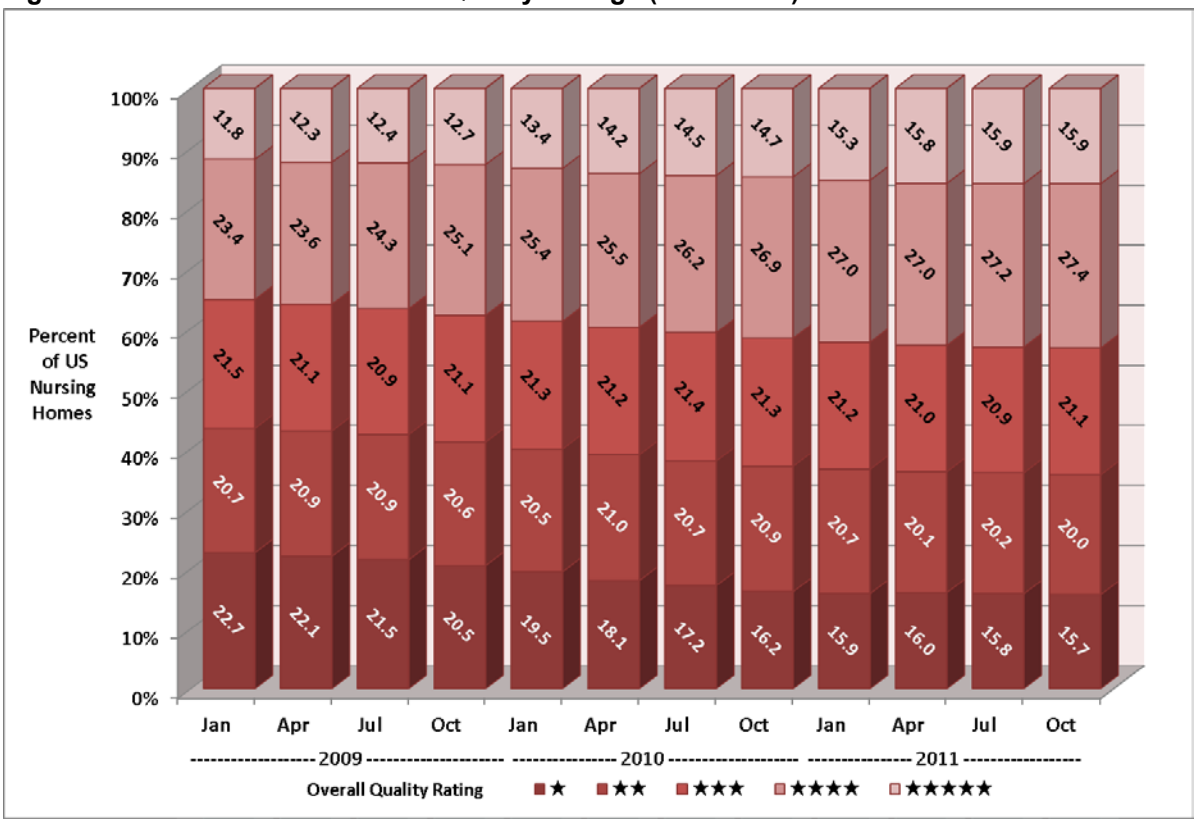


Figure 3.5 Distribution of Health Inspection Ratings (2009–2011)

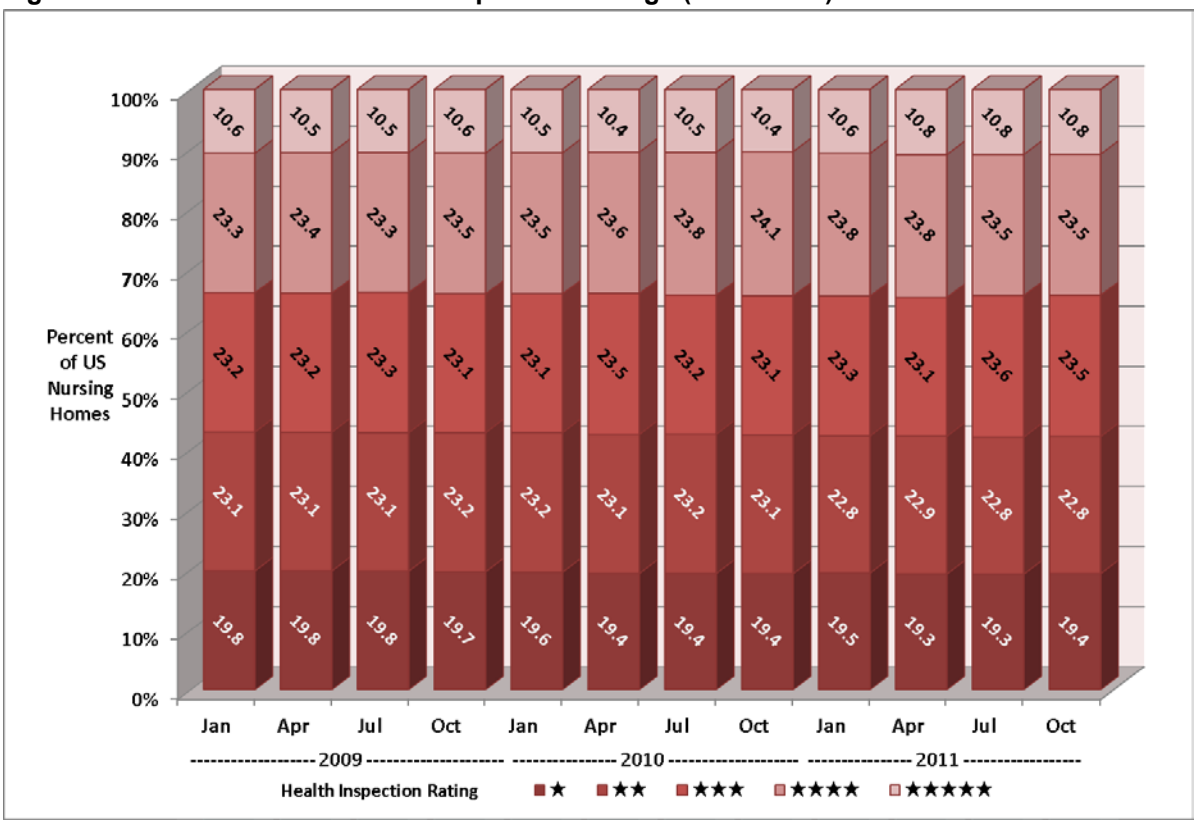
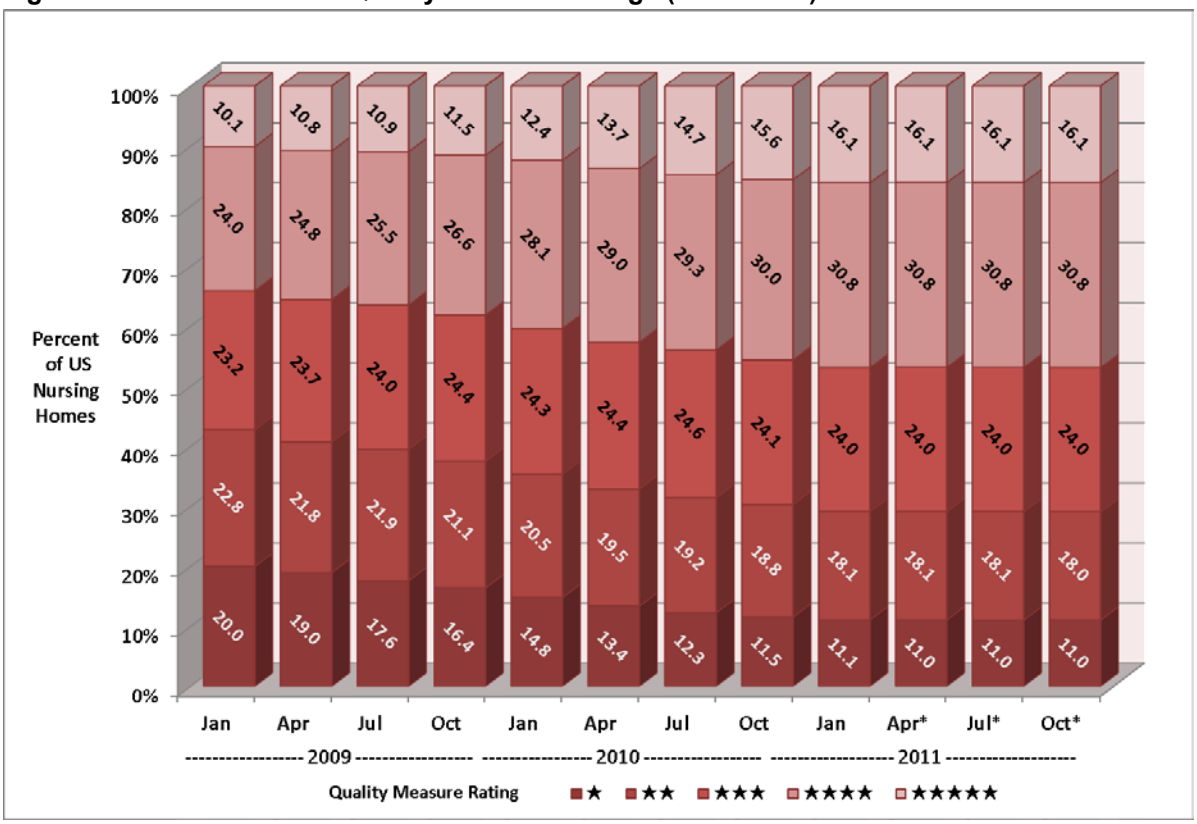


Figure 3.6 shows that there has been a marked increase in the proportions of facilities receiving five stars for QMs (from 10.1 percent to 16.1 percent – a more than 50 percent increase). The proportion of facilities receiving one star in October 2011 (11.0 percent) is just over half what it was in January 2009 (20.0 percent). The proportion receiving four stars has also increased. While these trends were present in 2009, they appear to have accelerated in 2010, and, of course, because of the transition from MDS 2.0 to MDS 3.0, remained flat during 2011.

Figure 3.6 Distribution of Quality Measure Ratings (2009–2011)*



*Note that the QM rating was held constant for all nursing homes at the March 2011 level for the duration of 2011.

