Methodology Report

U.S. News & World Report 2022-23 Best Nursing Homes Ratings

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Introduction

U.S. News & World Report's Nursing Home Finder is a decision-support tool created to help consumers who are seeking a nursing home for themselves or a family member in need of either Short-Term Rehabilitation or Long-Term Care. The Best Nursing Homes Ratings reflect U.S. News' analysis of data collected and published by the federal government using a methodology defined by U.S. News; nursing homes' U.S. News ratings and federal ratings will differ because the U.S. News methodology and federal methodology differ. U.S. News updates ratings on an annual basis. Current ratings were generated predominantly based on data publicly available as of August 2022. The Nursing Home Finder is not a substitute for medical advice, and consumers should consult their medical professional when looking for Short-Term Rehabilitation or Long-Term Care. While some COVID-19 data is provided on U.S. News nursing home profile pages, Nursing Home Finder is not intended to capture the risk of acquiring COVID-19 in any given nursing home.

As a decision-support tool, the Nursing Home Finder has wide potential relevance. On any given day, over 15,000 nursing homes in the U.S. care for approximately 1.1 million people[1,2], most of them elderly. One of every ten Americans over the age of 85 is a nursing-home resident, and nearly one-third of older Americans spend time in a nursing home in their final months of life[3].

Generally, services offered at nursing homes fall into two categories: 1. Short-Term Rehabilitation or post-acute care, often involving physical therapy, following a hospitalization for surgery, heart attack, stroke, injury or other conditions; and 2. Long-Term Care for residents who are no longer able to live independently and need medical supervision. The Short-Term Rehabilitation rating evaluates nursing homes on the quality of care they provide to residents requiring rehabilitation care during short-term post-acute stays. The Long-Term Care rating was developed to evaluate a nursing home's performance in providing services to residents in need of daily assistance with medical and nonmedical needs. The Overall rating reflects a nursing home's care for all of its residents.

Selecting a nursing home for one's self or a loved one should involve an in-depth site visit, preferably more than one at different times and on different days. While ratings cannot substitute for this, there are many homes to choose from, especially in metropolitan areas, and credible ratings can help consumers winnow down the options to a more manageable starting point. As with other

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[1] Calculated from the July 2022 CMS Provider Info file.
[2] Malito, A. 2021. Nursing home occupancy dropped significantly in the wake of COVID-19. https://www.marketwatch.com/story/nursing-home-occupancy-dropped-significantly-in-the-wake-of-covid-19-11633551854
[3] Aragon, K., Covinsky, K., Miao, Y., et al. 2012. JAMA Internal Medicine. Use of the Medicare Posthospitalization Skilled Nursing Benefit in the Last 6 Months of Life. 172(20):1573-1579.

industries, multiple organizations rate nursing homes using different criteria and weighting to assess quality, so consumers may want to consult multiple sources when making a nursing care decision.

Background on U.S. News Ratings

U.S. News began publishing online ratings of nursing homes in 2009. Initially, the tool reflected a snapshot of the star ratings posted on Nursing Home Care Compare, the consumer website administered by the federal Centers for Medicare & Medicaid Services, or CMS. CMS assigns an Overall rating of one to five stars to nursing homes according to their performance in three areas or domains: state-conducted health inspections, nurse staffing, and medical quality measures. Homes also receive a CMS star rating in each domain.

In the 2018-19 ratings, U.S. News introduced the Short-Term Rehabilitation rating, the first composite quality score designed for use by post-acute care residents in need of skilled nursing care.

In the 2019-20 ratings, U.S. News introduced the Long-Term Care rating, evaluating a nursing home's ability to care for residents who need ongoing, daily assistance with both health-related care and non-skilled personal care, such as dressing, eating, and using the bathroom.