With respect to staffing (Figure 3.7), there have also been trends at the extremes of the distribution, with increases in the proportion of both four- and five-star facilities (30.6 percent to 39.0 percent for four stars and 7.2 percent to 8.9 percent for five stars) and a concomitant decrease in the proportion of one-star facilities (from 22.9 percent to 13.6 percent). Three-star facilities have increased in prevalence slightly, and two-star facilities have declined. Changes of similar magnitudes are seen for RN staffing (Figure 3.8), with perhaps an even sharper decline in the proportion of one-star facilities (from 23.7 percent to 13.5 percent).

Figure 3.7 Distribution of Staffing Ratings (2009–2011)

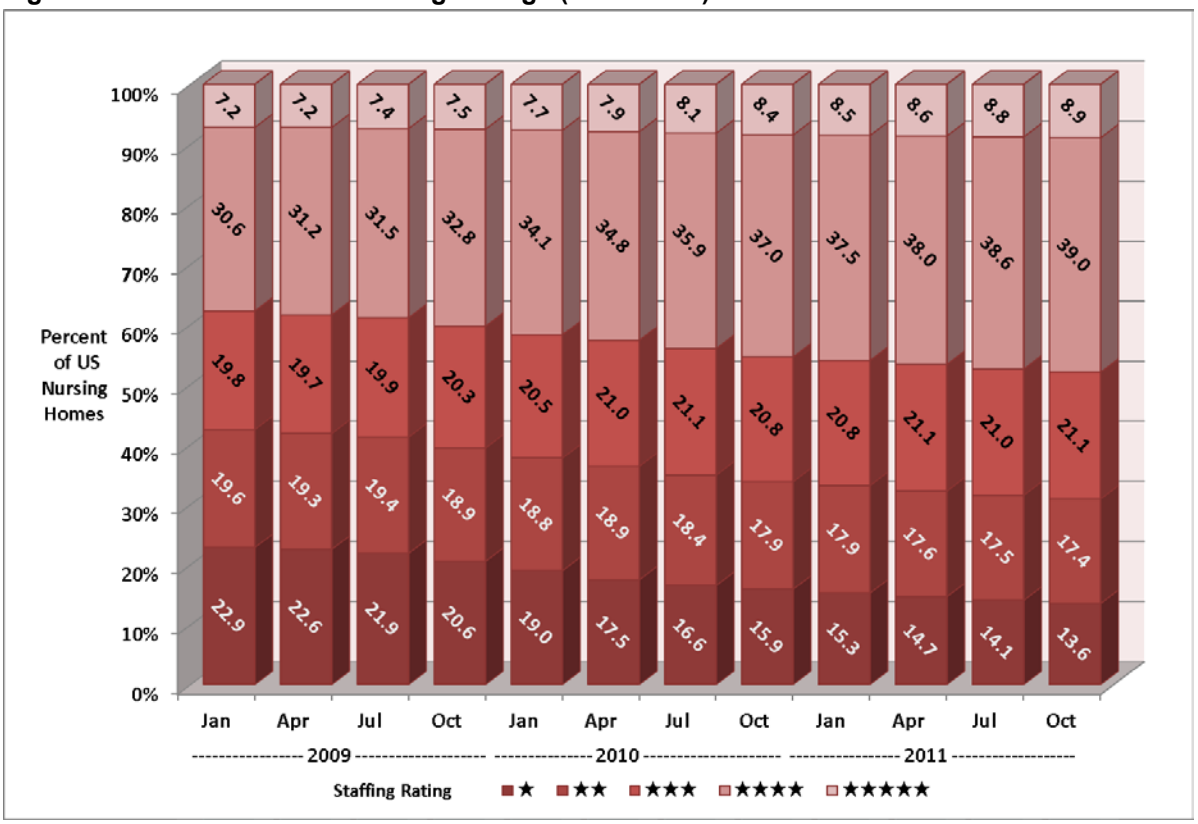
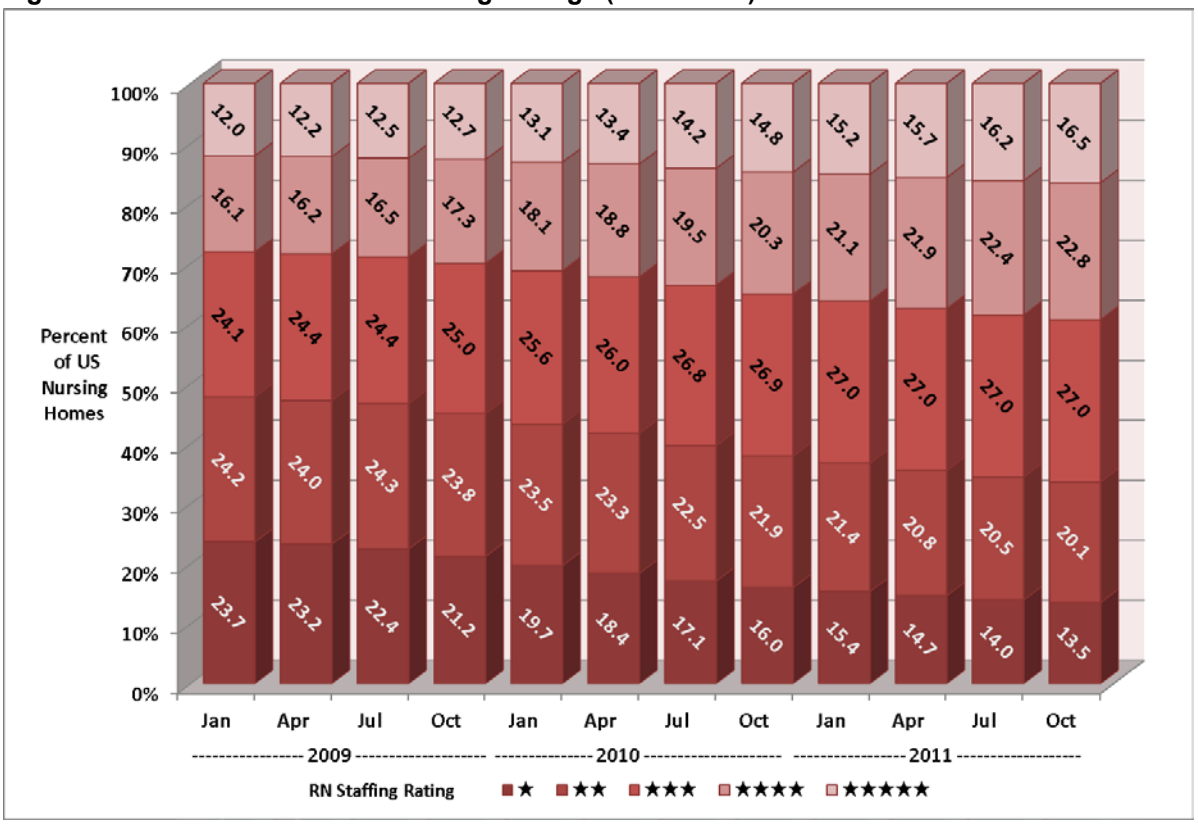


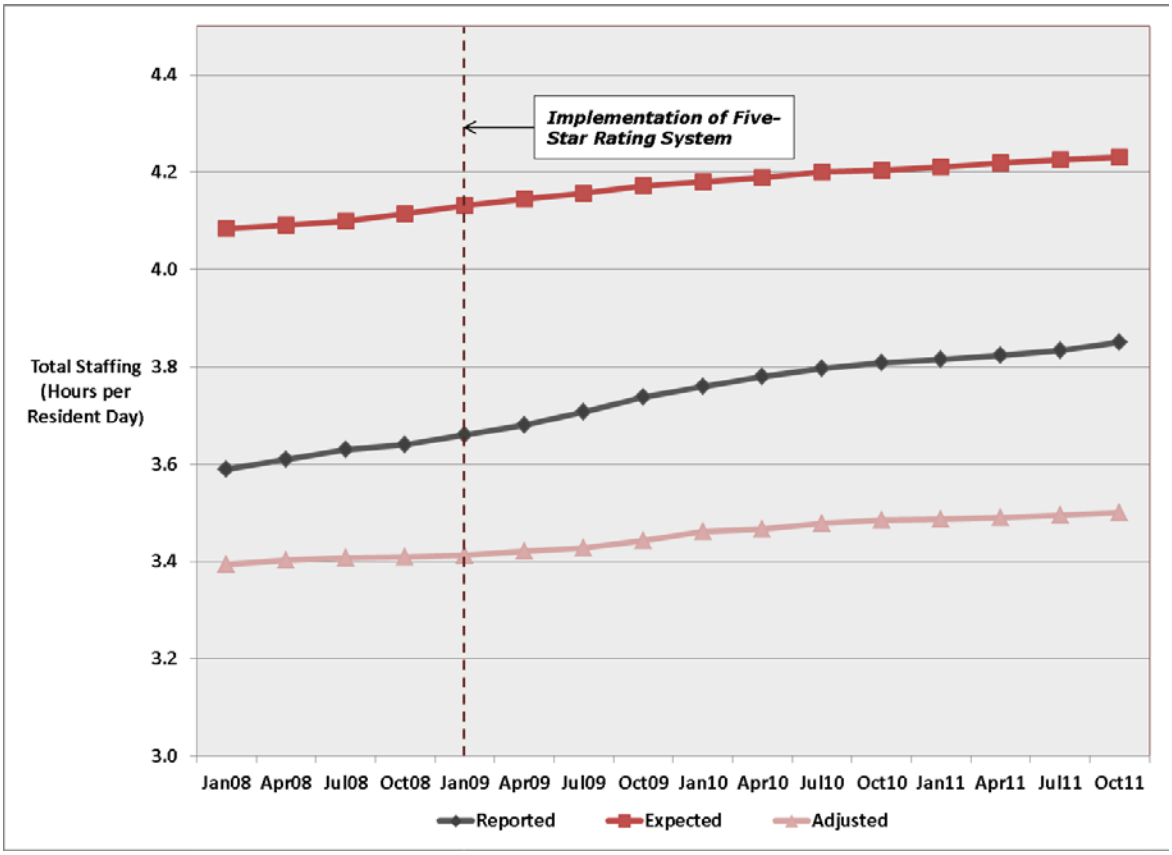
Figure 3.8 Distribution of RN Staffing Ratings (2009–2011)



Additional Analysis of Trends in Staffing

To further explore the trends in the staffing ratings during the first three 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 staffing and CNA staffing across 2009-2011. For comparison, we also include staffing information for 2008, the year prior to implementation of the rating system. These analyses are shown in Figures 3.9a – 3.9d. Recall that nursing homes have the most direct control of reported staffing levels. Expected staffing levels are based on the case-mix in the facility, 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 3.9a Median Total Staffing (2008–2011)



While there has been a slight upward trend in expected staffing (a 2.4 percent increase in the median value over the three-year reporting period), indicating an increase in the severity of case-mix based on MDS 2.0/RUGSIII groupings, there has been a larger increase (5.2 percent, or an average of 1.7 percent per year) in reported total staffing over the same period (Figure 3.9a). As a result, the median for total adjusted staffing has increased modestly from 3.41 to 3.50, a 2.6 percent increase. During the pre-Five-Star period, reported staffing also increased by 1.4 percent, slightly less than the average yearly increase during 2009–2011.

To determine which types of staffing have contributed most to this increase 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 3.9b. LPN staffing is shown in Figure 3.9c and CNA staffing in Figure 3.9d.

Figure 3.9b Median RN Staffing (2008–2011)

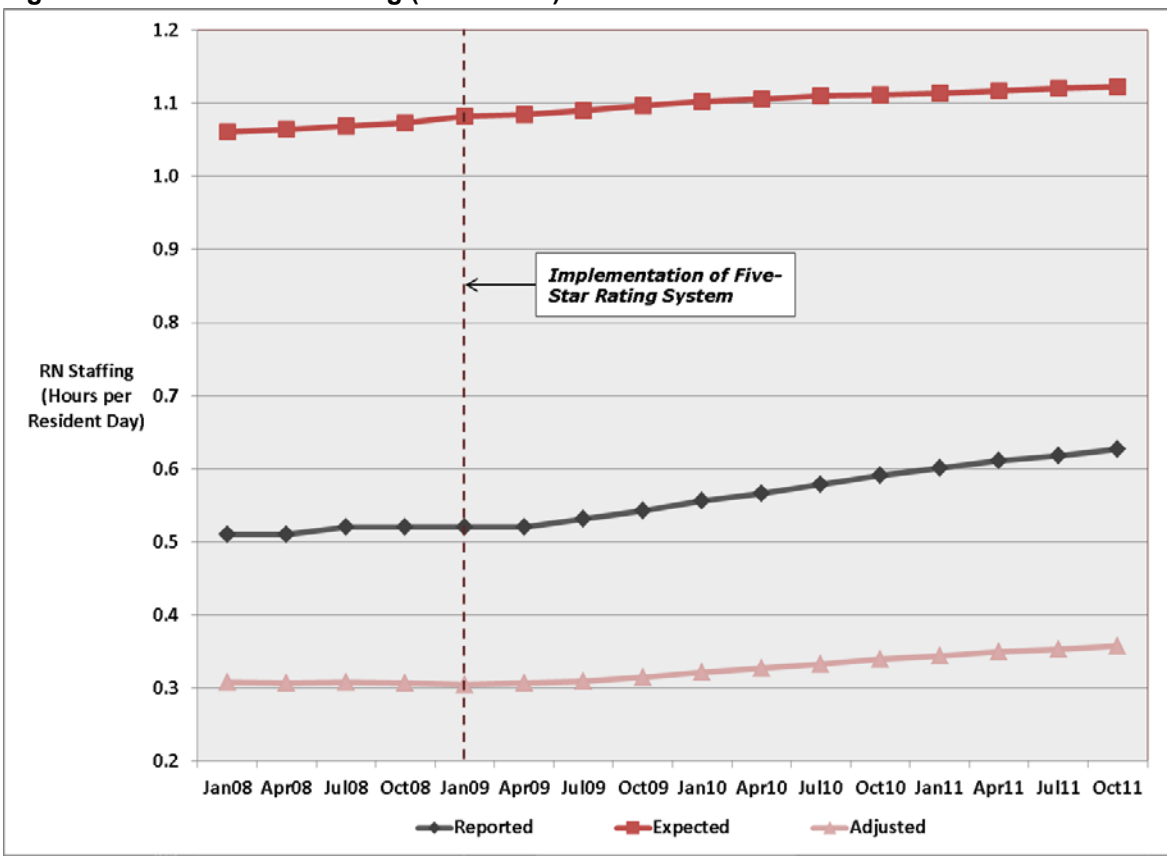


Figure 3.9c Median LPN Staffing (2008–2011)

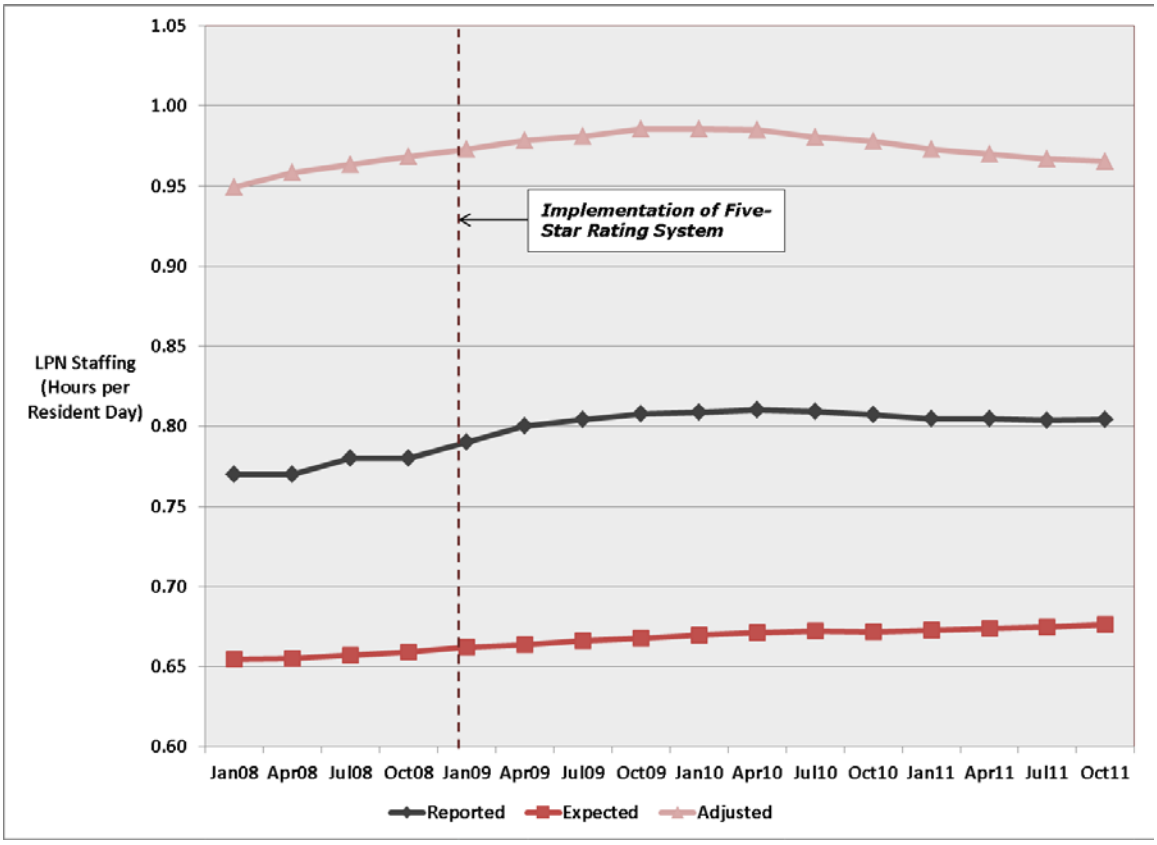
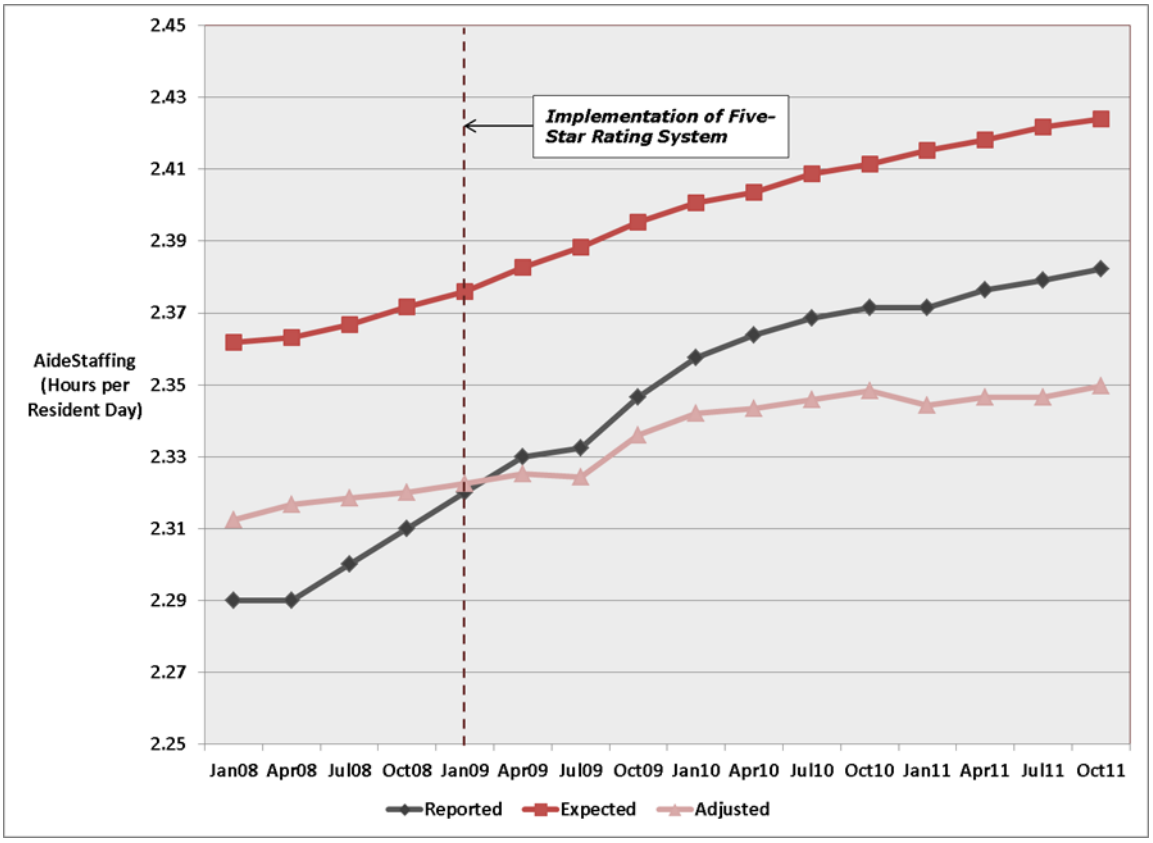


Figure 3.9d Median CNA Staffing (2008–2011)



As for total staffing, reported staffing has increased more than expected staffing; hence, all types of adjusted staffing have increased. Proportionately, by far the largest increases are seen for RN staffing, where the median of reported staffing has increased by 20.4 percent between 2009 and 2011; expected RN staffing has increased by just 3.7 percent over the same interval; thus, adjusted RN staffing has increased by 17.5 percent. This has been the biggest contributor to the observed increases in the staffing ratings. Figure 3.9b also quite clearly shows that the increase in reported RN staffing began soon after the implementation of the Five-Star Quality Rating System.