The current U.S. News methodology no longer incorporates any CMS-issued, domain-specific ratings, or the Overall rating from the CMS five-star quality rating system. Beginning in 2019, the U.S. News methodology deviated from the CMS star rating system to build its new Overall rating based on Short- and Long-Term ratings, using underlying CMS Nursing Home Compare data sets, rather than CMS-generated ratings, as the foundation. Furthermore, some measures used in the U.S. News analysis for both Short-Term Rehabilitation and Long-Term Care ratings are not used in the CMS approach. As such, homes with five stars in the CMS short- or long-term quality domains do not necessarily receive a High Performing rating in the corresponding U.S. News rating.

U.S. News is committed to transparency and therefore publishes detailed descriptions of the methodologies used to rate Nursing Homes. Questions and constructive suggestions can be submitted to seniorcare@usnews.com.

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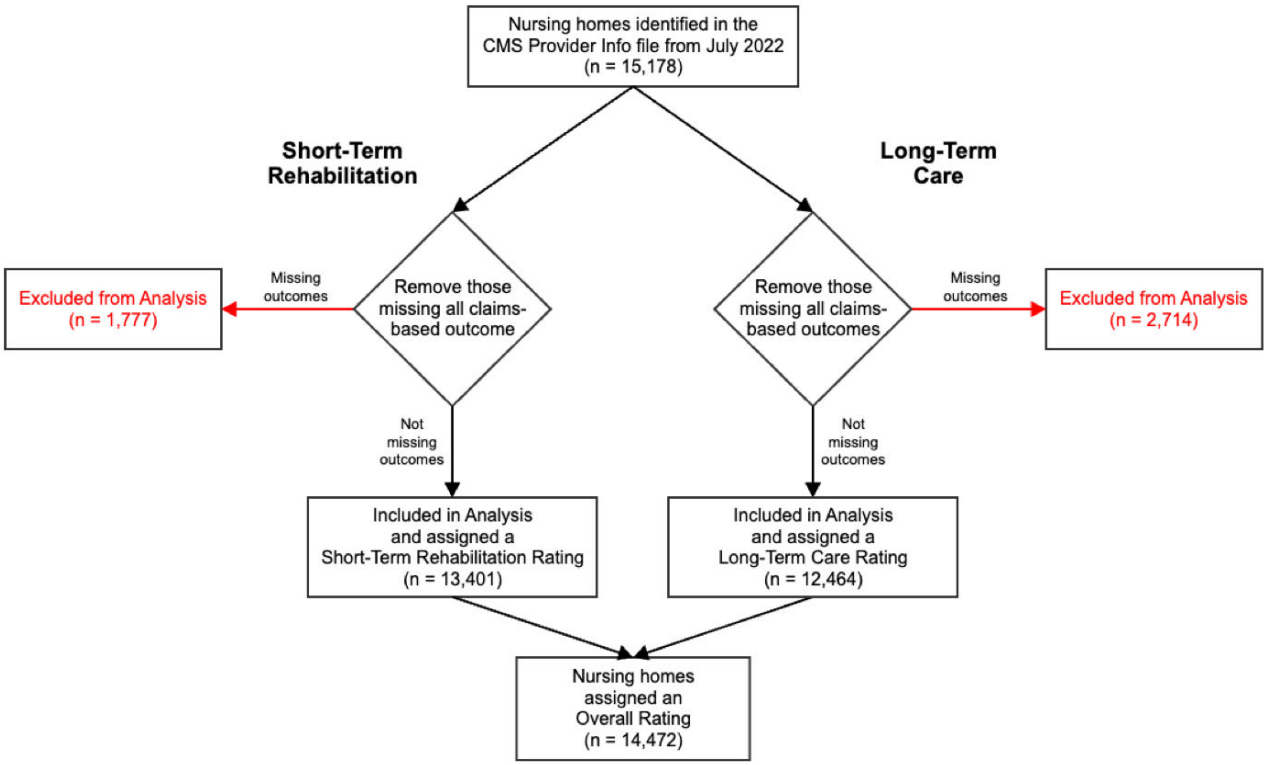
Eligibility Requirements

Eligible nursing homes are first identified from the July 2022 CMS Provider Info file, which became publicly available in August 2022. Homes with data for at least one claims-based outcome in the model receive a Short-Term Rehabilitation rating in 1 of 3 performance bands. Homes with data for at least one claims-based outcome in the model receive a Long-Term Care rating in 1 of 3 performance bands. Nursing homes that receive either a Short-Term Rehabilitation rating or a Long-Term Care rating also receive a U.S. News Overall rating in 1 of 5 performance bands. **Figure 1** outlines the eligibility criteria for each rating.