For LPNs, reported staffing has increased slightly less than expected staffing (1.8 percent vs. 2.1 percent), so adjusted LPN staffing has remained almost flat (0.8 percent decline). Increases in reported (and thus adjusted) LPN staffing during 2009 appear to have been a continuation of a trend that began in 2008. Interestingly, unlike RN staffing, for LPNs, reported staffing consistently exceed adjusted staffing, so that adjusted LPN staffing is on average higher than reported staffing; the opposite holds true for RNs.

There have been some small dips in reported CNA staffing, while expected staffing has increased steadily (Figure 3.9d); so adjusted staffing has generally followed the trend of reported staffing, though the extent to which reported staffing exceeds adjusted staffing appears to have increased slightly over time. Overall for 2009 to 2011, median increases of 2.7 percent in reported staffing and 2.0 percent in expected staffing have resulted in an increase of 1.2 percent in adjusted CNA staffing. Reported CNA staffing was clearly increasing during 2008, and at a faster rate than increases in expected staffing. Coincidentally, when the Five-Star Quality Rating System was first implemented, reported and adjusted staffing for CNAs was nearly identical; since then reported staffing has exceeded adjusted staffing.

4. Conclusions

This report presents a brief overview of the trends in quality 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 and therefore, improve their quality.

The analyses presented in this report provide some evidence of improvement in nursing facility 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 health inspection, quality measure, and staffing domains, as evidenced by the following:

- 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 one-star facilities.
- The proportion of facilities receiving a one-star QM rating decreased from 20.0 percent to 11.0 percent during the rating system's first three years. The proportion receiving a four or five-star rating increased from 34.1 percent to 46.9 percent. The QM rating has been held constant for most of 2011; CMS intends to release a new QM rating, based on Quality Measures derived from MDS 3.0 assessments, in 2012.
- From January 2009 to December 2011, the proportion of facilities with a one-star staffing rating decreased from 22.9 percent to 13.3 percent. While there was only a slight increase in the proportion of facilities with a five-star staffing rating (7.2 percent to 9.0 percent), the proportion with a four-star staffing rating increased from 30.6 percent to 39.3 percent. Additional analyses show that the greatest changes in staffing are due to large increases in reported levels of RN staffing, throughout 2009-2011.
- Reflecting the improvements in QM and staffing ratings, there were also improvements in overall quality ratings during the three years examined. In January 2009, 22.7 percent of facilities had a one-star rating while 35.2 percent had a four- or five-star rating. By December 2011, the proportion with a one-star rating had declined to 15.6 percent, while 43.2 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 advent of the Five-Star Quality Rating System. Observed changes in quality measures and staffing are based on data that are self-reported by facilities. 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 change reflects more accurate reporting because of the additional public scrutiny of the information, since the inception of the rating system. 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 quality ratings (i.e., January through November 2008) to generate hypothetical five-star quality 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 2011, by State

Table A1. Prevalence of 1-star and Five-Star Facilities by State – January 2009 and December 2011

Percent of Facilities	Overall Quality				Health Inspections				Quality Measures				Staffing				RN Staffing			
	★		★★★★★		★		★★★★★		★		★★★★★		★		★★★★★		★		★★★★★	
	Jan 09	Dec 11	Jan 09	Dec 11	Jan 09	Dec 11	Jan 09	Dec 11	Jan 09	Dec 11	Jan 09	Dec 11	Jan 09	Dec 11	Jan 09	Dec 11	Jan 09	Dec 11	Jan 09	Dec 11
All States	**22.7**	**15.6**	**11.8**	**15.9**	**19.8**	**19.3**	**10.6**	**10.6**	**20.0**	**11.0**	**10.1**	**16.1**	**22.9**	**13.3**	**7.2**	**9.0**	**23.7**	**13.3**	**12.0**	**16.9**
Alabama	16.0	9.6	18.2	22.8	19.9	20.2	10.4	9.6	10.0	4.9	22.5	31.4	10.8	3.1	4.5	4.0	31.4	11.2	4.9	6.7
Alaska	0.0	0.0	33.3	33.3	20.0	13.3	20.0	20.0	8.3	8.3	8.3	16.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Arizona	21.2	12.5	15.2	17.6	19.7	16.9	11.4	10.3	22.7	14.2	6.8	13.4	14.0	5.4	5.0	11.5	18.2	2.3	9.1	23.1
Arkansas	20.2	12.4	13.2	20.4	19.7	18.6	10.1	10.6	17.3	9.3	12.9	28.2	16.2	3.7	2.7	2.8	54.5	30.3	3.2	3.2
California	21.5	13.7	12.3	17.7	19.8	18.5	10.3	10.8	27.8	17.2	11.1	17.5	16.9	8.4	9.1	10.2	27.5	15.7	12.6	17.3
Colorado	18.1	7.7	10.0	18.2	20.0	18.7	10.5	10.0	22.5	10.2	6.2	13.6	8.5	3.0	10.1	14.3	5.0	0.5	21.1	38.4
Connecticut	10.0	8.4	17.4	24.4	19.5	19.3	10.4	10.9	13.3	3.8	11.6	24.8	4.3	2.1	12.9	13.9	3.0	1.3	26.7	28.3
Delaware	14.0	2.2	27.9	28.9	18.6	15.6	11.6	8.9	14.6	2.4	12.2	31.7	2.6	2.3	28.2	38.6	7.7	0.0	35.9	54.5
District of Columbia	16.7	15.8	16.7	26.3	16.7	15.8	11.1	10.5	11.1	10.5	11.1	26.3	5.6	10.5	22.2	26.3	16.7	21.1	27.8	26.3
Florida	18.2	10.7	11.4	14.6	19.8	18.6	10.1	11.4	23.7	9.8	6.1	11.0	2.8	3.6	3.4	5.4	27.5	15.6	3.6	5.9
Georgia	32.2	23.7	5.3	12.5	19.9	17.8	10.9	12.5	18.8	10.1	7.6	18.8	61.5	39.2	1.2	1.4	67.6	39.2	2.1	1.4
Hawaii	6.5	6.5	28.3	23.9	19.6	19.6	10.9	10.9	2.3	9.3	25.6	34.9	2.4	4.9	33.3	36.6	0.0	2.4	52.4	63.4
Idaho	14.5	8.9	11.8	17.7	19.7	19.0	10.5	7.6	23.7	15.4	6.6	11.5	5.9	2.7	7.4	18.7	4.4	1.3	14.7	30.7
Illinois	27.0	19.9	10.7	14.2	19.9	19.8	11.1	10.2	28.9	17.0	12.8	14.6	29.8	18.2	8.6	13.1	19.4	8.9	17.4	25.2
Indiana	27.6	15.6	8.7	16.4	20.3	20.0	10.5	11.2	16.7	6.1	8.7	17.6	39.9	15.3	3.7	6.7	31.8	8.2	6.1	12.7
Iowa	18.2	13.9	14.6	17.5	19.8	19.8	10.8	10.5	14.3	8.9	13.8	16.7	17.9	7.0	5.3	6.6	7.5	4.0	14.3	23.5
Kansas	18.0	9.6	11.7	20.0	20.1	18.8	10.2	10.1	18.7	13.1	13.0	19.5	14.7	4.0	7.5	13.5	13.1	3.7	15.0	24.9
Kentucky	23.3	18.9	8.7	14.6	19.9	20.3	10.5	10.7	19.9	12.2	7.0	14.0	26.3	12.1	8.9	8.1	22.6	9.5	11.9	11.4
Louisiana	38.4	32.0	2.8	6.5	19.7	19.8	10.6	11.2	29.9	16.3	2.1	4.7	63.3	44.2	3.7	1.9	75.2	54.3	4.4	2.2
Maine	8.3	3.7	19.3	28.4	19.3	17.4	10.1	10.1	11.1	5.6	8.3	19.4	0.0	0.0	25.5	30.2	0.0	0.0	43.4	65.1

Percent of Facilities	Overall Quality				Health Inspections				Quality Measures				Staffing				RN Staffing			
	★		★★★★★		★		★★★★★		★		★★★★★		★		★★★★★		★		★★★★★	
	Jan 09	Dec 11	Jan 09	Dec 11	Jan 09	Dec 11	Jan 09	Dec 11	Jan 09	Dec 11	Jan 09	Dec 11	Jan 09	Dec 11	Jan 09	Dec 11	Jan 09	Dec 11	Jan 09	Dec 11
Maryland	20.5	10.9	14.4	22.2	19.7	20.0	10.5	12.2	12.2	3.5	15.7	25.0	16.6	4.4	8.5	10.1	22.0	3.5	13.9	17.6
Massachusetts	13.6	8.7	17.8	22.4	19.9	19.3	11.8	12.0	14.6	7.6	13.7	20.3	5.7	1.4	10.7	13.4	3.6	1.4	21.9	32.3
Michigan	20.5	16.0	11.7	15.6	19.8	20.0	10.5	9.0	20.3	8.6	10.5	13.1	15.4	9.5	7.2	9.3	12.9	6.2	11.7	17.9
Minnesota	14.5	7.3	16.0	21.9	19.9	18.5	10.1	12.8	8.8	3.9	19.2	22.9	12.0	1.3	3.4	7.5	7.0	1.3	7.8	22.8
Mississippi	21.5	12.4	14.5	11.4	20.0	18.9	11.0	8.5	19.6	11.6	10.6	12.6	14.4	8.6	8.0	7.1	17.1	14.1	9.6	10.1
Missouri	24.2	15.9	8.6	12.4	19.8	18.6	10.6	9.4	22.1	13.2	9.7	15.4	33.4	14.5	3.2	4.4	41.5	20.8	3.6	5.5
Montana	14.3	8.3	15.4	20.2	19.8	17.9	12.1	11.9	19.1	13.4	4.5	11.0	8.2	2.5	32.9	31.3	5.9	0.0	48.2	45.0
Nebraska	14.4	10.9	14.4	21.7	19.8	20.8	10.4	10.9	16.2	8.3	12.6	18.3	10.0	2.8	10.9	13.2	9.0	2.8	19.0	23.1
Nevada	25.0	16.3	14.6	14.3	18.8	20.4	10.4	8.2	26.7	17.4	2.2	8.7	19.1	4.3	14.9	15.2	10.6	0.0	21.3	19.6
New Hampshire	6.4	11.5	20.5	24.4	19.2	21.8	10.3	10.3	10.3	6.4	14.1	20.5	2.6	0.0	22.4	15.8	1.3	0.0	32.9	35.5
New Jersey	21.9	14.1	12.7	16.0	19.7	19.3	10.8	10.2	15.0	8.8	11.0	17.2	19.7	11.2	8.0	10.6	10.9	6.2	17.1	23.8
New Mexico	29.4	14.3	11.8	11.4	19.1	18.6	10.3	8.6	19.1	10.1	5.9	13.0	33.9	17.6	11.3	13.2	24.2	10.3	12.9	20.6
New York	20.9	18.1	14.2	13.6	20.0	19.5	10.3	10.8	14.3	7.8	13.5	16.9	22.2	20.4	5.2	5.0	16.1	11.9	11.3	8.8
North Carolina	26.9	16.6	11.4	16.4	19.8	18.8	10.2	12.4	14.1	6.7	5.7	16.4	29.2	19.2	6.5	7.7	21.6	15.2	8.3	11.4
North Dakota	8.4	7.1	14.5	21.4	19.3	16.7	10.8	11.9	14.5	7.5	10.8	13.8	2.4	2.4	17.1	25.0	2.4	1.2	25.6	35.7
Ohio	27.9	18.9	9.4	11.9	20.0	19.7	10.3	10.8	27.7	16.1	5.2	9.7	28.4	15.9	3.9	6.0	19.1	9.1	6.5	9.5
Oklahoma	26.1	19.7	7.3	8.7	19.7	19.7	10.5	9.7	32.0	17.5	3.9	9.6	17.9	15.4	2.7	3.7	45.3	34.8	3.7	4.3
Oregon	17.4	8.1	11.6	20.0	19.6	19.3	10.1	10.4	37.2	19.7	2.2	12.9	3.7	1.5	14.0	25.0	4.4	2.3	19.9	30.3
Pennsylvania	25.8	20.8	11.5	13.8	20.0	20.1	12.5	9.6	17.7	10.7	9.1	15.2	25.8	16.1	8.0	8.1	12.5	7.0	14.2	17.6
Rhode Island	15.3	7.1	14.1	29.4	20.0	20.0	11.8	15.3	20.0	3.5	11.8	23.5	4.9	1.2	14.8	17.6	1.2	1.2	34.6	42.4
South Carolina	27.4	9.1	13.1	20.4	20.0	20.4	10.3	10.8	17.7	3.8	6.9	17.0	25.6	5.6	8.9	10.7	31.5	7.9	9.5	12.4
South Dakota	14.7	12.7	15.6	22.7	19.3	20.9	10.1	11.8	14.7	5.6	9.2	18.5	5.6	0.9	6.5	11.2	1.9	0.9	25.9	43.9

Percent of Facilities	Overall Quality				Health Inspections				Quality Measures				Staffing				RN Staffing			
	★		★★★★★		★		★★★★★		★		★★★★★		★		★★★★★		★		★★★★★	
	Jan 09	Dec 11	Jan 09	Dec 11	Jan 09	Dec 11	Jan 09	Dec 11	Jan 09	Dec 11	Jan 09	Dec 11	Jan 09	Dec 11	Jan 09	Dec 11	Jan 09	Dec 11	Jan 09	Dec 11
Tennessee	30.1	16.7	7.9	14.1	19.9	19.2	10.8	10.3	23.8	8.0	8.3	18.0	46.0	15.8	2.3	3.6	43.6	15.8	4.0	8.2
Texas	27.6	23.9	9.8	10.4	19.9	19.8	10.3	10.1	11.7	8.8	14.2	16.8	42.2	38.4	2.3	2.6	48.0	41.1	2.6	3.2
Utah	17.6	16.8	9.9	8.4	17.6	21.1	11.0	7.4	27.8	27.2	8.9	8.7	11.9	4.3	11.9	19.4	6.0	0.0	19.0	44.1
Vermont	17.5	2.5	17.5	12.5	20.0	20.0	10.0	7.5	20.0	2.5	15.0	12.5	13.2	0.0	7.9	15.0	13.2	0.0	18.4	27.5
Virginia	32.0	19.8	10.2	17.0	20.0	18.0	10.9	11.3	16.1	7.2	7.7	17.4	40.9	18.6	7.2	8.6	39.8	15.4	9.1	11.8
Washington	26.6	15.5	11.8	19.0	19.8	20.4	10.1	10.6	38.0	19.5	3.8	11.1	11.4	6.3	13.1	17.0	6.6	4.0	24.0	37.5
West Virginia	27.7	23.8	9.2	7.5	20.0	22.5	10.0	10.0	25.4	20.0	6.2	10.0	33.9	13.3	10.5	13.3	22.6	5.3	12.1	16.0
Wisconsin	18.3	10.5	12.6	16.1	19.8	19.9	10.0	10.0	14.2	11.1	7.2	12.7	8.2	3.2	9.2	11.3	4.0	1.3	17.7	30.1
Wyoming	20.5	5.3	12.8	21.1	17.9	18.4	10.3	10.5	30.8	13.5	0.0	10.8	7.7	0.0	35.9	44.7	7.7	0.0	46.2	73.7

Table A2. Distribution of Overall Facility Ratings, by State, January 2009 and December 2011

	Overall Facility Ratings											
	January 2009						December 2011					
	Total #	Percent of Nursing Homes					Total #	Percent of Nursing Homes				
		★	★★	★★★	★★★★	★★★★★		★	★★	★★★	★★★★	★★★★★
All States	15,555	22.7	20.7	21.5	23.4	11.8	15,509	15.6	19.9	21.2	27.4	15.9
Alabama	231	16.0	20.8	15.2	29.9	18.2	228	9.6	19.3	18.0	30.3	22.8
Alaska	15	0.0	26.7	20.0	20.0	33.3	15	0.0	26.7	13.3	26.7	33.3
Arizona	132	21.2	22.0	19.7	22.0	15.2	136	12.5	19.1	18.4	32.4	17.6
Arkansas	228	20.2	19.7	27.2	19.7	13.2	226	12.4	17.7	24.3	25.2	20.4
California	1,247	21.5	21.3	22.9	22.1	12.3	1,230	13.7	20.1	21.9	26.6	17.7
Colorado	210	18.1	19.0	20.5	32.4	10.0	209	7.7	20.1	23.9	30.1	18.2
Connecticut	241	10.0	22.4	21.6	28.6	17.4	238	8.4	17.6	16.4	33.2	24.4
Delaware	43	14.0	20.9	18.6	18.6	27.9	45	2.2	17.8	11.1	40.0	28.9
District of Columbia	18	16.7	11.1	22.2	33.3	16.7	19	15.8	15.8	10.5	31.6	26.3
Florida	676	18.2	20.4	21.9	28.1	11.4	676	10.7	18.3	23.2	33.1	14.6
Georgia	357	32.2	22.7	23.2	16.5	5.3	359	23.7	18.7	20.9	24.2	12.5
Hawaii	46	6.5	28.3	10.9	26.1	28.3	46	6.5	17.4	26.1	26.1	23.9
Idaho	76	14.5	18.4	21.1	34.2	11.8	79	8.9	22.8	26.6	24.1	17.7
Illinois	784	27.0	21.4	20.7	20.2	10.7	777	19.9	20.8	20.8	24.2	14.2
Indiana	497	27.6	23.1	19.7	20.9	8.7	500	15.6	20.2	20.8	27.0	16.4
Iowa	444	18.2	20.7	20.0	26.4	14.6	439	13.9	19.1	22.6	26.9	17.5
Kansas	334	18.0	23.7	18.3	28.4	11.7	335	9.6	20.6	20.3	29.6	20.0
Kentucky	287	23.3	22.3	23.0	22.6	8.7	281	18.9	19.6	23.5	23.5	14.6
Louisiana	284	38.4	25.4	19.4	14.1	2.8	278	32.0	21.9	18.7	20.9	6.5

	Overall Facility Ratings											
	January 2009						December 2011					
	Total #	Percent of Nursing Homes					Total #	Percent of Nursing Homes				
		★	★★	★★★	★★★★	★★★★★		★	★★	★★★	★★★★	★★★★★
Maine	109	8.3	20.2	17.4	34.9	19.3	109	3.7	21.1	17.4	29.4	28.4
Maryland	229	20.5	17.9	22.7	24.5	14.4	230	10.9	20.4	18.7	27.8	22.2
Massachusetts	433	13.6	21.9	21.2	25.4	17.8	425	8.7	19.5	20.0	29.4	22.4
Michigan	419	20.5	18.9	22.7	26.3	11.7	424	16.0	17.9	20.5	30.0	15.6
Minnesota	387	14.5	21.2	21.7	26.6	16.0	384	7.3	19.0	18.8	33.1	21.9
Mississippi	200	21.5	19.0	20.0	25.0	14.5	201	12.4	22.4	20.9	32.8	11.4
Missouri	509	24.2	23.0	23.4	20.8	8.6	510	15.9	19.0	23.5	29.2	12.4
Montana	91	14.3	20.9	15.4	34.1	15.4	84	8.3	17.9	28.6	25.0	20.2
Nebraska	222	14.4	20.7	23.0	27.5	14.4	221	10.9	16.7	22.2	28.5	21.7
Nevada	48	25.0	12.5	31.3	16.7	14.6	49	16.3	20.4	26.5	22.4	14.3
New Hampshire	78	6.4	24.4	19.2	29.5	20.5	78	11.5	17.9	20.5	25.6	24.4
New Jersey	361	21.9	18.0	24.1	23.3	12.7	362	14.1	19.3	21.3	29.3	16.0
New Mexico	68	29.4	22.1	16.2	20.6	11.8	70	14.3	14.3	34.3	25.7	11.4
New York	650	20.9	21.4	19.5	24.0	14.2	631	18.1	20.4	22.7	25.2	13.6
North Carolina	420	26.9	17.6	21.2	22.9	11.4	421	16.6	19.7	20.0	27.3	16.4
North Dakota	83	8.4	18.1	16.9	42.2	14.5	84	7.1	15.5	16.7	39.3	21.4
Ohio	946	27.9	21.0	20.8	20.8	9.4	954	18.9	20.8	22.4	26.0	11.9
Oklahoma	314	26.1	19.4	21.0	26.1	7.3	309	19.7	22.3	22.0	27.2	8.7
Oregon	138	17.4	20.3	29.0	21.7	11.6	135	8.1	19.3	25.2	27.4	20.0
Pennsylvania	705	25.8	19.1	20.4	23.1	11.5	708	20.8	18.4	19.6	27.4	13.8