All rated homes accept residents covered by Medicare, Medicaid or both. CMS-certified homes excluded from the analysis are still displayed with descriptive information about the location and basic characteristics in the Nursing Home Finder (www.usnews.com/nursinghomes), but without ratings (see Appendix B for more details). Nursing homes absent from the July 2022 CMS Provider Info file are not displayed on Nursing Home Finder, even if their CMS data were included in a prior or subsequent month.

In all, 13,401 nursing homes receive a Short-Term rating, 12,464 homes receive a Long-Term rating, and 14,472 homes receive an Overall rating in the 2022-23 Best Nursing Homes Ratings. Among the 15,178 nursing homes evaluated, 11,393 homes (more than 75% of evaluated homes) receive both a Short-Term and a Long-Term rating.

Figure 1. Eligibility for U.S. News Ratings



Methods

Data Sources

Data for both the Short- and Long-Term ratings are primarily obtained from Care Compare, the CMS public reporting site[4]. This includes information on outcome and quality measures, health inspections, nurse staffing hours, and other structural measures for each nursing home. Additional staffing measures are constructed using data from the Payroll-Based Journal (PBJ). The 2019 Post-Acute Care and Hospice Provider Public Use File (PUF) is used to obtain information on utilization of services provided to Medicare beneficiaries in nursing homes for the short-term rating. Additional outcome and quality measures for the short-term rating are also obtained from the Skilled Nursing Facility Quality Reporting Program (QRP).

Data from CMS' COVID-19 Nursing Homes Data program provides information on the proportion of staff and residents partially or fully vaccinated against COVID-19.

Data from Long Term Care Community Coalition (LTCCC) provide quarterly information about use of antipsychotic drugs in both the Short- and Long-Term ratings (US Nursing Home Antipsychotic Drugging Rates). LTCCC obtained these data via Freedom of Information Act requests of CMS. Use of antipsychotic drugs provides information about the percentage of nursing home residents given antipsychotic drugs, which for high levels of use can indicate inappropriate use for behavior control rather than for medical treatment.[5]

Data from LTCFocus provide information on whether homes are equipped with an Alzheimer's disease specialty care unit. LTCFocus is sponsored by the National Institute on Aging (1P01AG027296) through a cooperative agreement with the Brown University School of Public Health.[6]

Theoretical Framework

Quality of care has no ready definition or definitive metric, and there is no consensus on the best way to measure it, particularly in the nursing home setting. Some aspects of healthcare quality are readily quantified, while others are more challenging to measure. The Best Nursing Homes ratings, like the Best Hospitals: Procedures & Conditions ratings[7], use the Donabedian paradigm,

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[4] Archived data provided by CMS at https://data.medicare.gov/data/archives/nursing-home-compare

[5] Thomas, K., et al. (2021, September 11). Phony Diagnoses Hide High Rates of Drugging at Nursing Homes. The New York Times. https://www.nytimes.com/2021/09/11/health/nursing-homes-schizophrenia-antipsychotics.html

[6] Data reflect reporting as of July 31, 2022. LTCFocus Public Use Data sponsored by the National Institute on Aging (P01 AG027296) through a cooperative agreement with the Brown University School of Public Health. Available at www.ltcfocus.org. https://doi.org/10.26300/h9a2-2c26

[7] Adams, Z., et al. 2022. Methodology: U.S. News & World Report 2022-23 Best Hospitals Procedures & Conditions Ratings. https://health.usnews.com/media/best-hospitals/BHPC-Methodology-2022-2023

which reflects a relationship between structure, process and outcomes, to determine a composite measure of quality of care. Avedis Donabedian described[8] this now-widely accepted paradigm in 1966, which has been applied to healthcare as follows:

- *Structure* refers to resources connected with resident care, such as the staffing level or consistency of nurses, or ownership status of the home.
- *Process* refers to the way in which diagnoses, treatments, practices to avoid harm to residents and other care are rendered, for example, whether steps known to be effective in preventing infections and medical errors or improving resident health are built into nursing home routines.
- *Outcomes* refers to the results of care, such as whether a resident experiences a hospitalization or an emergency department visit, or whether a short-term resident ultimately returns home following the nursing home stay.