	Overall Facility Ratings											
	January 2009						December 2011					
	Total #	Percent of Nursing Homes					Total #	Percent of Nursing Homes				
		★	★★	★★★	★★★★	★★★★★		★	★★	★★★	★★★★	★★★★★
Rhode Island	85	15.3	17.6	21.2	31.8	14.1	85	7.1	16.5	27.1	20.0	29.4
South Carolina	175	27.4	16.0	22.9	20.6	13.1	186	9.1	22.6	24.2	23.7	20.4
South Dakota	109	14.7	26.6	19.3	23.9	15.6	110	12.7	18.2	20.9	25.5	22.7
Tennessee	316	30.1	24.1	21.5	16.5	7.9	312	16.7	23.4	19.2	26.6	14.1
Texas	1,109	27.6	20.9	22.6	19.0	9.8	1,158	23.9	21.9	20.6	23.1	10.4
Utah	91	17.6	20.9	25.3	26.4	9.9	95	16.8	18.9	27.4	28.4	8.4
Vermont	40	17.5	20.0	22.5	22.5	17.5	40	2.5	25.0	20.0	40.0	12.5
Virginia	275	32.0	19.3	18.5	20.0	10.2	283	19.8	20.5	19.1	23.7	17.0
Washington	237	26.6	16.0	21.5	24.1	11.8	226	15.5	19.5	20.4	25.7	19.0
West Virginia	130	27.7	23.1	18.5	21.5	9.2	80	23.8	18.8	16.3	33.8	7.5
Wisconsin	389	18.3	15.4	26.5	27.2	12.6	391	10.5	22.0	19.9	31.5	16.1
Wyoming	39	20.5	12.8	23.1	30.8	12.8	38	5.3	18.4	23.7	31.6	21.1

Table A3. Distribution of Ratings for Health Inspections, by State, January 2009 and December 2011

	Ratings for Health Inspections											
	January 2009						December 2011					
	Total #	Percent of Nursing Homes					Total #	Percent of Nursing Homes				
		★	★★	★★★	★★★★	★★★★★		★	★★	★★★	★★★★	★★★★★
All States	15,555	19.8	23.1	23.2	23.3	10.6	15,509	19.3	22.8	23.6	23.7	10.6
Alabama	231	19.9	23.4	21.6	24.7	10.4	228	20.2	23.7	23.2	23.2	9.6
Alaska	15	20.0	20.0	26.7	13.3	20.0	15	13.3	26.7	26.7	13.3	20.0
Arizona	132	19.7	22.0	25.0	22.0	11.4	136	16.9	22.1	25.0	25.7	10.3
Arkansas	228	19.7	23.2	23.7	23.2	10.1	226	18.6	24.8	21.7	24.3	10.6
California	1,247	19.8	23.5	22.9	23.5	10.3	1,230	18.5	22.9	24.4	23.4	10.8
Colorado	210	20.0	23.3	22.9	23.3	10.5	209	18.7	23.9	22.5	24.9	10.0
Connecticut	241	19.5	23.7	22.4	24.1	10.4	238	19.3	20.6	26.1	23.1	10.9
Delaware	43	18.6	23.3	23.3	23.3	11.6	45	15.6	24.4	26.7	24.4	8.9
District of Columbia	18	16.7	22.2	27.8	22.2	11.1	19	15.8	21.1	26.3	26.3	10.5
Florida	676	19.8	23.1	23.5	23.5	10.1	676	18.6	21.4	24.4	24.1	11.4
Georgia	357	19.9	22.4	22.1	24.6	10.9	359	17.8	20.9	24.0	24.8	12.5
Hawaii	46	19.6	21.7	23.9	23.9	10.9	46	19.6	23.9	28.3	17.4	10.9
Idaho	76	19.7	22.4	23.7	23.7	10.5	79	19.0	25.3	21.5	26.6	7.6
Illinois	784	19.9	23.2	23.2	22.6	11.1	777	19.8	23.9	22.7	23.4	10.2
Indiana	497	20.3	23.1	23.1	22.9	10.5	500	20.0	23.2	21.4	24.2	11.2
Iowa	444	19.8	23.0	23.0	23.4	10.8	439	19.8	23.0	22.6	24.1	10.5
Kansas	334	20.1	23.4	23.4	23.1	10.2	335	18.8	24.5	20.0	26.6	10.1
Kentucky	287	19.9	23.0	23.3	23.3	10.5	281	20.3	22.8	26.7	19.6	10.7
Louisiana	284	19.7	23.6	23.2	22.9	10.6	278	19.8	22.7	22.3	24.1	11.2

	Ratings for Health Inspections											
	January 2009						December 2011					
	Total #	Percent of Nursing Homes					Total #	Percent of Nursing Homes				
		★	★★	★★★	★★★★	★★★★★		★	★★	★★★	★★★★	★★★★★
Maine	109	19.3	23.9	22.9	23.9	10.1	109	17.4	23.9	19.3	29.4	10.1
Maryland	229	19.7	23.6	22.3	24.0	10.5	230	20.0	22.6	21.7	23.5	12.2
Massachusetts	433	19.9	22.2	24.0	22.2	11.8	425	19.3	22.6	24.2	21.9	12.0
Michigan	419	19.8	23.4	23.4	22.9	10.5	424	20.0	23.6	24.3	23.1	9.0
Minnesota	387	19.9	23.3	22.7	24.0	10.1	384	18.5	22.1	24.5	22.1	12.8
Mississippi	200	20.0	23.0	23.0	23.0	11.0	201	18.9	22.9	24.4	25.4	8.5
Missouri	509	19.8	23.2	22.8	23.6	10.6	510	18.6	24.3	22.5	25.1	9.4
Montana	91	19.8	23.1	23.1	22.0	12.1	84	17.9	23.8	28.6	17.9	11.9
Nebraska	222	19.8	22.5	23.9	23.4	10.4	221	20.8	20.4	22.6	25.3	10.9
Nevada	48	18.8	22.9	25.0	22.9	10.4	49	20.4	24.5	20.4	26.5	8.2
New Hampshire	78	19.2	21.8	24.4	24.4	10.3	78	21.8	20.5	28.2	19.2	10.3
New Jersey	361	19.7	22.4	24.4	22.7	10.8	362	19.3	20.2	25.4	24.9	10.2
New Mexico	68	19.1	23.5	23.5	23.5	10.3	70	18.6	21.4	22.9	28.6	8.6
New York	650	20.0	23.2	23.4	23.1	10.3	631	19.5	23.3	23.0	23.5	10.8
North Carolina	420	19.8	23.3	22.6	24.0	10.2	421	18.8	22.1	24.0	22.8	12.4
North Dakota	83	19.3	22.9	24.1	22.9	10.8	84	16.7	23.8	27.4	20.2	11.9
Ohio	946	20.0	23.3	22.3	24.2	10.3	954	19.7	22.2	24.0	23.3	10.8
Oklahoma	314	19.7	23.6	22.9	23.2	10.5	309	19.7	24.9	22.0	23.6	9.7
Oregon	138	19.6	23.2	23.9	23.2	10.1	135	19.3	23.0	24.4	23.0	10.4
Pennsylvania	705	20.0	23.3	23.0	21.3	12.5	708	20.1	22.5	22.0	25.8	9.6

	Ratings for Health Inspections											
	January 2009						December 2011					
	Total #	Percent of Nursing Homes					Total #	Percent of Nursing Homes				
		★	★★	★★★	★★★★	★★★★★		★	★★	★★★	★★★★	★★★★★
Rhode Island	85	20.0	22.4	23.5	22.4	11.8	85	20.0	21.2	20.0	23.5	15.3
South Carolina	175	20.0	22.3	24.0	23.4	10.3	186	20.4	21.0	25.3	22.6	10.8
South Dakota	109	19.3	23.9	22.9	23.9	10.1	110	20.9	25.5	20.0	21.8	11.8
Tennessee	316	19.9	23.1	22.5	23.7	10.8	312	19.2	24.4	24.7	21.5	10.3
Texas	1,109	19.9	23.1	23.5	23.2	10.3	1,158	19.8	22.5	23.7	23.8	10.1
Utah	91	17.6	24.2	24.2	23.1	11.0	95	21.1	27.4	20.0	24.2	7.4
Vermont	40	20.0	22.5	22.5	25.0	10.0	40	20.0	22.5	25.0	25.0	7.5
Virginia	275	20.0	22.2	24.0	22.9	10.9	283	18.0	24.4	24.0	22.3	11.3
Washington	237	19.8	22.8	24.1	23.2	10.1	226	20.4	21.2	25.7	22.1	10.6
West Virginia	130	20.0	23.1	23.1	23.8	10.0	80	22.5	22.5	23.8	21.3	10.0
Wisconsin	389	19.8	23.4	23.1	23.7	10.0	391	19.9	22.0	24.0	24.0	10.0
Wyoming	39	17.9	23.1	25.6	23.1	10.3	38	18.4	21.1	26.3	23.7	10.5

Table A4. Distribution of Ratings for MDS Quality Measures, by State, January 2009 and December 2011