An important goal of this methodology is to give residents a clear bottom line. Notwithstanding the complexity and nuance of measurement and the usefulness of particular types of information, residents deserve an overall conclusion: How well does a nursing home perform compared to other nursing homes in Short-Term Rehabilitation or Long-Term Care? The ratings aggregate the measures into an overall assessment in each type of care by placing homes into one of three composite bands: High Performing, Average, or Below Average.

Structural Measures

Considerable evidence has shown that nurse staffing levels in nursing homes are associated with successful resident outcomes, therefore making it one of the most important structural measures for evaluating nursing home care[9]. Well-staffed homes help to provide safe environments with necessary nutrition, appropriate administration of medication, support for various activities of daily living, and a low frequency of accidents or injuries.

Staffing measures used in both Short- and Long-Term rating calculations are based on data collected through the Payroll-Based Journal. The advantage of the PBJ is that it is auditable, increasing the accuracy of the available staffing numbers at each home (notwithstanding rare reported implementation problems[10]) and reflects average staffing over an entire quarter. Data on the average number of registered nurses, licensed practical nurses, licensed vocational nurses and

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[8] Donabedian, A. 1966. Milbank Memorial Fund Quarterly. Evaluating the Quality of Medical Care. 44(3), Part 2, 166-206. doi: 10.2307/3348969. https://www.jstor.org/stable/3348969?seq=1

[9] Clarke SP, Donaldson NE. Nurse Staffing and Patient Care Quality and Safety. In: Hughes RG, editor. Patient Safety and Quality: An Evidence-Based Handbook for Nurses. Rockville (MD): Agency for Healthcare Research and Quality (US); 2008 Apr. Chapter 25. Available at: https://www.ncbi.nlm.nih.gov/books/NBK2676

[10] Clyne, J.W., and Sloan, K.S. 2018. LeadingAge New York. Letter to Seema Verma RE: Nursing Home Staffing Ratings. Accessed: 2020-09-05.

certified nurse assistants are available through this system. The daily resident population for each nursing home is calculated by CMS using the Minimum Data Set 3.0 (MDS), an assessment reported by all nursing homes in the U.S. with beds certified by the federal government. CMS compares the total staffing hours to the average number of residents during the same period to determine the daily minutes of nursing time per resident. These measures may be case-mix adjusted based on the distribution of residents by Resource Utilization Group.

The following measures, grouped by Donabedian category, are used in the ratings (for more information on each measure, see **Appendix A**):

- **Nurse staffing** (used in analysis of Short-Term Rehabilitation)
- **Physical therapist staffing** (used in analysis of Short-Term Rehabilitation)
- **Registered nurse staffing consistency** (used in analysis of both stay types)
- **Changed ownership** (used in analysis of Long-Term Care)
- **Ratio of weekend to weekday staffing** (used in analysis of Long-Term care)

Process Measures

The following process measures are used in the ratings. For more information on each measure, see **Appendix A**:

- **Rate of substantiated complaints** (used in analysis of Short-Term Rehabilitation)
- **Resident-centered rehabilitation therapy** (used in analysis of Short-Term Rehabilitation)
- **Use of antipsychotic drugs** (used in analysis of both stay types)
- **Ability to self care** (used in analysis of Long-Term Care)
- **Flu vaccination** (used in analysis of Long-Term Care)

Outcome Measures

With the exception of falls with major injury, outcome measures are derived from administrative claims data and either risk-adjusted or risk-stratified by CMS. For more information on each measure, see **Appendix A**:

- **Residents able to return home** (used in analysis of Short-Term Rehabilitation)
- **Falls with major injury** (used in analysis of Short-Term Rehabilitation)
- **Hospitalized infections** (used in analysis of Short-Term Rehabilitation)
- **Emergency-room visits** (used in analysis of both stay types)
- **Hospitalizations** (used in analysis of both stay types)

Construction of Composite Ratings

There are two major issues in constructing a composite rating of quality of a nursing home: determining how much weight each indicator should receive and accounting for measurement error. Some approaches, such as averaging a set of indicators with equal weight on each, do not address measurement error. More sophisticated statistical procedures can determine empirically how much weight each indicator should be assigned. They can also account for the degree to which an indicator is measured inaccurately due to incomplete risk-adjustment, random variation due to low sample size, and other factors.

We rely on a statistical method known as confirmatory factor analysis, which assigns empirical weights to the indicators. This approach has been previously used to evaluate provider quality of care.[11] Confirmatory factor analysis is based on the statistical principle that variables sharing a common cause will be correlated. Here, we hypothesize that the various candidate indicators for a given nursing home care type are caused by an underlying, or latent, variable that represents quality of care rendered by a nursing home. Thus, for each indicator, the model can estimate the extent to which the values are the result of a relationship with quality of care. The remaining variance in the indicator is attributed to measurement error. The degree to which an indicator is correlated with other indicators helps to determine its weight in the equation for the composite scores.

We develop models by evaluating model statistics for all possible combinations of a field of structure, process, and outcome indicators. From the resulting list of candidate models exhibiting acceptable fit statistics, we select final models offering an optimal combination of number of indicators (models with more indicators produce more accurate factor scores), number of outcomes, model fit, and consistency with models in the other type of care.

We evaluate our confirmatory factor analysis models using three measures: the comparative fit index (CFI), the Tucker-Lewis index (TLI), and the root mean square error of approximation (RMSEA). The literature provides a variety of standards for acceptable model fit using these statistics. We seek final models with a CFI and TLI of .9 or greater, and RMSEA of .1 or lower, while also considering our theoretical understanding of the factors that are most relevant for quality of care. Most models display fit characteristics better than the cutoff value.

We estimate model fit statistics with the robust weighted least squares multivariate (WLSMV) estimator after imputing missing data with relevant nursing home-level characteristics. We do not assign quality scores based on imputed data. To avoid using this imputed data for that purpose, we estimate factor scores separately with the robust maximum likelihood (MLR) model using a full information maximum likelihood with an empirical Bayes (FIML) estimator. This latter model is

[11] e.g. Keller, S., A. J. O'Malley, R. D. Hays, R. A. Matthew, A. M. Zaslavsky, K. A. Hepner, and P. D. Cleary. "Methods Used to Streamline the CAHPS Hospital Survey." *Health Serv Res* 40, no. 6 Pt 2 (Dec 2005): 2057-77.

appropriate for use with missing data, but does not provide the fit statistics necessary to guide model development when categorical indicators are included. Fit statistics can change depending on the estimator used, so there is no assurance that fit estimated with WLSMV is the same as fit that would be estimated with MLR. However, we find key model results, including factor loadings, fit statistics, and factor scores, to be robust across these two estimators.[12]

We assign each rated nursing home in each care type to one of three bands: below average, average, or high performing. We infer that a home is below average or high performing at the 75% confidence level. Health researchers more commonly use a 95% confidence level, an approach that is geared toward minimizing the number of false positive results (in this context, incorrectly identifying an average home as better or worse than the mean). However, because false negatives (identifying poor-performing homes as average) can have serious consequences for residents, we seek to strike a balance between minimizing false positive and false negative results.

The final models' fit statistics are shown in **Table 1** and the indicators and factor loadings are shown in **Tables 2 and 3** below.