	Ratings for MDS Quality Measures											
	January 2009						December 2011					
		Percent of Nursing Homes						Percent of Nursing Homes				
	Total #	★	★★	★★★	★★★★	★★★★★	Total #	★	★★	★★★	★★★★	★★★★★
All States	15,459	20.0	22.8	23.2	24.0	10.1	15,319	11.0	18.0	24.1	30.8	16.1
Alabama	231	10.0	20.3	16.0	31.2	22.5	226	4.9	10.6	21.2	31.9	31.4
Alaska	12	8.3	25.0	8.3	50.0	8.3	12	8.3	16.7	33.3	25.0	16.7
Arizona	132	22.7	25.8	24.2	20.5	6.8	134	14.2	18.7	26.9	26.9	13.4
Arkansas	225	17.3	21.3	20.4	28.0	12.9	216	9.3	13.9	21.3	27.3	28.2
California	1,233	27.8	21.2	20.0	19.9	11.1	1,214	17.2	20.3	19.8	25.2	17.5
Colorado	209	22.5	21.5	22.5	27.3	6.2	206	10.2	20.4	26.7	29.1	13.6
Connecticut	241	13.3	22.4	25.3	27.4	11.6	238	3.8	16.8	26.5	28.2	24.8
Delaware	41	14.6	12.2	26.8	34.1	12.2	41	2.4	14.6	17.1	34.1	31.7
District of Columbia	18	11.1	5.6	22.2	50.0	11.1	19	10.5	10.5	15.8	36.8	26.3
Florida	674	23.7	27.3	21.5	21.4	6.1	674	9.8	20.5	23.3	35.5	11.0
Georgia	356	18.8	24.2	29.8	19.7	7.6	357	10.1	16.2	22.4	32.5	18.8
Hawaii	43	2.3	16.3	25.6	30.2	25.6	43	9.3	4.7	14.0	37.2	34.9
Idaho	76	23.7	34.2	19.7	15.8	6.6	78	15.4	17.9	26.9	28.2	11.5
Illinois	776	28.9	22.3	20.9	15.2	12.8	769	17.0	20.5	22.0	25.9	14.6
Indiana	497	16.7	21.7	23.7	29.2	8.7	494	6.1	11.9	28.5	35.8	17.6
Iowa	442	14.3	19.2	24.2	28.5	13.8	436	8.9	18.8	23.6	31.9	16.7
Kansas	332	18.7	20.8	23.2	24.4	13.0	328	13.1	16.2	22.3	29.0	19.5
Kentucky	286	19.9	24.1	22.7	26.2	7.0	279	12.2	15.1	26.2	32.6	14.0

	Ratings for MDS Quality Measures											
	January 2009						December 2011					
	Total #	Percent of Nursing Homes					Total #	Percent of Nursing Homes				
		★	★★	★★★	★★★★	★★★★★		★	★★	★★★	★★★★	★★★★★
Louisiana	284	29.9	27.8	22.9	17.3	2.1	276	16.3	26.8	26.1	26.1	4.7
Maine	108	11.1	22.2	24.1	34.3	8.3	108	5.6	13.0	23.1	38.9	19.4
Maryland	229	12.2	20.5	20.5	31.0	15.7	228	3.5	13.2	25.9	32.5	25.0
Massachusetts	432	14.6	23.4	25.0	23.4	13.7	423	7.6	15.4	23.4	33.3	20.3
Michigan	418	20.3	19.9	24.2	25.1	10.5	420	8.6	18.8	25.0	34.5	13.1
Minnesota	386	8.8	20.5	23.3	28.2	19.2	384	3.9	17.4	20.8	34.9	22.9
Mississippi	199	19.6	22.6	21.6	25.6	10.6	198	11.6	17.7	19.7	38.4	12.6
Missouri	507	22.1	22.5	22.7	23.1	9.7	506	13.2	16.0	27.5	27.9	15.4
Montana	89	19.1	25.8	24.7	25.8	4.5	82	13.4	14.6	30.5	30.5	11.0
Nebraska	222	16.2	17.1	23.4	30.6	12.6	218	8.3	15.6	25.2	32.6	18.3
Nevada	45	26.7	28.9	17.8	24.4	2.2	46	17.4	13.0	21.7	39.1	8.7
New Hampshire	78	10.3	24.4	25.6	25.6	14.1	78	6.4	19.2	25.6	28.2	20.5
New Jersey	354	15.0	25.7	22.9	25.4	11.0	354	8.8	19.2	21.5	33.3	17.2
New Mexico	68	19.1	17.6	30.9	26.5	5.9	69	10.1	17.4	21.7	37.7	13.0
New York	645	14.3	20.3	22.3	29.6	13.5	628	7.8	17.7	24.5	33.1	16.9
North Carolina	418	14.1	23.7	26.6	29.9	5.7	415	6.7	13.0	27.2	36.6	16.4
North Dakota	83	14.5	19.3	28.9	26.5	10.8	80	7.5	15.0	28.8	35.0	13.8
Ohio	941	27.7	28.7	21.8	16.6	5.2	944	16.1	23.8	24.6	25.7	9.7
Oklahoma	309	32.0	21.7	23.3	19.1	3.9	302	17.5	25.2	24.8	22.8	9.6
Oregon	137	37.2	27.7	20.4	12.4	2.2	132	19.7	25.0	23.5	18.9	12.9

	Ratings for MDS Quality Measures											
	January 2009						December 2011					
	Total #	Percent of Nursing Homes					Total #	Percent of Nursing Homes				
		★	★★	★★★	★★★★	★★★★★		★	★★	★★★	★★★★	★★★★★
Pennsylvania	701	17.7	24.0	24.3	25.0	9.1	704	10.7	14.1	26.0	34.1	15.2
Rhode Island	85	20.0	20.0	18.8	29.4	11.8	85	3.5	15.3	27.1	30.6	23.5
South Carolina	175	17.7	22.3	26.3	26.9	6.9	182	3.8	13.7	30.2	35.2	17.0
South Dakota	109	14.7	22.0	22.9	31.2	9.2	108	5.6	13.9	32.4	29.6	18.5
Tennessee	315	23.8	23.5	22.5	21.9	8.3	311	8.0	14.1	27.7	32.2	18.0
Texas	1,104	11.7	19.2	26.2	28.7	14.2	1,136	8.8	18.6	23.0	32.8	16.8
Utah	90	27.8	27.8	15.6	20.0	8.9	92	27.2	22.8	23.9	17.4	8.7
Vermont	40	20.0	30.0	27.5	7.5	15.0	40	2.5	30.0	20.0	35.0	12.5
Virginia	274	16.1	23.7	26.3	26.3	7.7	276	7.2	13.4	29.0	33.0	17.4
Washington	234	38.0	20.1	22.2	15.8	3.8	226	19.5	25.7	20.4	23.5	11.1
West Virginia	130	25.4	30.0	20.8	17.7	6.2	80	20.0	23.8	20.0	26.3	10.0
Wisconsin	387	14.2	24.5	28.4	25.6	7.2	387	11.1	18.6	24.3	33.3	12.7
Wyoming	39	30.8	25.6	15.4	28.2	0.0	37	13.5	24.3	21.6	29.7	10.8

Table A5. Distribution of Ratings for Overall Staffing, by State, January 2009 and December 2011

	Ratings for Overall Staffing											
	January 2009						December 2011					
		Percent of Nursing Homes						Percent of Nursing Homes				
	Total #	★	★★	★★★	★★★★	★★★★★	Total #	★	★★	★★★	★★★★	★★★★★
All States	14,713	22.9	19.6	19.8	30.6	7.2	15,091	13.3	17.2	21.2	39.3	9.0
Alabama	223	10.8	23.3	21.1	40.4	4.5	224	3.1	9.8	26.8	56.3	4.0
Alaska	12	0.0	0.0	0.0	0.0	100.0	13	0.0	0.0	0.0	0.0	100.0
Arizona	121	14.0	23.1	20.7	37.2	5.0	130	5.4	10.8	20.8	51.5	11.5
Arkansas	222	16.2	30.6	26.1	24.3	2.7	218	3.7	21.1	32.1	40.4	2.8
California	1,156	16.9	19.4	20.6	34.1	9.1	1,182	8.4	15.5	19.6	46.4	10.2
Colorado	199	8.5	11.6	21.1	48.7	10.1	203	3.0	8.4	16.3	58.1	14.3
Connecticut	232	4.3	6.5	19.0	57.3	12.9	237	2.1	8.0	19.0	57.0	13.9
Delaware	39	2.6	12.8	12.8	43.6	28.2	44	2.3	0.0	4.5	54.5	38.6
District of Columbia	18	5.6	11.1	27.8	33.3	22.2	19	10.5	21.1	10.5	31.6	26.3
Florida	647	2.8	19.5	25.7	48.7	3.4	666	3.6	13.2	22.8	55.0	5.4
Georgia	340	61.5	17.9	10.3	9.1	1.2	352	39.2	19.6	21.0	18.8	1.4
Hawaii	42	2.4	7.1	23.8	33.3	33.3	41	4.9	4.9	17.1	36.6	36.6
Idaho	68	5.9	10.3	17.6	58.8	7.4	75	2.7	6.7	17.3	54.7	18.7
Illinois	689	29.8	27.9	14.4	19.4	8.6	727	18.2	21.5	18.8	28.5	13.1
Indiana	456	39.9	18.6	18.0	19.7	3.7	490	15.3	22.2	22.0	33.7	6.7
Iowa	413	17.9	24.9	17.4	34.4	5.3	426	7.0	19.7	22.3	44.4	6.6
Kansas	306	14.7	17.6	21.6	38.6	7.5	325	4.0	13.5	14.8	54.2	13.5
Kentucky	270	26.3	22.6	17.4	24.8	8.9	273	12.1	22.7	23.4	33.7	8.1
Louisiana	270	63.3	19.6	6.7	6.7	3.7	267	44.2	24.7	17.6	11.6	1.9