Table 1: Confirmatory factor analysis fit statistics by care type

	CFI	TLI	RMSEA
Short-term rehabilitation	0.911	0.889	0.050
Long-term care	0.999	0.998	0.003

Indicators and Correlations With Scores

The following tables list the indicators included in each composite model. The quality score correlation, or standardized factor loading, indicates the relative strength of the relationship between a given indicator and nursing homes' quality scores. The quality score correlation is determined by the statistical model; it is not a weight and is not applied as a factor of a summative formula. The greater the value of the correlation, the stronger the relationship to the quality score. In our modeling, all indicators are oriented so that higher values reflect better quality of care. It may be noted that some outcome measures are relatively weakly correlated with quality scores. That is to be expected if the outcomes are rare, or if there is less measure variation from one home to another.

[12] When all indicators are continuous measures, the CFA with a MLR estimator yields fit statistics. Hence, for cohorts that incorporate indicators that are all continuous measures, their factor scores, fit statistics, and factor loadings are all generated using a MLR estimator.

Table 2: Indicator Correlations, Short-term rehabilitation

	Quality Correlation
Rehospitalizations	0.103
Emergency room visits	0.133
Residents able to return home	0.628
Falls with major injury	0.144
Hospitalized infections	0.404
Total nursing staffing	0.523
Physical therapist staffing	0.526
Registered nurse staffing consistency	0.169
Resident-centered rehabilitation therapy	0.216
Use of antipsychotic drugs	0.530
Rate of substantiated complaints	0.276

Table 3: Indicator Correlations, Long-term care

	Quality Correlation
Hospitalizations	0.450
Emergency room visits	0.672
Ability to self-care	0.185
Flu vaccination	0.121
Registered nurse staffing consistency	0.232
Ratio of weekend to weekday staffing	0.120
Use of antipsychotic drugs	0.171
Changed ownership	0.259

Overall Composite Rating

Each nursing home rated in Short-Term Rehabilitation, Long-Term Care, or both, receives a U.S. News Overall rating. Each home's Overall rating is based on the average of the home's Long-Term and Short-Term ratings, where High Performing receives a value of 5, Average receives a value of 3, and Below Average receives a value of 1. If a home is only eligible for one of the two component ratings, the overall score reflects just that rating. For example:

- If a home is rated "High Performing" in Short-Term Rehabilitation and "High Performing" in Long-Term Care, it is rated 5 out of 5 overall.
- If a home is rated "Average" in Short-Term Rehabilitation and does not have a Long-Term Care rating, it is rated 3 out of 5 overall.
- If a home is rated "Average" in Short-Term Rehabilitation and "Below Average" in Long-Term Care, it is rated 2 out of 5 overall.

Rating Concordance

The U.S. News Best Nursing Homes Ratings draw from some of the same data, but are derived from a different methodology than the CMS Five-Star Quality Rating System; therefore the ratings assigned may differ. The following table shows the rating concordance between the U.S. News 2022-23 Overall Rating and the July 2022 CMS Five-Star Quality Rating. Nursing homes that received a rating from both appear in **Table 4** below. 28% of homes received the same rating from CMS and U.S. News, 34% received a higher rating from CMS, and 38% received a higher rating from U.S. News. U.S. News rated far fewer homes above average than CMS: 16% versus 37%, respectively.

Table 4: U.S. News - CMS Rating Concordance, Overall Rating

		U.S. News rating					
		1	**2**	**3**	**4**	**5**	**Total**
CMS rating	**1**	491	1,046	1,581	42	15	3,175
	2	206	614	1,941	163	65	2,989
	3	123	389	1,935	277	95	2,819
	4	87	260	1,656	346	210	2,559
	5	25	126	1,474	545	608	2,778
	Total	932	2,435	8,587	1,373	993	14,320

Recognition of U.S. News Best Nursing Homes

To be recognized as one of the 2022-23 U.S. News Best Nursing Homes, a home must be "High Performing" in Short-Term Rehabilitation, Long-Term Care, or both. 2,426 (16%) meet these criteria out of the 15,178 nursing homes evaluated by U.S. News, of which 1,658 homes are High Performing in Short-Term Rehabilitation, 1,103 homes are High Performing in Long-Term Care, and 335 are High Performing in both. The concordance between ratings of the two different nursing home stay types appears in **Table 5** below.