	Ratings for Overall Staffing											
	January 2009						December 2011					
	Total #	Percent of Nursing Homes					Total #	Percent of Nursing Homes				
		★	★★	★★★	★★★★	★★★★★		★	★★	★★★	★★★★	★★★★★
Maine	106	0.0	3.8	14.2	56.6	25.5	106	0.0	3.8	7.5	58.5	30.2
Maryland	223	16.6	23.3	21.1	30.5	8.5	227	4.4	13.2	28.6	43.6	10.1
Massachusetts	421	5.7	12.4	23.5	47.7	10.7	418	1.4	6.0	23.0	56.2	13.4
Michigan	403	15.4	18.4	19.1	40.0	7.2	420	9.5	13.6	21.0	46.7	9.3
Minnesota	357	12.0	14.0	29.4	41.2	3.4	373	1.3	13.1	20.6	57.4	7.5
Mississippi	187	14.4	17.1	21.4	39.0	8.0	198	8.6	14.1	23.7	46.5	7.1
Missouri	470	33.4	19.8	20.6	23.0	3.2	495	14.5	16.0	23.6	41.4	4.4
Montana	85	8.2	11.8	12.9	34.1	32.9	80	2.5	7.5	11.3	47.5	31.3
Nebraska	211	10.0	15.6	24.2	39.3	10.9	212	2.8	13.2	18.4	52.4	13.2
Nevada	47	19.1	21.3	14.9	29.8	14.9	46	4.3	19.6	23.9	37.0	15.2
New Hampshire	76	2.6	7.9	15.8	51.3	22.4	76	0.0	9.2	19.7	55.3	15.8
New Jersey	350	19.7	22.0	21.7	28.6	8.0	357	11.2	13.4	25.5	39.2	10.6
New Mexico	62	33.9	19.4	21.0	14.5	11.3	68	17.6	29.4	10.3	29.4	13.2
New York	635	22.2	15.6	22.0	35.0	5.2	623	20.4	20.4	22.5	31.8	5.0
North Carolina	384	29.2	22.1	19.5	22.7	6.5	402	19.2	18.7	22.9	31.6	7.7
North Dakota	82	2.4	3.7	7.3	69.5	17.1	84	2.4	3.6	4.8	64.3	25.0
Ohio	913	28.4	18.9	20.6	28.1	3.9	941	15.9	18.6	25.4	34.1	6.0
Oklahoma	296	17.9	28.4	22.6	28.4	2.7	299	15.4	23.1	24.1	33.8	3.7
Oregon	136	3.7	7.4	23.5	51.5	14.0	132	1.5	9.8	9.1	54.5	25.0
Pennsylvania	690	25.8	24.3	19.7	22.2	8.0	703	16.1	28.2	22.6	25.0	8.1

	Ratings for Overall Staffing											
	January 2009						December 2011					
		Percent of Nursing Homes						Percent of Nursing Homes				
	Total #	★	★★	★★★	★★★★	★★★★★	Total #	★	★★	★★★	★★★★	★★★★★
Rhode Island	81	4.9	7.4	23.5	49.4	14.8	85	1.2	9.4	14.1	57.6	17.6
South Carolina	168	25.6	24.4	19.0	22.0	8.9	177	5.6	11.9	26.6	45.2	10.7
South Dakota	108	5.6	26.9	30.6	30.6	6.5	107	0.9	18.7	22.4	46.7	11.2
Tennessee	298	46.0	22.1	14.4	15.1	2.3	304	15.8	20.1	28.9	31.6	3.6
Texas	1,044	42.2	25.1	16.6	13.8	2.3	1,118	38.4	23.5	17.3	18.2	2.6
Utah	84	11.9	20.2	25.0	31.0	11.9	93	4.3	11.8	19.4	45.2	19.4
Vermont	38	13.2	10.5	23.7	44.7	7.9	40	0.0	5.0	17.5	62.5	15.0
Virginia	264	40.9	20.8	13.3	17.8	7.2	279	18.6	23.3	24.4	25.1	8.6
Washington	229	11.4	16.2	24.0	35.4	13.1	224	6.3	13.8	16.1	46.9	17.0
West Virginia	124	33.9	20.2	13.7	21.8	10.5	75	13.3	25.3	22.7	25.3	13.3
Wisconsin	379	8.2	14.8	25.1	42.7	9.2	379	3.2	14.8	19.5	51.2	11.3
Wyoming	39	7.7	10.3	23.1	23.1	35.9	38	0.0	2.6	10.5	42.1	44.7

Table A6. Distribution of Ratings for RN Staffing, by State, January 2009 and December 2011

	Ratings for RN Staffing											
	January 2009						December 2011					
		Percent of Nursing Homes						Percent of Nursing Homes				
	Total #	★	★★	★★★	★★★★	★★★★★	Total #	★	★★	★★★	★★★★	★★★★★
All States	14,713	23.7	24.2	24.1	16.1	12.0	15,091	13.3	19.8	27.0	22.9	16.9
Alabama	223	31.4	25.1	28.7	9.9	4.9	224	11.2	23.7	35.3	23.2	6.7
Alaska	12	0.0	0.0	0.0	0.0	100.0	13	0.0	0.0	0.0	0.0	100.0
Arizona	121	18.2	28.1	28.9	15.7	9.1	130	2.3	16.9	23.8	33.8	23.1
Arkansas	222	54.5	27.0	11.7	3.6	3.2	218	30.3	40.4	19.3	6.9	3.2
California	1,156	27.5	24.2	22.6	13.1	12.6	1,182	15.7	18.6	26.3	22.1	17.3
Colorado	199	5.0	12.1	21.6	40.2	21.1	203	0.5	4.9	18.2	37.9	38.4
Connecticut	232	3.0	9.1	25.9	35.3	26.7	237	1.3	7.6	24.9	38.0	28.3
Delaware	39	7.7	12.8	17.9	25.6	35.9	44	0.0	4.5	9.1	31.8	54.5
District of Columbia	18	16.7	22.2	5.6	27.8	27.8	19	21.1	26.3	5.3	21.1	26.3
Florida	647	27.5	33.5	24.4	11.0	3.6	666	15.6	29.6	32.4	16.5	5.9
Georgia	340	67.6	20.0	8.5	1.8	2.1	352	39.2	30.1	23.6	5.7	1.4
Hawaii	42	0.0	4.8	11.9	31.0	52.4	41	2.4	2.4	4.9	26.8	63.4
Idaho	68	4.4	11.8	29.4	39.7	14.7	75	1.3	6.7	22.7	38.7	30.7
Illinois	689	19.4	21.8	21.6	19.7	17.4	727	8.9	19.1	22.7	24.1	25.2
Indiana	456	31.8	29.4	21.5	11.2	6.1	490	8.2	21.8	33.9	23.5	12.7
Iowa	413	7.5	20.3	29.3	28.6	14.3	426	4.0	10.8	29.8	31.9	23.5
Kansas	306	13.1	20.9	28.4	22.5	15.0	325	3.7	13.5	28.9	28.9	24.9
Kentucky	270	22.6	27.8	26.7	11.1	11.9	273	9.5	25.6	33.7	19.8	11.4
Louisiana	270	75.2	13.3	5.9	1.1	4.4	267	54.3	31.1	8.2	4.1	2.2

	Ratings for RN Staffing											
	January 2009						December 2011					
	Total #	Percent of Nursing Homes					Total #	Percent of Nursing Homes				
		★	★★	★★★	★★★★	★★★★★		★	★★	★★★	★★★★	★★★★★
Maine	106	0.0	3.8	15.1	37.7	43.4	106	0.0	1.9	6.6	26.4	65.1
Maryland	223	22.0	25.1	28.7	10.3	13.9	227	3.5	18.1	32.6	28.2	17.6
Massachusetts	421	3.6	14.0	29.7	30.9	21.9	418	1.4	4.1	23.2	39.0	32.3
Michigan	403	12.9	26.1	31.8	17.6	11.7	420	6.2	16.2	29.8	30.0	17.9
Minnesota	357	7.0	27.2	35.0	23.0	7.8	373	1.3	10.2	29.0	36.7	22.8
Mississippi	187	17.1	29.9	30.5	12.8	9.6	198	14.1	23.2	29.3	23.2	10.1
Missouri	470	41.5	30.0	19.1	5.7	3.6	495	20.8	28.3	31.9	13.5	5.5
Montana	85	5.9	7.1	15.3	23.5	48.2	80	0.0	3.8	16.3	35.0	45.0
Nebraska	211	9.0	20.4	28.4	23.2	19.0	212	2.8	9.9	31.6	32.5	23.1
Nevada	47	10.6	17.0	31.9	19.1	21.3	46	0.0	6.5	34.8	39.1	19.6
New Hampshire	76	1.3	10.5	15.8	39.5	32.9	76	0.0	1.3	21.1	42.1	35.5
New Jersey	350	10.9	20.6	29.1	22.3	17.1	357	6.2	11.5	26.1	32.5	23.8
New Mexico	62	24.2	17.7	30.6	14.5	12.9	68	10.3	20.6	20.6	27.9	20.6
New York	635	16.1	24.1	29.4	19.1	11.3	623	11.9	25.8	36.0	17.5	8.8
North Carolina	384	21.6	31.8	24.7	13.5	8.3	402	15.2	22.6	29.6	21.1	11.4
North Dakota	82	2.4	8.5	26.8	36.6	25.6	84	1.2	8.3	13.1	41.7	35.7
Ohio	913	19.1	33.6	31.2	9.6	6.5	941	9.1	24.2	38.6	18.6	9.5
Oklahoma	296	45.3	26.7	17.9	6.4	3.7	299	34.8	31.4	19.1	10.4	4.3
Oregon	136	4.4	14.7	31.6	29.4	19.9	132	2.3	6.8	24.2	36.4	30.3
Pennsylvania	690	12.5	24.5	29.7	19.1	14.2	703	7.0	18.6	32.7	24.0	17.6

	Ratings for RN Staffing											
	January 2009						December 2011					
	Total #	Percent of Nursing Homes					Total #	Percent of Nursing Homes				
		★	★★	★★★	★★★★	★★★★★		★	★★	★★★	★★★★	★★★★★
Rhode Island	81	1.2	8.6	25.9	29.6	34.6	85	1.2	1.2	20.0	35.3	42.4
South Carolina	168	31.5	31.0	19.0	8.9	9.5	177	7.9	16.9	33.9	28.8	12.4
South Dakota	108	1.9	6.5	26.9	38.9	25.9	107	0.9	2.8	10.3	42.1	43.9
Tennessee	298	43.6	28.9	17.4	6.0	4.0	304	15.8	27.3	34.5	14.1	8.2
Texas	1,044	48.0	32.9	12.5	4.0	2.6	1,118	41.1	32.0	17.4	6.4	3.2
Utah	84	6.0	19.0	33.3	22.6	19.0	93	0.0	6.5	12.9	36.6	44.1
Vermont	38	13.2	13.2	23.7	31.6	18.4	40	0.0	5.0	20.0	47.5	27.5
Virginia	264	39.8	26.1	18.9	6.1	9.1	279	15.4	27.6	30.8	14.3	11.8
Washington	229	6.6	15.3	29.7	24.5	24.0	224	4.0	4.9	24.6	29.0	37.5
West Virginia	124	22.6	29.0	25.0	11.3	12.1	75	5.3	28.0	25.3	25.3	16.0
Wisconsin	379	4.0	14.2	33.0	31.1	17.7	379	1.3	5.5	20.8	42.2	30.1
Wyoming	39	7.7	5.1	10.3	30.8	46.2	38	0.0	0.0	7.9	18.4	73.7