Table 5: Short-Term Rehabilitation - Long-Term Care Rating Concordance

		Short-term rehabilitation rating				
		Below average	**Average**	**High performing**	**Not rated**	**Total**
Long-term care rating	**Below average**	559	932	15	223	1,729
	Average	1538	6,609	736	749	9,632
	High performing	29	640	335	99	1,103
	Not rated	162	1,274	572	706	2,714
	Total	2,288	9,455	1,658	1,777	15,178

Restrictions on High Performing Ratings

We implement additional restrictions on nursing homes earning a High Performing rating (and thus being considered eligible to be labeled a "Best Nursing Home"). The restrictions, and a count of how many homes were affected by each, appear in **Table 6** below. Some restrictions are specific to either Short-Term Rehabilitation or Long-Term Care. The sum of each of the individual cells exceeds the total at the bottom because some homes are restricted for multiple reasons.

Table 6: Restrictions on High Performing Ratings

Reason for restriction from high performing	Number of short-term rehabilitation ratings restricted	Number of long-term care ratings restricted
Home had a COVID-19 staff vaccination rate of less than 75%, had unreported COVID-19 data, or had COVID-19 data that did not pass CMS quality assurance checks. (CMS COVID-19 data dated July 31, 2022)	306	224
Home received a CMS Abuse Icon during the prior year. (CMS August 2021 - July 2022)	102	89
Home was designated Special Focus or Special Focus Candidate during the prior year. (CMS August 2021 - July 2022)	30	34
Home had an unadjusted antipsychotic drugging rate of more than 25%. (LTCCC 2020 Q3 - 2021 Q2)	22	140
Home had a discharge to community rate of less than 25%. (CMS July 2022 QRP)	0	N/A
Home had a hospitalized infections rate of more than 25%. (CMS July 2022 QRP)	0	N/A
Home had an emergency department visit rate of more than 25%. (CMS July 2022 MDS Claims)	11	N/A
Home had a rehospitalization rate of more than 30%. (CMS July 2022 MDS Claims)	135	N/A
Home had more than 2 emergency department visits per 1000 resident days. (CMS July 2022 MDS Claims)	N/A	0
Home had more than 3 hospitalizations per 1000 resident days. (CMS July 2022 MDS Claims)	N/A	0
Total	540	418

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Appendix A: Source, time period and description for measures used in the ratings

Short-Term Rehabilitation Measures

Indicator	Source File	Time Period	Description
Nurse staffing	CMS Provider Info	April 1, 2021 to March 31, 2022	Availability of registered nursing staff per resident per day, adjusted for case mix.
Physical therapist staffing	CMS Provider Info	April 1, 2021 to March 31, 2022	Availability of physical rehabilitation therapists per resident per day.
Emergency room visits	CMS Claims Quality Measures	January 1, 2021 to December 31, 2021	Percentage of short-term rehabilitation residents who visited an outpatient emergency department during their stay.
Rehospitalizations	CMS Claims Quality Measures	January 1, 2021 to December 31, 2021	Percentage of short-term rehabilitation residents who were rehospitalized after a nursing home admission.
Use of antipsychotic drugs	Long Term Care Community Coalition (LTCCC)	July 1, 2020 to June 30, 2021	Percentage of residents who were given antipsychotic drugs.
Residents able to return home	CMS SNF Quality Reporting Program	July 1, 2019 to December 31, 2019; July 1, 2020 to June 31, 2021	Percentage of short-term rehabilitation residents who were discharged from the nursing home to their own home or residence.
Falls with major injury	CMS SNF Quality Reporting Program	October 1, 2020 to September 30, 2021	Percentage of short-term rehabilitation residents who experienced falls resulting in a major injury, such as bone fracture or dislocation.
Hospitalized infections	CMS SNF Quality Reporting Program	October 1, 2018 to September 30, 2019	Percentage of infections that short-term rehabilitation residents got during their stay that resulted in hospitalization
Resident-centered rehabilitation therapy	CMS SNF PUF Therapy Minutes	January 1, 2019 to September 30, 2019	Percentage of short-term rehabilitation residents who received more than the minimum amount of therapy indicated for their condition.
Registered nurse staffing consistency	CMS Payroll-Based Journal	April 1, 2021 to March 31, 2022	Percentage of days where federal standards for registered nurse staffing hours were met (>= 8 hours per home per day).
Rate of substantiated complaints	CMS Provider Info	July 1, 2019 to June 30, 2022	Indicates whether a home had a level of substantiated complaints in the bottom 75% (low or average).

Long-Term Care Measures

Indicator	Source File	Time Period	Description
Weekend staffing	CMS Payroll-Based Journal	April 1, 2021 to March 31, 2022	Ratio of staffing on weekends compared to weekdays.
Registered nurse staffing consistency	CMS Payroll-Based Journal	April 1, 2021 to March 31, 2022	Percentage of days where federal standards for registered nurse staffing hours were met (>= 8 hours per home per day).
Use of antipsychotic drugs	Long Term Care Community Coalition (LTCCC)	July 1, 2020 to June 30, 2021	Percentage of residents who were given antipsychotic drugs.
Emergency room visits	CMS Claims Quality Measures	January 1, 2021 to December 31, 2021	Number of outpatient emergency department visits per thousand long-term care resident days.
Hospitalizations	CMS Claims Quality Measures	January 1, 2021 to December 31, 2021	Number of hospitalizations per thousand long-term care resident days.
Ability to self-care	CMS MDS Quality Measures	April 1, 2021 to March 31, 2022	Percentage of long-term care residents whose need for help with daily activities has not increased.
Flu vaccination	CMS MDS Quality Measures	April 1, 2021 to March 31, 2022	Percentage of long-term care residents who needed and got a flu shot for the current flu season.
Changed ownership	CMS Provider Info	July 1, 2021 to June 30, 2022	Indicates whether the home changed or maintained ownership within the most recent year.

Appendix B: Supplemental data displayed on usnews.com

Provider information:

- Contact information (including phone number, street address, city, state, and zip code)
- Ownership type
- Continuing Care Retirement Community integration
- Alzheimer's disease specialty care unit [6]
- Special Focus Facility (SFF) & Special Focus Candidate Facility (SFF candidate) status
- Percentage of residents partially or fully vaccinated against COVID-19 [13]
- Percentage of staff partially or fully vaccinated against COVID-19[13]

Inspection-based penalty and deficiency information:

- Number and total cost of CMS-issued penalties
- Number of health deficiencies found by state inspectors on the two most recent inspection cycles
- Number of fire safety and emergency preparedness deficiencies found by state inspectors on the two most recent inspection cycles

[13] Data reflect reporting as of July 31, 2022, with the exception of 9 homes, whose most recent available data ranged back as early as October 10, 2021. Available at https://data.cms.gov/covid-19/covid-19-nursing-home-data.

Appendix C: Exclusion criteria for payroll-based journal

The consistent nurse staffing measure uses data from the following four PBJ calendar year quarterly files: Q2 CY2021, Q3 CY2021, Q4 CY2021 and Q1 CY2022. Each row in the data set represents one day at one home (so a quarter with 92 days will have 92 rows for each of more than 15,000 homes).

Any days (per home) where the recorded resident census was 0 were excluded from measure calculation.

Consistent with CMS analytic policy for excluding aberrant staffing data[14], any quarters (per home) that were considered extreme outliers were excluded from measure calculation. This includes any of the following conditions (though a home with one or more excluded quarters may still have reliable data in others):

- The quarter reflected more than 5.25 recorded average nurse aide (job categories 10-12) hours per resident day
- The quarter reflected more than 12 recorded average total nursing (job categories 5-12) hours per resident day
- The quarter reflected fewer than 1.5 recorded average total nursing (job categories 5-12) hours per resident day

[14] Exclusion criteria derived from CMS Design for Care Compare Nursing Home Five-Star Quality Rating System: Technical Users' Guide. January 2021. https://web.archive.org/web/20210125174815/https://www.cms.gov/medicare/provider-enrollment-and-certification/certificationandcomplianc/downloads/usersguide.pdf